

# Water Resources Data Wisconsin Water Year 1991



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WI-91-1  
Prepared in cooperation with the State of Wisconsin  
and with other agencies

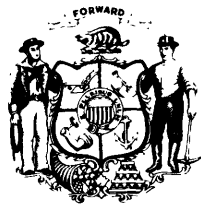
# CALENDAR FOR WATER YEAR 1991

1990

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

1991

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



# Water Resources Data Wisconsin Water Year 1991

by B.K. Holmstrom, P.A. Kammerer, Jr., and R.M. Erickson



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

U. S. DEPARTMENT OF THE INTERIOR  
MANUEL LUJAN, JR., Secretary

U. S. GEOLOGICAL SURVEY  
DALLAS L. PECK, Director

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Dane County Regional Planning Commission  
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City of Middleton  
City of Beaver Dam  
City of Galena, Ill.  
City of Thorp  
Madison Metropolitan Sewerage District  
Milwaukee Metropolitan Sewerage District  
Green Bay Metropolitan Sewerage District  
City of Hillsboro  
Illinois Department of Transportation  
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City of Peshtigo  
Rock County Public Works Department  
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Menominee Indian Tribe of Wisconsin  
Lac Courte Oreilles Governing Board  
Oneida Indian Tribe of Wisconsin  
Town of Delavan  
Green Lake Sanitary District  
City of Fond du Lac  
Little Muskego Lake District  
Brown County Planning Commission  
Lac du Flambeau Band of Lake Superior Chippewa  
Waukesha Water Utility  
Stockbridge/Munsee Indian Tribe  
Dane County Lakes and Watershed Commission  
Whitewater-Rice Lakes Management District

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Madison, Wisconsin 53719



## PREFACE

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

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

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James W. George, Merrill, northeast  
Josef Habale, Madison, southwest

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FOR WHICH RECORDS ARE PUBLISHED

VII

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(d) discharge, (g) gage height, (m) microbiological, (pr)  
precipitation, (r) radiochemical, (s) sediment, (t) water  
temperature]

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The following continuous-record surface-water discharge stations in Wisconsin have been discontinued. Daily stream-flow 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.

## Discontinued surface-water discharge stations

Station name	Station number	Drainage area (sq mi)	Period of record
STREAMS TRIBUTARY TO LAKE SUPERIOR			
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
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
Pine River below Pine River Powerplant near Florence, WI	04064500	533	1924-76
Pike River at Amberg, WI	04066500	255	1914-70
Menominee River near McAllister, WI	04067500	3,930	1945-61, 1979-86, 1988-90
Peshtigo River at High Falls near Crivitz, WI	04068000	537	1912-57
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	1964-75
White Creek at Forest Glen Beach near Green Lake, WI	04073462	3.05	1982-88
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
Embarrass River near Embarrass, WI	04078500	384	1919-85
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
Emmons Creek near Rural, WI	04080950	25.1	1977
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
Brothertown Creek at Brothertown, WI	04084200	5.10	1976-77
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 Fillmore, WI	04086340	148	1968-81
Milwaukee River at Waubeka, WI	04086360	432	1968-81
Mud Lake Outlet near Decker Corner, WI	04086488	7.36	1983-84
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



Station name	Station number	Drainage area (sq mi)	Period of record
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
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, 1989-90
Eau Galle River near Woodville, WI	05369900	39.4	1978-83
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
TREMPEALEAU RIVER BASIN			
Bruce Valley Creek near Pleasantville, WI	05379288	10.1	1980
Elk Creek near Independence, WI	05379305	108	1980
Trempealeau River at Arcadia, WI	05379400	553	1960-77
Trempealeau River near Trempealeau, WI	05380000	719	1932-34
BLACK RIVER BASIN			
Black River at Medford, WI	05380806	48.1	1984-87
Poplar River near Owen, WI	05380900*	155	1964-66
LA CROSSE RIVER BASIN			
Little LaCrosse River near Leon, WI	05382500	76.9	1934-61, 1979-81
LaCrosse River near West Salem, WI	05383000	396	1914-70
COON CREEK BASIN			
Spring Coulee Creek near Coon Valley, WI	05386490	9.01	1979-81
Coon Creek at Coon Valley, WI	05386500	77.2	1934-40, 1978-81
Coon Creek near Stoddard, WI	05386999	120	1934-40, 1979-81
BAD AXE RIVER BASIN			
North Fork Bad Axe River near Genoa, WI	05387100*	80.8	1964-66
WISCONSIN RIVER BASIN			
Wisconsin River at Conover, WI	05390180	177	1967-71
Pelican River near Rhinelander, WI	05391226	101	1976-79
Wisconsin River at Whirlpool Rapids, near Rhinelander, WI	05392000	1,220	1906-61
Bearskin Creek near Harshaw, WI	05392350*	31.1	1964-66
Tomahawk River near Bradley, WI	05392400	422	1915-27, 1929
Tomahawk River at Bradley, WI	05393000	544	1930-73
New Wood River near Merrill, WI	05394000	82.2	1953-61

Station name	Station number	Drainage area (sq mi)	Period of record
WISCONSIN RIVER BASIN--CONTINUED			
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
Eau Claire River near Antigo, WI	05397110	185	1975-81
Bull Junior Creek (Bull Creek Junior) near 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	05400840	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
Hulbert Creek near Wisconsin Dells, WI	05403630*	11.2	1971-77
Dell Creek near Lake Delton, WI	05403700*	44.9	1957-1965, 1971-80
Narrows Creek at Loganville, WI	05404200*	40.1	1964-66
Wisconsin River at Prairie du Sac, WI	05406000	9,180	1946-54
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
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
APPLE RIVER BASIN			
Apple River near Shullsburg, WI	05418731	9.34	1981-82
ROCK RIVER BASIN			
West Branch Rock River near Waupun, WI	05423000	40.7	1949-70, 1978-81
West Branch Rock River at County Trunk Highway D near Waupun, WI	05423100	43.9	1978-81
East Branch Rock River near Mayville, WI	05424000	179	1949-70
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
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
Pheasant Branch at Airport Road near Middleton, WI	05427943	9.61	1977-81
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
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

Station name	Station number	Drainage area (sq mi)	Period of record
ROCK RIVER BASIN--CONTINUED			
Badfish Creek at County Highway A near Stoughton, WI	05430095	41.9	1956-66, 1986-88
Badfish Creek near Stoughton, WI	05430100	41.3	1956-66
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



# WATER RESOURCES DATA - WISCONSIN, 1991

## 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."

Water-resources data for Wisconsin for the 1991 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. This report contains discharge records from 128 gaging stations and peak stage and discharge from 104 crest-stage stations; stage for 45 lakes and contents for 24 reservoirs; water-quality data from 70 streams and from 57 lakes; and water-level records from 65 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-91-1." 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. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

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)274-3535.

#### 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, C. D. Besadny, secretary.  
Southeastern Wisconsin Regional Planning Commission, K. W. Bauer, executive director.  
U.S. Army Corps of Engineers.  
Wisconsin Department of Transportation, S. W. Woods, chief bridge engineer.  
The University of Wisconsin-Extension, Geological and Natural History Survey, Ronald Hennings, acting state geologist and director.  
Dane County Department of Public Works, Kenneth J. Koscik, director.  
Dane County Regional Planning Commission, Thomas Favour, executive director.  
City of Madison, Paul Soglin, mayor.  
City of Middleton, Dan Ramsey, mayor.  
City of Beaver Dam, Robert Kachelski, mayor.  
City of Galena, IL, Terry W. Cole, mayor.  
City of Thorp, Bernell Lange, 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, Albert Leu, 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, Harry Krumrie, President.  
Menominee Indian Tribe of Wisconsin, Glen Miller, Chairman.  
Lac Courte Oreilles Governing Board, Gaiashkibos, Chairman.  
Oneida Indian Tribe of Wisconsin, Richard G. Hill, Chairman.  
Town of Delavan, Pat Kohler, Town Clerk.  
Green Lake Sanitary District, Ron Edwards, Administrator.  
City of Fond du Lac, Jack Howley, City Manager.  
Little Muskego Lake District, Howard Schneider.  
Brown County Planning Commission, Ken Jaworski, Senior Planner.  
Lac du Flambeau Band of Lake Superior Chippewa, Michael Allen, Sr., Chairman.  
Waukesha Water Utility, Brian Barrett, General Manager.  
Stockbridge/Munsee Indian Tribe, Reginald C. Miller, Chairman.  
Dane County Lakes and Watershed Division, Karin VanVlack, Watershed Management Coordinator.  
Whitewater-Rice Lakes Management District, William Norris.

The following organizations aided in collecting streamflow records: Wisconsin Valley Improvement Co., Wisconsin-Michigan Power Co., Wisconsin Public Service Corp., Northern States Power Co., Dairyland Power Cooperative, Wisconsin Power and Light Co., Georgia-Pacific Corp., Wisconsin Electric Power Co., Wisconsin River Power Co., Scott Paper Co., and Milwaukee County Park Commission.

Organizations that supplied data are acknowledged in station descriptions.

## SUMMARY OF HYDROLOGIC CONDITIONS

### Streamflow

The statewide average precipitation of 33.76 inches for the 1991 water year was 108 percent of the normal annual precipitation of 31.32 inches for water years 1951-80. Average precipitation values ranged from 95 percent of normal in central Wisconsin to 121 percent of normal in northwestern Wisconsin. Although annual precipitation totals were slightly above normal for the 1991 water year for south-central and southeastern Wisconsin, there were a number of precipitation stations in this area that had below normal precipitation for the year. This was particularly true for the month of August as the totals for south-central and southeastern Wisconsin were 58 percent and 65 percent of the 1951-80 normal precipitation (Pamela Naber Knox, UW-Extension, Geological and Natural History Survey, written commun., 1991). This lack of precipitation in south-central and southeastern Wisconsin in August resulted in crop damages in this area (Wisconsin State Journal, August 31, 1991).

Runoff was at or below normal for rivers in a large portion of the southern half of the State and above normal for most rivers in the northern half. Departure of runoff in the 1991 water year from long-term average runoff is shown in Figure 1. Runoff was lowest (65 percent of the average annual runoff from 1935-91) for the intervening area between the gaging stations on the Wisconsin

River near Wisconsin Dells, Baraboo River near Baraboo, Black Earth Creek at Black Earth, and the Wisconsin River at Muscoda. Runoff was highest (152 percent of the average annual runoff from 1944-91) for the intervening area between the gaging stations on the Wisconsin River at Merrill, Eau Claire River near Kelly gaging stations, and the Wisconsin River at Rothschild.

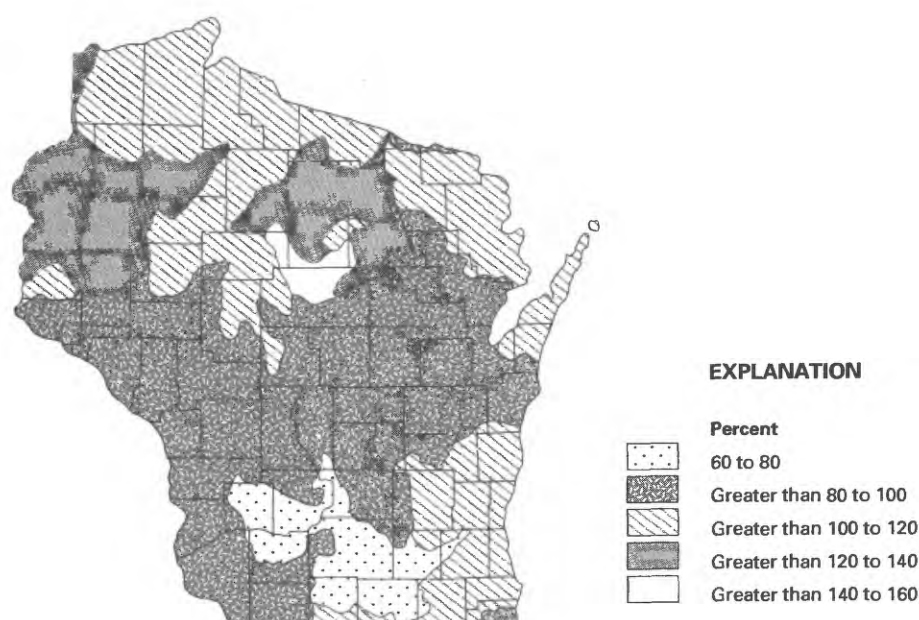
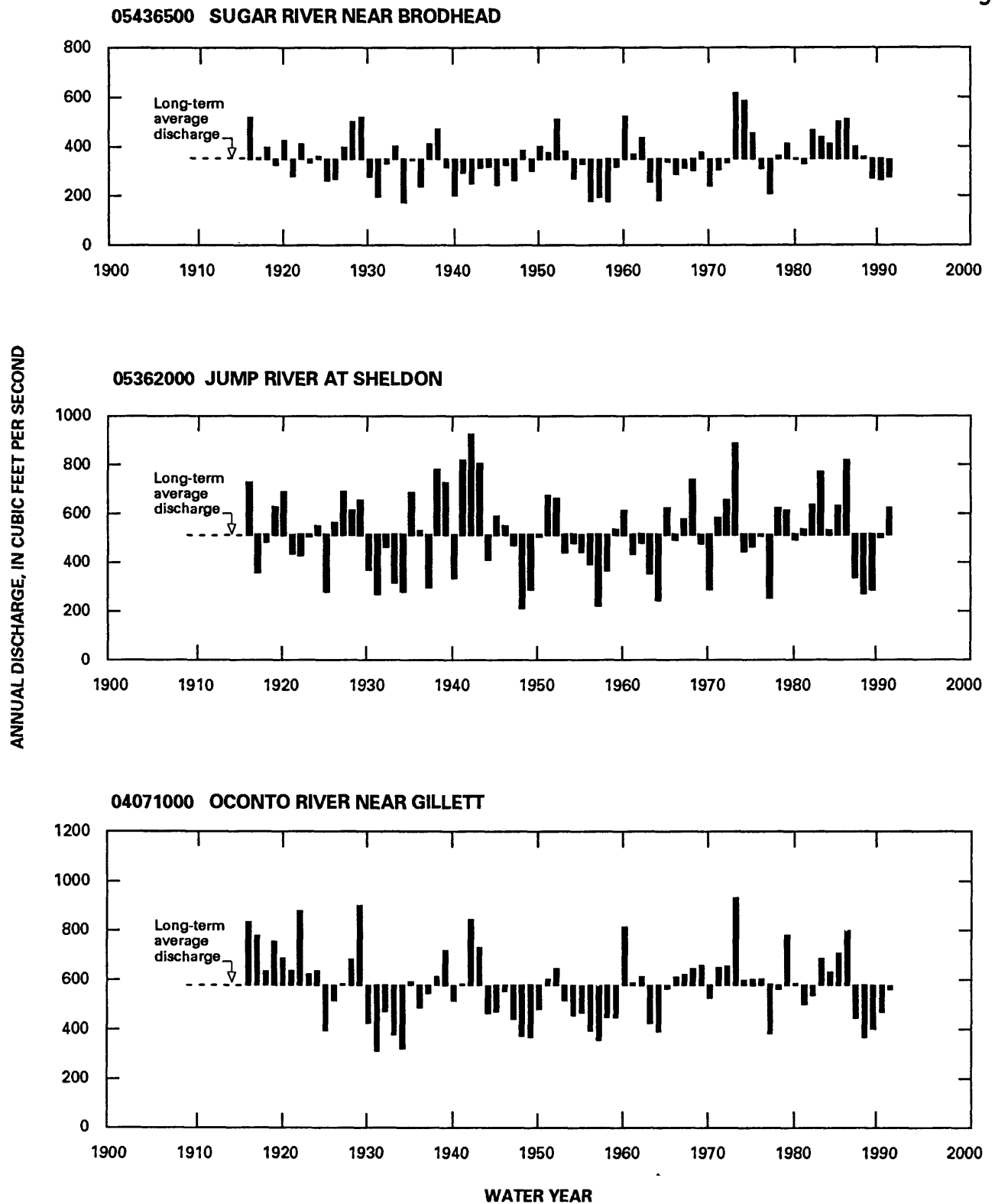


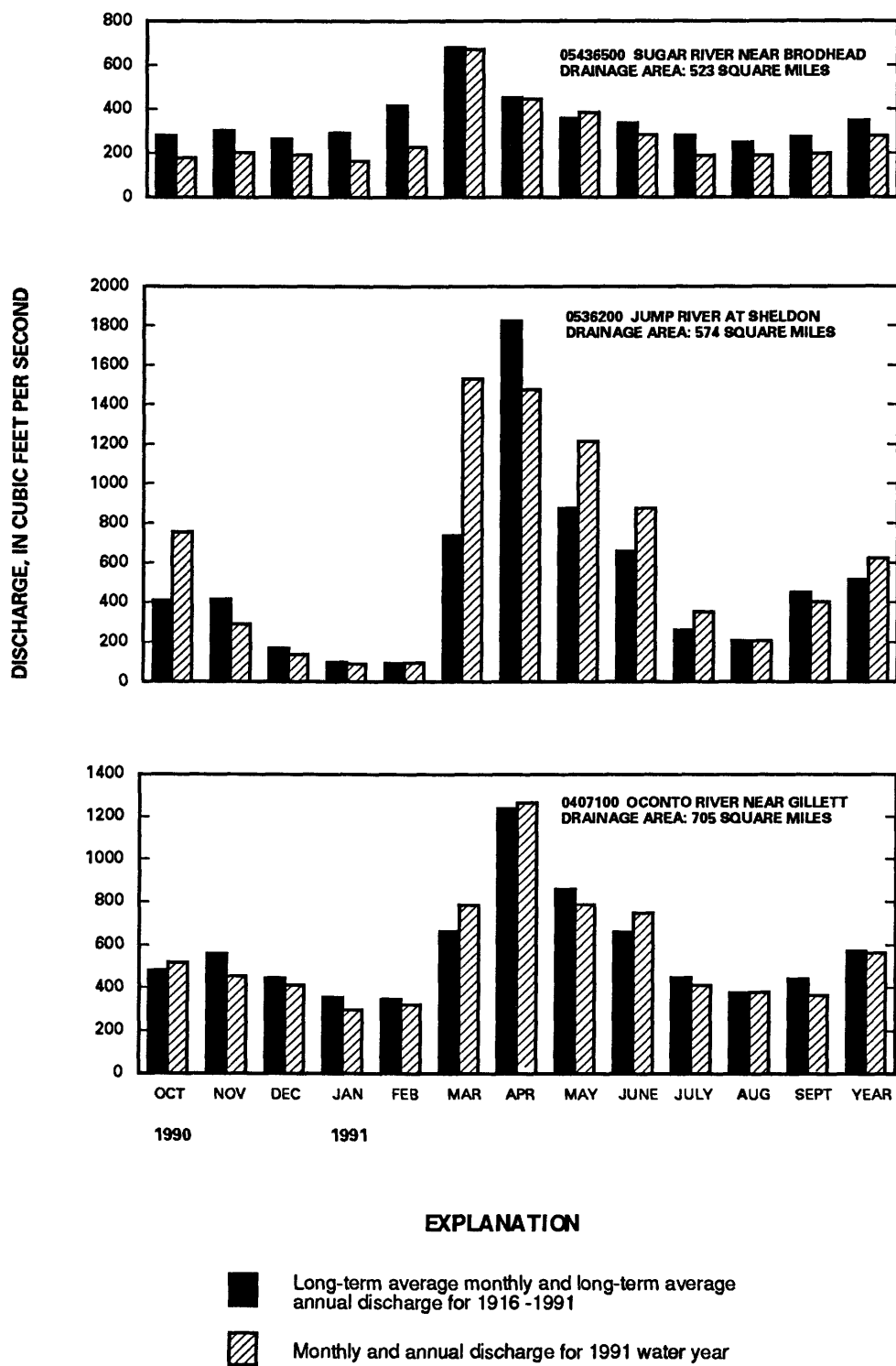
Figure 1. 1991 runoff as percent of long-term average runoff.

A comparison of the annual discharge for the individual water years (1916-91) at the Oconto River near Gillett, Jump River at Sheldon, and Sugar River near Brodhead is shown in figure 2. The comparisons of monthly and annual discharges for the 1991 water year to discharge for a 76-year base period at the same three gaging stations are shown in figure 3.





**Figure 2. Comparison of annual discharge at representative gaging stations to their long-term average discharge for water years 1916-1991.**



**Figure 3. Comparison of discharge at representative gaging stations during 1991 water year with discharge for 1916-1991.**

Although annual precipitation values were above normal for a large portion of the State, low precipitation values in the fall of 1990 and in August and September 1991 resulted in the annual minimum 7-consecutive day average flows (Q7) with recurrence intervals of 2 or more years occurring at many gaging stations. The Q7 values were typically reached in the December through February period and in August and September. The Q7 values and recurrence intervals for gaging stations where the recurrence interval equalled or exceeded 2 years are listed in the following table:

Station number	Station name	Date	Q7 (ft <sup>3</sup> /s)	Recurrence interval (years)
04025500	Bois Brule River near Brule	Feb. 10-16	110	4
04027500	White River near Ashland	Jan. 21-27	133	6
04063700	Popple River near Fence	Jan. 24-30	25	3
04066003	Menominee River below Pemene Creek near Pembine	Aug. 13-19	1,180	4
04071858	Pensaukee River near Pensaukee	Aug. 28-Sept. 3	1.4	7
04073500	Fox River at Berlin	Aug. 31-Sept. 6	471	2
04085427	Manitowoc River at Manitowoc	Aug. 29-Sept. 4	19	3
04087030	Menomonee River at Menomonee Falls	Aug. 27-Sept. 2	3.5	2
04087159	Kinnickinnic River at South 11th Street at Milwaukee	Oct. 27-Nov. 2	5.8	2
04087204	Oak Creek at South Milwaukee	Aug. 24-30	1.2	2
04087233	Root River Canal near Franklin	July 27-Aug. 2	1.5	3
04087240	Root River at Racine	Aug. 28-Sept. 3	4.3	4
05332500	Namekagon River near Trego	Jan. 7-13	254	5
05333500	St. Croix River near Danbury	Jan. 7-13	709	2
05360500	Flambeau River near Bruce	Mar. 13-19	691	2
05368000	Hay River at Wheeler	Dec. 20-26	154	2
05402000	Yellow River at Babcock	Aug. 30-Sept. 5	6.4	2
05405000	Baraboo River near Baraboo	Aug. 27-Sept. 2	126	2
05406500	Black Earth Creek at Black Earth	Jan. 25-31	19	2
05413500	Grant River at Burton	Jan. 21-27	49	4
05414000	Platte River near Rockville	Dec. 21-27	32	3
05415000	Galena River at Buncombe	Jan. 24-30	25	2
05427948	Pheasant Branch at Middleton	Jan. 26-Feb. 1	0.31	9
05430500	Rock River at Afton	Sept. 5-11	400	2
05431486	Turtle Creek at Carvers Roack Road near Clinton	Aug. 23-29	33	4
05433000	East Branch Pecatonica River near Blanchardville	Dec. 22-28	66	2
05544200	Mukwonago River at Mukwonago	Sept. 24-30	12	4
05546500	Fox River at Wilmot	Aug. 27-Sept. 2	106	2

Spring runoff from snowmelt and local storms in the period April-September 1991, caused floods with discharges that equalled or exceeded those with a recurrence interval of 5 years at a number of crest-stage gage and gaging stations. Peak discharges with recurrence intervals that equalled or exceeded 5 years are summarized in the following table:

Station number	Station name	Date	Peak discharge (ft <sup>3</sup> /s)	Recurrence interval (years)
04025200	Pearson Creek near Maple	May 30	795	8
04063700	Popple River near Fence	June 1	981	6
04063800	Woods Creek near Fence	May 30	420	30
04064800	Little Popple River near Aurora	May 30	480	6
04067800	Armstrong Creek near Armstrong	May 30	172	11
04085030	Apple Creek near Kaukauna	Mar. 24	1,210	5
04087100	Honey Creek at Milwaukee	July 7	580	8
04087159	Kinnickinnic River at South 11th Street at Milwaukee	July 7	3,420	6
04087233	Root River Canal near Franklin	Mar. 28	1,050	7
05332500	Namekagon River near Trego	Sept. 18	1,790	7
05403000	Trade River near Frederic	May 6	325	9
05341900	Kinnickinnic River Tributary at River Falls	Mar. 24	1,720	6
05390240	Fourmile Creek near Three Lakes	May 29	122	30
05393640	Little Pine Creek near Irma	Mar. 23	175	6
05396300	Wisconsin River Tributary at Wausau	July 17	305	15
05423800	East Branch Rock River Tributary near Slinger	Mar. 27	210	5
05429500	Yahara River at McFarland	Apr. 15	510	5
05430403	Fisher Creek Tributary at Janesville	Aug. 8	365	20

#### Reference cited:

Wisconsin State Journal, Drought hurting crops: Madison, Wis., Aug. 31, 1991.

#### Water Quality

Suspended-sediment and total phosphorus yields for the 1991 water year at two monitoring stations in southern Wisconsin were near or below average yields. At the Grant River near Burton in southwestern Wisconsin, the suspended-sediment yield for the 1991 water year was 240 tons/mi<sup>2</sup> (tons per square mile), or 98 percent of the average annual yield for the 1978-91 and 36 percent more than the 1990 yield. About one-half of the total suspended-sediment yield was associated with runoff from a storm on June 15. Total runoff from the Grant River watershed during water year 1991 was 84 percent of the 1978-91 average. At Jackson Creek Tributary near Elkhorn in southeastern Wisconsin, runoff was 94 percent of the average for 1984-91, and the suspended sediment yield was 65.0 tons/mi<sup>2</sup> (90 percent of the average annual yield for 1984-91). Total phosphorus yield was 285 lbs/mi<sup>2</sup> (55 percent of the average annual yield for 1984-91).

A study was undertaken during the 1991 water year to determine the sources of selected contaminants in urban storm runoff. Concentrations of contaminants (cadmium, chromium, copper, lead, zinc, phosphorus, and solids)

in water and the volume of runoff from urban surfaces in two areas of differing land use were measured. The data were used to determine the relative importance of each urban surface as a source of contaminants within each area. Urban surfaces chosen for evaluation were streets, rooftops, parking lots, driveways, and lawns; areas chosen for evaluation were an established residential area and an industrial area.

Preliminary conclusions of the study indicate that managing runoff from one or two of the most important sources of contaminants within each area could lead to substantial reductions in the amounts and concentrations of contaminants in runoff. The most important sources of all contaminants, except phosphorus, in residential areas are streets and driveways; the most important source of phosphorus is lawns. The most important sources of all contaminants, except zinc, in industrial areas are streets and parking lots; rooftops were the most important source of zinc.

#### Ground-Water Levels

Maps showing the seasonal ground-water trends for the year (fig. 4) are based on water-level data from 27 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 September through November 1990; WINTER consists of measurements from December 1990 through February 1991; SPRING consists of measurements from March through May 1991; and SUMMER consists of measurements from June through August 1991. Mean seasonal water levels were compared to the long-term mean seasonal water levels. The 1991 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 1991 water year were normal or above normal in the southern and western parts of the State and normal or below normal in the northern and eastern parts of the State. Water levels were above or below normal for the entire year in only two wells; the water level in the well in Clark County was above normal and the water level in the well in Ashland County was below normal. Water levels for six wells, five of which are located in the central part of the State were normal throughout the water year. Ground-water levels in two areas of the State, Door County and the southwest, varied more than those in other parts of the State. In Door County, water levels were above normal in the FALL, normal in the WINTER, above normal in the SPRING, and below normal in the SUMMER. In the southwest part of the State water levels were normal to below normal in the FALL and WINTER and above normal in the SPRING and SUMMER.

#### SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Program provides data from river basins where hydrologic conditions are relatively unaffected by man's activities and are expected to remain unaffected within the foreseeable future.

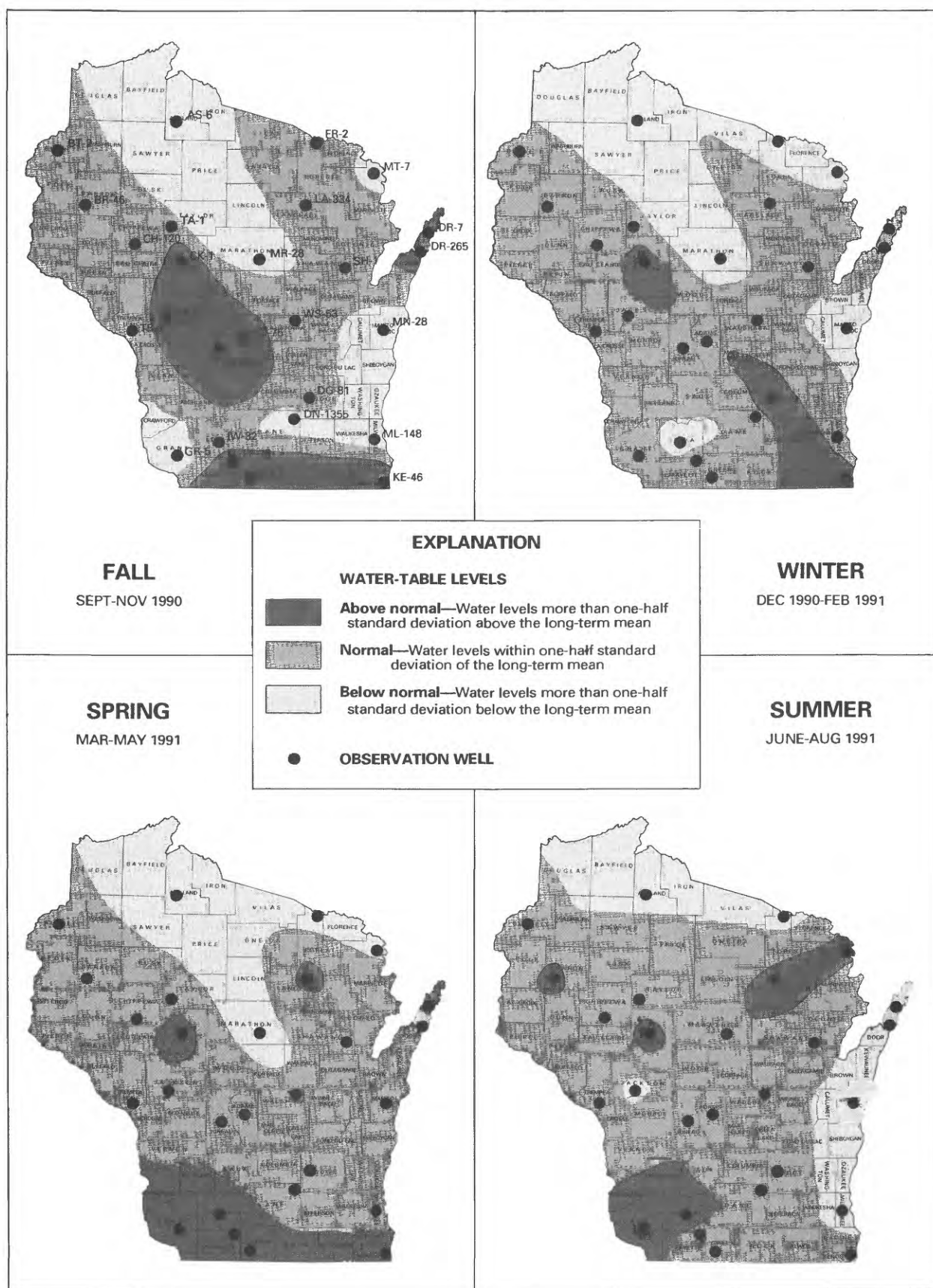


Figure 4. Relation of seasonal water-table levels to long-term means.

National Stream-Quality Accounting Network was designed by the U.S. Geological Survey to meet information needs of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad monitoring aspects have been incorporated in the network design. The network is divided into the river-basin accounting units designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are: (1) to assess the areal variability of water-quality conditions, nationwide, on an annual basis; and (2) to assess long-term changes in stream quality.

Radiochemical Surveillance Network is a network of water-quality stations, representing major drainage basins in the conterminous United States, where samples are collected regularly for radioisotope analysis.

#### EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are from the 1991 water year that began October 1, 1990, and ended September 30, 1991. 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; water-quality data for precipitation; 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, or from a tape punched at selected intervals on a water-stage recorder. 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. 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

The records published for each gaging station consist of two parts: the manuscript or station description, and the data table for the current water year. The manuscript provides, under various headings, descriptive information such as station location, period of record, average discharge, historical extremes, 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. These headings may include all or some of the following:

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges. Unless otherwise qualified, the maximum discharge is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

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.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence of peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030 and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

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.

RATING TABLE.--Skeleton rating tables allow an approximation of daily gage heights from daily discharges. The tables also indicate the range in stage resulting from any given range in discharge.

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

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly 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. The figures shown in the yearly summary below the monthly summary are the appropriate discharges for the calendar and water years.

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 ft<sup>3</sup>/s; to the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; to the nearest whole number between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures for more than 1,000 ft<sup>3</sup>/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. Water-quality partial-record stations are sites where more limited water-quality data are collected. These data include water temperature and specific conductance measurements made at gaging station visits and other reconnaissance data collected for special purposes. Water-quality data for water-quality partial-record stations appear together 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 given in "U.S. Geological Survey Techniques of Water-Resources Investigations," listed in "Publications on techniques of water-resources investigations."

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 continuous monitors, daily maximum, minimum, and mean values for each constituent or property are computed and reported herein. Continuous records (usually hourly values) 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 method (time-discharge weighted average) given in "U.S. Geological Survey Techniques of Water-Resources Investigations" listed in "Publications on techniques of water-resources investigations." 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.

Concentration values used in discharge computations are given in separate tables.

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 are given in "U.S. Geological Survey Techniques of Water-Resources Investigations" listed in "Publications on techniques of water-resources investigations."

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.

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 ( $\text{ng/L}$ ). Present data above the  $\mu\text{g/L}$  level should be viewed 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 will begin using new trace-element protocols in the near future.

#### 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). These codes may be included in some of the water-quality tables herein. 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; 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:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
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 65 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 65 wells are presented in this report, water-level data are currently being collected for a total of 208 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 the graph or punched tape of a water-stage 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 the National Geodetic Vertical Datum of 1929 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.

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) National Geodetic Vertical Datum of 1929 (NGVD of 1929); 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 OF WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water Data Storage and Retrieval system (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- \* Station Header File - Contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- \* Daily Values File - Contains more than 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.
- \* Peak Flow File - contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.

- \* Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.
- \* Ground-Water Site Inventory Data Base - Contains inventory data for more than 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey  
National Water Data Exchange  
421 USGS National Center  
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. 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.) A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225.

## 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.

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.

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.

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

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

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

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

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.

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 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.

Cubic foot per second (ft<sup>3</sup>/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.

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.

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  $\mu$ m membrane filter. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

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.

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<sub>3</sub>). 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.

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.

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

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.

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.

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 ( $1 \times 10^{-12}$ ) of a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  disintegrations per second. A picocurie yields 2.22 disintegrations per minute.

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.

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.

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.

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 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. Topography, geology, soil type, land cover, land use, quantity and intensity of precipitation, and other environmental factors influence the quantity, characteristics, and cause of sediment in streams.

Suspended sediment is sediment maintained in suspension by turbulent currents or as a colloid.

Suspended-sediment discharge is the quantity of suspended sediment passing through a stream cross section in a unit of time. It is computed by multiplying water discharge times suspended-sediment concentration times 0.0027.

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

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

Sodium-adsorption ratio (SAR) expresses the relative activity of sodium ions in exchange reactions with soil.

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 about 65 percent of the specific conductance.

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

Streamflow uniquely describes discharge in the natural channel of a surface stream course as opposed to the term "discharge", which can be applied to the flow of a canal. Unlike the term "runoff", streamflow may be applied to discharge whether it is affected by diversion or regulation or not.

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  $\mu\text{m}$  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  $\mu\text{m}$  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.

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. It is computed by multiplying the concentration of the substance (mg/L) by 0.0027 times the discharge of the stream (cfs).

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, 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."

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 1982.

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

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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, Books and Open-File Reports Section, Federal Center, Box 25425, 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."

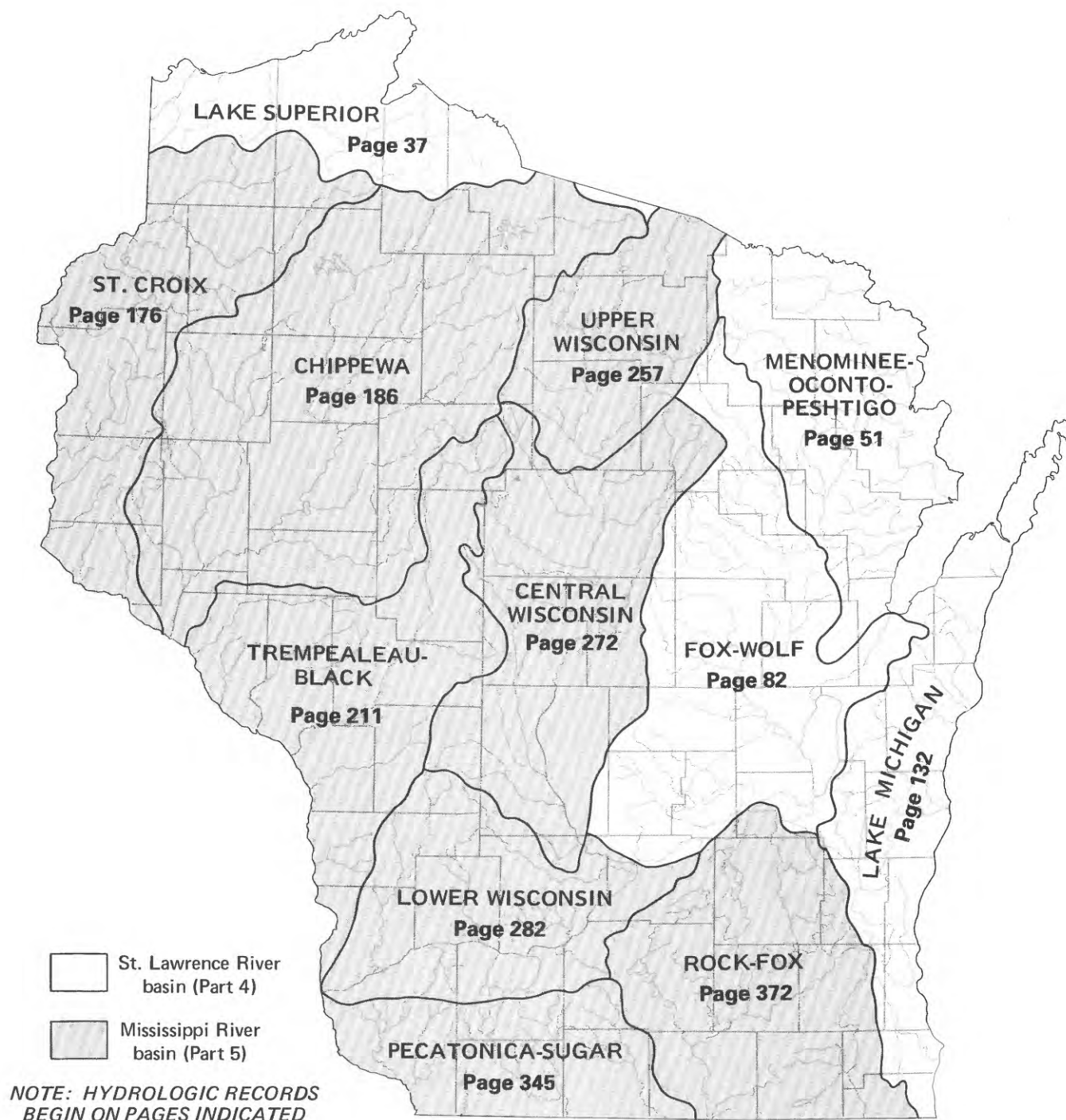
- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 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.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. McCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 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 measurements 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 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*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 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. Rathburn, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels of streamflow gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 pages.
- 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 programmed 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 Richard L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 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-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.
- 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.
- 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.
- 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.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

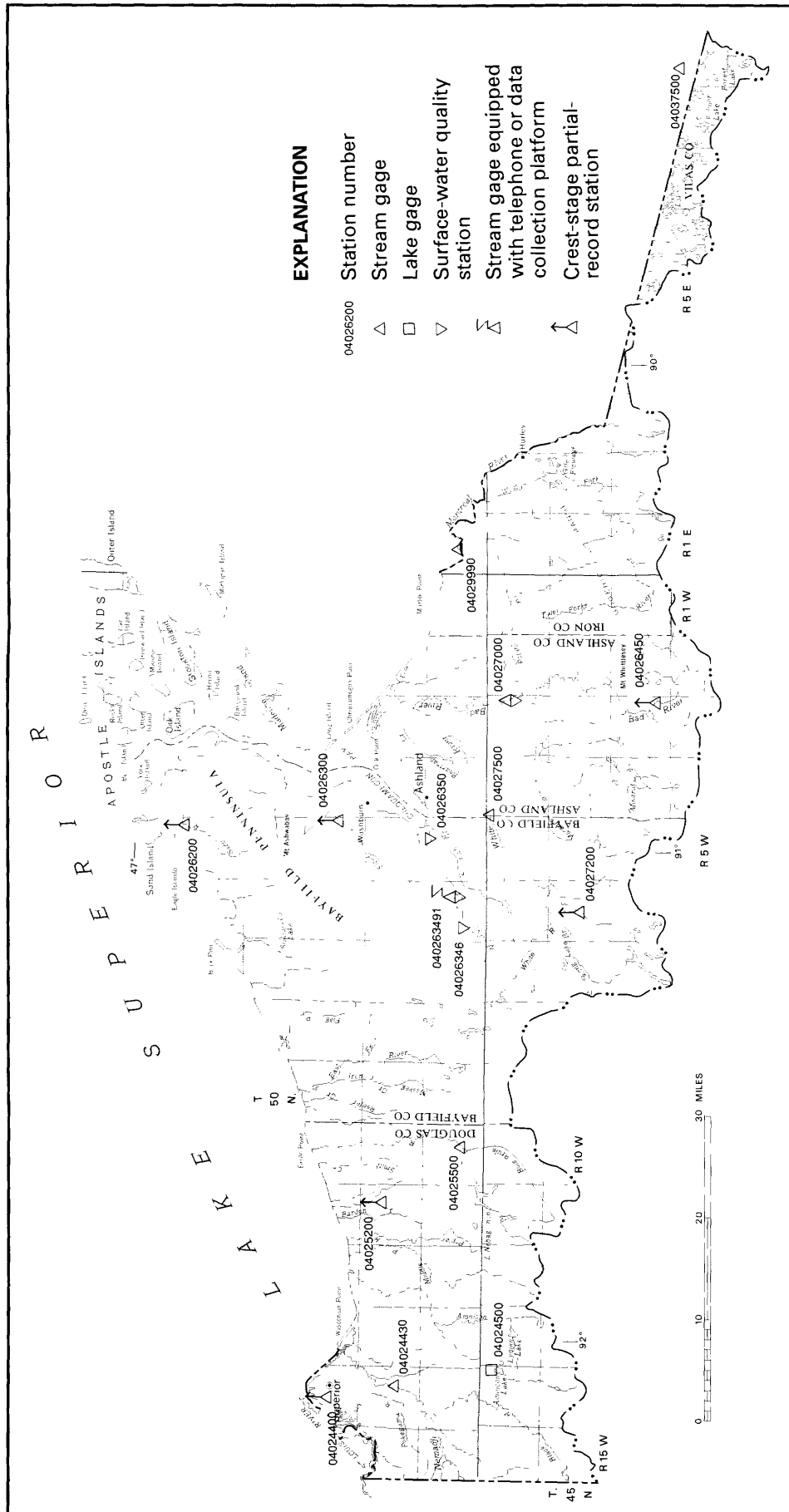
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. 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. Greeson, 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.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 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.
- 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.
- 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.
- 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.

ST. LAWRENCE RIVER BASIN RECORDS



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





Base from U S Geological Survey  
State base map, 1968

## LAKE SUPERIOR BASIN

## STREAMS TRIBUTARY TO LAKE SUPERIOR

04024430 NEMADJI RIVER NEAR SOUTH SUPERIOR, WI

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

DRAINAGE AREA.--420 mi<sup>2</sup>.

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

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 601.13 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: May 7-13 and ice periods listed in rating table below. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--17 years, 406 ft<sup>3</sup>/s, 13.13 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft<sup>3</sup>/s, Sept. 6, 1990, gage height, 25.97 ft, from rating curve extended above 9,000 ft<sup>3</sup>/s; minimum daily, 16 ft<sup>3</sup>/s, Dec. 8, 1976.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Oct. 18	1100	3,980	18.14	June 22	0100	4,330	18.94
May 7	0800	*4,780	*19.45	July 1	2300	3,880	18.30
May 31	0400	4,050	18.26				

Minimum daily, 54 ft<sup>3</sup>/s, Jan. 4-12, 16, 17.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Oct. 1-17, June 21-23, July 1-5, 13, 28, 29,  
and Sept. 3, 7-11, 18-30; stage-discharge relation affected by ice Nov. 9-14  
and Nov. 24 to Apr. 5.)

3.6	43	8.0	665
3.8	62	10.0	1,120
4.0	81	15.0	2,630
6.0	313	19.0	4,500

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	268	130	58	56	62	1100	1670	1240	2420	472	67
2	149	256	120	56	58	62	1200	1090	879	2860	356	64
3	164	247	110	56	60	60	1400	803	964	1520	295	1010
4	491	237	110	54	62	60	1900	916	764	1250	272	641
5	423	225	100	54	64	62	1600	1560	565	1200	247	324
6	321	215	98	54	74	66	1410	3620	447	867	215	227
7	266	209	100	54	90	66	1130	4200	370	625	192	875
8	227	183	100	54	110	62	1190	2900	317	503	174	1890
9	205	180	110	54	140	64	1140	2200	282	421	159	3240
10	195	190	110	54	90	70	848	1600	307	353	145	2210
11	183	180	100	54	72	70	816	1100	381	310	134	1190
12	177	170	96	54	66	72	710	900	308	601	124	861
13	176	180	92	56	62	74	629	740	272	1510	114	703
14	176	200	88	56	58	78	750	643	1540	1060	106	603
15	166	179	86	56	58	80	1730	531	1430	645	98	662
16	159	176	82	54	58	90	1320	457	952	485	94	620
17	607	172	78	54	58	100	972	812	653	395	187	530
18	3580	167	76	56	58	150	773	830	565	346	160	646
19	1830	168	72	60	60	250	667	607	644	342	122	596
20	1050	163	70	64	62	350	564	486	509	310	105	457
21	1340	162	70	60	64	460	482	404	2590	274	95	372
22	1100	168	68	58	66	700	432	349	3530	255	88	316
23	819	170	66	56	66	900	491	314	1550	231	82	275
24	656	150	66	56	66	1300	551	340	922	205	86	250
25	544	160	64	56	64	1800	469	472	678	187	110	237
26	461	140	66	56	64	2100	415	410	538	174	110	230
27	408	150	68	58	64	2800	400	828	466	160	105	221
28	362	140	66	60	62	2100	376	1630	475	725	92	201
29	329	130	64	58	---	1400	469	1270	705	2090	81	186
30	303	120	64	56	---	1300	1770	1920	810	1050	75	180
31	282	---	60	56	---	1200	---	3100	---	674	71	---
TOTAL	17306	5455	2650	1742	1932	18008	27704	38702	25653	24048	4766	19884
MEAN	558	182	85.5	56.2	69.0	581	923	1248	855	776	154	663
MAX	3580	268	130	64	140	2800	1900	4200	3530	2860	472	3240
MIN	149	120	60	54	56	60	376	314	272	160	71	64
CFSM	1.33	.43	.20	.13	.16	1.38	2.20	2.97	2.04	1.85	.37	1.58
IN.	1.53	.48	.23	.15	.17	1.59	2.45	3.43	2.27	2.13	.42	1.76

CAL YR 1990 TOTAL 151272 MEAN 414 MAX 7630 MIN 33 CFSM .99 IN. 13.40  
WTR YR 1991 TOTAL 187850 MEAN 515 MAX 4200 MIN 54 CFSM 1.23 IN. 16.64

## STREAMS TRIBUTARY TO LAKE SUPERIOR

39

04024500 AMNICON LAKE NEAR SOUTH RANGE, WI

## LAKE-STAGE RECORDS

LOCATION.--Lat 46°28'59", long 92°04'01", in SW 1/4 NW 1/4 sec.12, T.46 N., R.14 W., Douglas County, Hydrologic Unit 04010301, 9.5 mi southwest of South Range.

DRAINAGE AREA.--4.8 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--August 1936 to September 1964 (fragmentary), October 1984 to September 1986, May 1988 to current year.

GAGE.--Staff gage read by Dennis Corbin. Datum of gage is 1179.94 ft, National Geodetic Vertical Datum of 1929. Prior to 1964, staff gage 0.3 mi west at datum of 1188.00 ft, National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 1199.32 ft, May 9, 1950; minimum observed, 1195.82 ft, Oct. 28, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 17.93 ft, May 9; minimum observed, 16.75 ft, Nov. 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.81	17.05	---	---	---	---	---	17.55	17.57	17.89	17.55	17.15
2	16.79	17.03	---	---	---	---	---	17.55	17.61	17.87	17.53	17.17
3	16.79	16.99	---	---	---	---	---	17.55	17.61	17.85	17.51	17.45
4	16.77	16.97	---	---	---	---	---	17.45	17.63	17.85	17.49	17.51
5	16.77	16.93	---	---	---	---	---	17.45	17.57	17.83	17.45	17.57
6	16.77	16.89	---	---	---	---	---	17.55	17.61	17.81	17.41	17.61
7	16.77	16.85	---	---	---	---	---	17.85	17.61	17.79	17.35	17.65
8	16.79	16.83	---	---	---	---	---	17.89	17.61	17.77	17.29	17.67
9	16.79	16.81	---	---	---	---	---	17.93	17.61	17.75	17.23	17.73
10	16.81	16.79	---	---	---	---	---	17.91	17.59	17.73	17.15	17.79
11	16.81	16.77	---	---	---	---	---	17.89	17.59	17.71	17.05	17.83
12	16.83	16.75	---	---	---	---	---	17.86	17.57	17.69	16.97	17.85
13	16.85	---	---	---	---	---	---	17.83	17.57	17.65	16.91	17.81
14	16.87	---	---	---	---	---	---	17.79	17.57	17.65	16.85	17.79
15	16.87	---	---	---	---	---	---	17.81	17.61	17.65	16.83	17.77
16	16.87	---	---	---	---	---	---	17.71	17.63	17.63	16.81	17.75
17	16.91	---	---	---	---	---	---	17.69	17.63	17.63	16.81	17.73
18	16.91	---	---	---	---	---	17.65	17.67	17.65	17.63	16.87	17.71
19	16.91	---	---	---	---	---	17.57	17.65	17.65	17.61	16.93	17.69
20	16.97	---	---	---	---	---	17.57	17.65	17.65	17.61	17.23	17.67
21	17.13	---	---	---	---	---	17.57	17.63	17.69	17.61	17.25	17.65
22	17.13	---	---	---	---	---	17.57	17.63	17.71	17.61	17.29	17.63
23	17.15	---	---	---	---	---	17.55	17.61	17.73	17.59	17.29	17.61
24	17.15	---	---	---	---	---	17.55	17.59	17.75	17.59	17.25	17.59
25	17.13	---	---	---	---	---	17.55	17.57	17.77	17.59	17.27	17.57
26	17.13	---	---	---	---	---	17.55	17.57	17.79	17.59	17.27	17.55
27	17.11	---	---	---	---	---	17.55	17.55	17.81	17.61	17.25	17.53
28	17.11	---	---	---	---	---	17.45	17.57	17.83	17.61	17.23	17.49
29	17.09	---	---	---	---	---	17.45	17.57	17.87	17.59	17.21	17.47
30	17.09	---	---	---	---	---	17.55	17.55	17.87	17.57	17.19	17.43
31	17.07	---	---	---	---	---	---	17.57	---	17.57	17.17	---
MAX	17.15	---	---	---	---	---	---	17.93	17.87	17.89	17.55	17.85
MIN	16.77	---	---	---	---	---	---	17.45	17.57	17.57	16.81	17.15

## WATER-QUALITY RECORDS

LOCATION.--Lat 46°28'44", long 92°03'36", in SW 1/4 SE 1/4 sec.12, T.46 N., R.14 W., Douglas County, Hydrologic Unit 04010301, near center of lake and 9.6 mi southwest of South Range.

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Secchi-disc readings made by Dennis Corbin.

## SECCHI-DISC TRANSPARENCY (IN METERS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	(SECCHI DISC) (M) (00078)	DATE	TIME	(SECCHI DISC) (M) (00078)
OCT 1990			MAY 1991		
01...	1200	1.8	17...	1600	1.6
15...	1200	1.8	JUN		
29...	1200	1.8	13...	1630	1.5
NOV			JUL		
05...	1200	2.0	14...	1545	1.4
12...	1200	2.0	AUG		
APR 1991			15...	1600	1.3
19...	1200	1.8	SEP		
			13...	1600	1.2

## STREAMS TRIBUTARY TO LAKE SUPERIOR

04025500 BOIS BRULE RIVER NEAR 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.--120 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to September 1981, January 1984 to current year. Prior to January 1943, monthly discharge only, published in WSP 1307.

REVISED RECORDS.--WRD WI-71-1: Drainage area. WSP 1337: 1943(M), 1944, 1945-50(M).

GAGE.--Water-stage recorder. Datum of gage is 948.49 ft above National Geodetic Vertical Datum of 1929. Prior to October 1964, nonrecording gage at same site and datum, supplemented by water-stage recorder part of 1959-62.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--46 years (water years 1943-81, 1985-91), 171 ft<sup>3</sup>/s, 19.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,520 ft<sup>3</sup>/s, June 5, 1944, gage height, 5.2 ft, from graph based on gage readings and from rating curve extended above 750 ft<sup>3</sup>/s; minimum observed, 67 ft<sup>3</sup>/s, Mar. 13, 1943.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Dec. 31	1000	ice jam	*3.71	May 31	0100	*521	3.28
Mar. 26	2200	347	2.64	July 29	0500	410	2.88
Apr. 30	2000	315	2.51	Sept. 9	0100	355	2.67
May 7	0100	504	3.22				

Minimum discharge, 105 ft<sup>3</sup>/s, Feb. 22, Mar. 10, 14.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 1-5, 13, 14, Dec. 21 to Feb. 6, Feb. 10-12, 14-18, 23-28, and Mar. 2-4.)

1.4	101	3.0	443
2.0	200	4.0	742

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	172	140	120	120	113	170	301	378	270	221	115
2	166	169	130	130	130	110	172	283	307	255	200	114
3	191	168	130	120	140	110	182	261	284	250	188	187
4	193	165	130	120	150	110	200	260	251	241	176	167
5	184	163	130	120	160	112	212	272	233	219	164	151
6	176	162	133	120	120	112	218	431	217	202	158	145
7	169	160	131	130	116	115	219	479	205	190	154	192
8	162	157	129	130	115	111	244	414	196	183	149	287
9	158	156	129	130	115	112	246	370	192	171	145	341
10	156	155	127	120	110	111	232	335	207	164	142	300
11	156	153	127	120	110	110	228	308	204	159	138	258
12	159	151	128	120	110	110	219	285	197	167	134	241
13	158	148	130	120	112	111	214	263	194	159	131	220
14	157	148	130	120	110	111	241	246	229	155	128	228
15	154	149	124	120	110	111	284	233	213	151	127	222
16	149	149	123	120	110	111	285	236	205	145	127	216
17	207	148	122	120	110	113	267	245	190	161	130	208
18	290	146	121	130	120	115	248	233	182	212	127	205
19	274	146	120	120	115	118	232	222	174	241	125	194
20	268	147	124	140	113	124	221	211	172	209	123	185
21	278	151	130	130	114	140	213	203	253	193	121	177
22	250	152	130	130	112	147	207	197	253	183	119	170
23	232	149	130	120	110	192	213	196	228	165	117	164
24	219	144	120	120	110	188	211	228	211	157	124	160
25	210	140	120	120	110	193	203	219	194	149	130	164
26	200	139	120	120	110	279	197	234	178	142	126	162
27	191	143	120	120	110	300	194	283	179	139	122	156
28	185	146	120	120	110	243	192	334	173	286	121	153
29	181	143	130	120	---	212	227	346	204	380	118	150
30	177	143	130	120	---	189	296	368	191	296	118	151
31	174	---	120	120	---	175	---	479	---	250	115	---
TOTAL	5995	4562	3928	3810	3282	4508	6687	8975	6494	6244	4318	5783
MEAN	193	152	127	123	117	145	223	290	216	201	139	193
MAX	290	172	140	140	160	300	296	479	378	380	221	341
MIN	149	139	120	120	110	110	170	196	172	139	115	114
CFSM	1.61	1.27	1.06	1.02	.98	1.21	1.86	2.41	1.80	1.68	1.16	1.61
IN.	1.86	1.41	1.22	1.18	1.02	1.40	2.07	2.78	2.01	1.94	1.34	1.79
CAL YR 1990	TOTAL 55698	MEAN 153	MAX 381	MIN 106	CFSM 1.27	IN. 17.27						
WTR YR 1991	TOTAL 64586	MEAN 177	MAX 479	MIN 110	CFSM 1.47	IN. 20.02						

## STREAMS TRIBUTARY TO LAKE SUPERIOR

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04026346 NORTH FISH CREEK NEAR BENOIT, WI

LOCATION.--Lat 46°31'49", long 91°08'51", in NE 1/4 NW 1/4 sec.29, T.47 N., R.6 W., Bayfield County, Hydrologic Unit 04010301, at U.S. Highway 2, about 4 mi northwest of Benoit.

DRAINAGE AREA.--36 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1989 to September 1991 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990					
17...	1845	435	--	159	66
18...	1025	231	--	69	59
18...	1700	153	--	55	56
DEC					
06...	1445	2.5	2.0	12	78
MAR 1991					
21...	1615	121	1.0	75	73
MAY					
09...	1325	17	12.0	13	66
JUN					
19...	1115	78	16.5	43	83
21...	1045	189	14.0	93	87
JUL					
29...	1630	169	19.0	63	65
SEP					
03...	1620	226	19.0	59	84
09...	1251	134	19.0	31	82
09...	1520	117	20.5	33	77
10...	0830	58	17.0	21	88

## STREAMS TRIBUTARY TO LAKE SUPERIOR

040263491 NORTH FISH CREEK NEAR MOQUAH, WI

LOCATION.--Lat 46°32'56", long 91°03'43", in SW 1/4 SE 1/4 sec.13, T.47 N., R.6 W., Bayfield County, Hydrologic Unit 04010301, on left bank just downstream from bridge on old U.S. Highway 2, and 1.3 mi southeast of Moquah.

DRAINAGE AREA.--65.4 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to September 1991 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 660 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Sept. 23-30 and ice periods listed in rating tables below. Records good except for estimated periods, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,690 ft<sup>3</sup>/s, Sept. 3, 1991, gage height, 12.06 ft; minimum, 35 ft<sup>3</sup>/s, Dec. 19, 1989, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,690 ft<sup>3</sup>/s, Sept. 3, gage height, 12.06 ft; minimum, 49 ft<sup>3</sup>/s, Aug. 20, 22-24, Aug. 30 to Sept. 2, gage height, 6.67 ft.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 23 to Jan. 17 and Jan. 22 to Feb. 1.)

Oct. 1 to Mar. 20

Mar. 21 to Sept. 30

6.7 48  
7.2 128  
8.0 315  
10.0 920

6.6 40  
7.0 100  
7.5 200  
8.0 325  
10.0 920

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	63	58	54	56	54	73	83	139	187	62	50
2	72	62	56	52	56	53	78	73	95	152	57	50
3	105	61	57	52	58	53	93	68	75	315	56	512
4	90	61	57	52	70	53	106	75	64	173	56	130
5	71	61	57	52	81	54	105	87	61	95	55	86
6	63	61	56	52	77	52	103	260	59	69	54	70
7	59	60	56	52	78	51	97	143	57	72	52	363
8	58	60	57	52	75	52	136	95	58	97	52	259
9	56	60	57	52	72	52	105	79	58	64	52	240
10	56	60	59	52	61	52	97	72	62	56	52	131
11	56	60	59	52	57	53	98	67	62	54	51	86
12	57	59	60	52	56	54	87	64	64	56	51	75
13	56	59	58	52	56	54	88	62	67	54	51	70
14	102	60	57	54	56	55	226	62	91	52	51	138
15	73	60	57	54	55	66	197	59	95	51	51	127
16	65	60	57	54	56	75	159	77	104	51	52	129
17	696	60	58	56	55	86	108	68	79	108	52	129
18	426	60	58	56	56	92	89	62	367	92	51	158
19	152	60	57	56	56	111	79	60	181	74	50	106
20	112	60	58	56	56	105	73	59	98	62	50	82
21	156	62	57	55	56	287	69	58	354	59	50	69
22	103	61	56	54	55	181	69	58	139	58	50	63
23	87	60	56	54	55	633	113	59	83	55	50	60
24	77	58	56	54	54	284	93	61	68	54	54	56
25	73	56	54	54	55	222	80	58	61	53	52	58
26	70	57	54	54	53	259	73	64	58	53	51	56
27	68	61	52	54	53	198	70	82	58	53	51	56
28	66	61	52	54	53	110	68	171	56	466	50	54
29	66	58	52	54	---	83	70	191	59	366	50	54
30	64	58	50	54	---	73	88	163	56	113	50	52
31	62	---	54	54	---	72	---	247	---	75	50	---
TOTAL	3408	1799	1742	1659	1677	3679	2990	2887	2928	3339	1616	3569
MEAN	110	60.0	56.2	53.5	59.9	119	99.7	93.1	97.6	108	52.1	119
MAX	696	63	60	56	81	633	226	260	367	466	62	512
MIN	56	56	50	52	53	51	68	58	56	51	50	50
CFM	1.68	.92	.86	.82	.92	1.81	1.52	1.42	1.49	1.65	.80	1.82
IN.	1.94	1.02	.99	.94	.95	2.09	1.70	1.64	1.67	1.90	.92	2.03
CAL YR 1990	TOTAL 29455	MEAN 80.7	MAX 696	MIN 50	CFM 1.23	IN. 16.75						
WTR YR 1991	TOTAL 31293	MEAN 85.7	MAX 696	MIN 50	CFM 1.31	IN. 17.80						

## STREAMS TRIBUTARY TO LAKE SUPERIOR

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040263491 NORTH FISH CREEK NEAR MOQUAH, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1989 to September 1991 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SED. TOTAL, FALL DIAM. % FINER THAN .062 MM (80186)	SED. TOTAL, FALL DIAM. % FINER THAN .125 MM (80187)	SED. TOTAL, FALL DIAM. % FINER THAN .250 MM (80188)	SED. TOTAL, FALL DIAM. % FINER THAN .500 MM (80189)	SED. TOTAL, FALL DIAM. % FINER THAN 1.00 MM (80190)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)
OCT 1990										
18...	1108	375	5.0	41	48	71	100	--	350	0
DEC										
06...	1208	54	2.5	80	84	98	100	--	4	0
MAR 1991										
21...	1142	345	1.0	66	75	91	100	--	403	0
MAY										
09...	1028	75	7.5	2	2	5	46	100	865	0
JUN										
19...	1300	167	14.5	52	61	79	100	--	183	0
21...	1152	488	13.5	64	74	88	100	--	468	0
JUL										
29...	1038	500	14.0	47	54	77	97	99	299	0
SEP										
03...	1312	482	17.5	47	58	85	100	--	840	0
09...	1418	252	17.5	26	34	70	98	98	237	0

DATE	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT 1990									
18...	0	1	38	78	87	91	95	100	--
DEC									
06...	1	10	40	62	75	88	96	100	--
MAR 1991									
21...	1	8	38	57	64	69	76	89	100
MAY									
09...	1	10	50	75	82	86	89	94	100
JUN									
19...	1	13	49	71	78	83	87	94	100
21...	0	10	46	67	80	88	95	100	--
JUL									
29...	0	8	52	65	71	76	81	85	100
SEP									
03...	1	10	52	71	82	88	93	96	100
09...	0	12	67	86	92	94	97	99	100

## STREAMS TRIBUTARY TO LAKE SUPERIOR

04026350 NORTH FISH CREEK NEAR ASHLAND, WI

LOCATION.--Lat 46°34'43", long 90°57'56", in SW 1/4 SW 1/4 sec.2, T.47 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at U.S. Highway 2, about 4 mi west of Ashland.

DRAINAGE AREA.--74.4 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1989 to September 1991 (discontinued).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TEMPER- ATURE WATER (DEG C) (00010)	SED. TOTAL, FALL DIAM. % FINER THAN .062 MM (80186)	SED. TOTAL, FALL DIAM. % FINER THAN .125 MM (80187)	SED. TOTAL, FALL DIAM. % FINER THAN .250 MM (80188)	SED. TOTAL, FALL DIAM. % FINER THAN .500 MM (80189)	SED. TOTAL, FALL DIAM. % FINER THAN 1.00 MM (80190)
OCT 1990								
18...	0920	1090	6.0	42	44	62	100	--
18...	1432	725	5.5	47	49	80	100	--
DEC								
06...	1332	79	2.0	83	86	98	100	--
MAR 1991								
21...	1432	323	0.5	61	66	86	100	--
MAY								
09...	1240	120	8.0	80	84	94	99	100
JUN								
19...	0803	521	14.5	60	64	84	100	--
21...	1556	381	13.5	69	74	92	100	--
JUL								
29...	1300	598	14.0	59	62	83	100	--
SEP								
03...	1501	708	18.0	76	79	92	100	--
09...	1131	341	17.5	60	65	91	100	--
DATE	SEDI- MENT, SUS- PENDED (MG/L) (80154)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)
OCT 1990								
18...	271	0	0	3	52	90	98	100
18...	244	0	0	7	52	90	99	100
DEC								
06...	6	1	2	10	59	92	99	100
MAR 1991								
21...	436	0	1	16	67	92	99	100
MAY								
09...	24	0	0	11	68	92	99	100
JUN								
19...	336	0	0	8	72	95	99	100
21...	331	0	0	15	76	96	100	--
JUL								
29...	233	0	0	15	76	98	100	--
SEP								
03...	733	1	3	21	67	93	98	100
09...	110	0	0	10	61	92	99	100



## STREAMS TRIBUTARY TO LAKE SUPERIOR

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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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1914 to December 1922 (monthly discharge only 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 and crest-stage gage. Datum of gage is 668.30 ft above National Geodetic Vertical Datum of 1929. 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 periods listed in rating table below. Records good except those for periods of ice affect, which are poor.

AVERAGE DISCHARGE.--51 years (1915-22, 1949-91), 617 ft<sup>3</sup>/s, 14.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,700 ft<sup>3</sup>/s, Apr. 24, 1960, gage height, 21.7 ft from flood-marks and from rating curve extended above 12,000 ft<sup>3</sup>/s and a comparison with contracted-opening measurement of peak flow 45,600 ft<sup>3</sup>/s at Odanah, drainage area 990 mi<sup>2</sup>; minimum, 34 ft<sup>3</sup>/s, Nov. 8, 1976, result of freezeup.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Oct. 18	1500	*6,260	10.44	Apr. 15	0400	3,370	7.53
Mar. 26	1500	ice jam	*10.64	July 3	0400	3,450	7.62
Mar. 27	----	(a)5,200	ice jam	July 17	1900	4,100	8.29

(a) Estimated daily mean.

Minimum daily discharge, 100 ft<sup>3</sup>/s, Jan. 9, 10.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 12-14, and Nov. 24 to Mar. 28.)

2.3	108	3.0	323	6.0	2,100
2.6	190	4.0	780	8.0	3,810
				11.0	6,880

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	319	587	230	120	120	160	1500	1160	2100	1700	676	131
2	315	551	200	120	120	170	1350	1060	1860	2770	517	128
3	330	511	180	110	130	160	1600	922	1380	3150	429	207
4	634	481	190	110	130	160	2350	835	1010	2970	389	251
5	684	455	200	110	140	170	2870	838	759	2110	337	212
6	582	438	200	110	150	190	2860	1500	606	1410	295	182
7	486	424	210	110	170	200	2520	2230	495	999	267	270
8	437	392	210	110	180	190	2280	1800	407	1170	252	614
9	396	374	210	100	180	180	2490	1360	349	890	231	635
10	351	360	210	100	150	180	2170	1090	329	689	213	899
11	321	341	200	110	120	180	2060	915	319	556	195	746
12	312	300	200	110	120	190	1930	801	326	502	181	586
13	348	290	180	110	120	200	1660	719	335	1220	170	479
14	400	310	170	120	120	210	2080	667	1210	1120	162	442
15	547	304	160	120	120	220	3070	596	1360	908	154	772
16	534	305	150	120	130	240	2570	555	1240	707	150	837
17	2030	303	150	120	130	260	2100	649	896	2670	153	731
18	5980	290	140	130	130	290	1650	508	669	2530	161	860
19	4390	286	140	130	140	400	1350	430	649	1520	165	811
20	2840	277	150	130	150	540	1130	382	599	1060	157	706
21	2500	275	140	130	170	1100	962	340	641	810	149	603
22	2250	286	140	130	170	2200	860	344	1030	653	146	506
23	1800	297	140	130	150	3800	1040	300	826	538	140	427
24	1430	250	140	130	140	3800	1590	292	629	442	145	371
25	1210	230	130	130	160	3600	1410	413	503	401	156	339
26	1060	210	130	120	170	4500	1190	563	412	354	148	351
27	938	220	130	120	170	5200	1010	1110	352	311	146	347
28	886	230	140	120	160	3800	926	2470	315	918	141	324
29	812	200	140	120	---	3520	835	2740	1490	2110	135	298
30	731	210	140	120	---	2530	1010	2320	2200	1380	135	273
31	648	---	130	120	---	2070	---	1680	---	944	137	---
TOTAL	36501	9987	5180	3670	4040	40610	52423	31589	25296	39512	6832	14338
MEAN	1177	333	167	118	144	1310	1747	1019	843	1275	220	478
MAX	5980	587	230	130	180	5200	3070	2740	2200	3150	676	899
MIN	312	200	130	100	120	160	835	292	315	311	135	128
CFSM	1.97	.56	.28	.20	.24	2.19	2.93	1.71	1.41	2.13	.37	.80
IN.	2.27	.62	.32	.23	.25	2.53	3.27	1.97	1.58	2.46	.43	.89
CAL YR 1990	TOTAL 164157	MEAN 450	MAX 5980	MIN 58	CFSM .75	IN. 10.23						
WTR YR 1991	TOTAL 269978	MEAN 740	MAX 5980	MIN 100	CFSM 1.24	IN. 16.82						

## STREAMS TRIBUTARY TO LAKE SUPERIOR

04027000 BAD RIVER NEAR ODANAH, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1974 to January 1978 and October 1987 to current year. Water-quality data collected downstream at bridge on U.S. Highway 2 at Odanah (04027595 Bad River at Odanah) from February 1978 to September 1987.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	
OCT 1990												
03...	1220	--	299	118	7.6	12.0	4.0	10.2	760	95	34	
JAN 1991												
15...	1120	120	--	191	7.3	0.0	3.0	12.3	772	83	K14	
FEB												
12...	1145	120	--	193	7.2	0.0	5.2	13.1	769	89	93	
APR												
12...	0900	--	585	72	7.3	2.0	25	13.6	783	96	20	
JUN												
06...	1130	--	364	105	7.9	17.0	5.0	9.1	780	92	70	
AUG												
07...	1115	--	262	133	7.6	18.0	5.5	8.4	780	87	K27	
DATE		STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LITY 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)
OCT 1990												
03...	160	61	17	4.5	2.9	1.0	59	48	3.7	3.2	<0.10	
JAN 1991												
15...	26	84	23	6.5	3.9	0.60	90	74	4.8	4.6	<0.10	
FEB												
12...	110	81	22	6.3	4.1	1.8	85	70	5.4	3.6	<0.10	
APR												
12...	29	29	8.0	2.2	2.0	0.80	25	20	4.9	2.0	0.20	
JUN												
06...	68	44	12	3.3	2.1	0.60	46	38	2.2	2.3	0.20	
AUG												
07...	K32	65	18	4.9	2.8	0.90	70	58	2.3	2.8	0.10	
DATE		SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1990												
03...	10	102	72	<0.010	<0.100	0.030	0.030	0.80	0.030	0.020	<0.010	
JAN 1991												
15...	16	102	105	0.010	0.300	0.060	0.060	0.40	0.010	0.010	0.030	
FEB												
12...	15	122	102	<0.010	0.300	0.110	0.120	1.1	0.060	0.020	0.010	
APR												
12...	7.4	50	41	<0.010	0.110	0.070	0.030	0.60	0.090	0.030	<0.010	
JUN												
06...	7.8	95	54	0.010	0.083	0.050	0.050	0.70	0.060	0.020	<0.010	
AUG												
07...	11	74	78	<0.010	0.063	0.040	0.040	0.60	0.030	0.030	<0.010	

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

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

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
OCT 1990 03...	1220	--	299	80	<1	19	<0.5	<1.0	<1	<3	2
FEB 1991 12...	1145	120	--	40	<1	32	<0.5	<1.0	4	<3	9
APR 12...	0900	--	585	160	<1	20	<0.5	<1.0	1	<3	4
AUG 07...	1115	--	262	60	<1	30	<0.5	<1.0	<1	<3	7

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 1990 03...	540	<1	<4	17	<0.1	<10	<1	<1	38	<6	15
FEB 1991 12...	620	1	4	20	<0.1	<10	1	3	46	<6	8
APR 12...	270	<1	<4	9	<0.1	<10	1	<1	19	<6	5
AUG 07...	750	2	<4	22	<0.1	<10	<1	<1	42	<6	6

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)	TEMPER- ATURE WATER (DEG C) (00010)	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 1990 03...	1220	--	299	118	12.0	9	7.3	94
JAN 1991 15...	1120	120	--	191	0.0	4	1.3	91
FEB 12...	1145	120	--	193	0.0	5	1.6	97
APR 12...	0900	--	585	72	2.0	69	109	77
JUN 06...	1130	--	364	105	17.0	22	22	99
AUG 07...	1115	--	262	133	18.0	10	7.1	95

## 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 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR WI-82-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 660.15 ft above National Geodetic Vertical Datum of 1929 (Lake Superior District Power Co. bench mark). Prior to May 20, 1976, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except for ice-affected period, which is fair. Diurnal fluctuation caused by hydroelectric plant at gage.

AVERAGE DISCHARGE.--43 years, 280 ft<sup>3</sup>/s, 12.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,270 ft<sup>3</sup>/s, July 1, 1953, gage height, 7.90 ft from rating curve extended above 3,000 ft<sup>3</sup>/s; minimum, 3.1 ft<sup>3</sup>/s, Apr. 28-30, 1949, gage height, 0.09 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,650 ft<sup>3</sup>/s, Oct. 17, gage height, 4.50 ft; minimum daily, 102 ft<sup>3</sup>/s, Feb. 24.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 20 to Feb. 2.)

0.8	82	2.0	520
1.0	128	3.0	1,170
1.5	292	4.0	2,100

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	206	194	160	150	161	315	298	546	641	426	152
2	185	184	176	160	160	174	273	306	445	623	364	176
3	190	190	117	160	152	173	310	287	424	660	315	191
4	252	211	135	150	177	134	326	269	358	600	258	222
5	234	206	122	150	206	164	401	258	309	444	227	205
6	208	201	192	130	177	174	429	565	218	377	209	205
7	215	197	210	130	192	173	418	531	225	334	217	258
8	180	194	194	140	247	171	439	505	198	361	185	295
9	170	186	193	140	206	170	432	496	198	305	210	304
10	167	189	189	140	175	170	401	409	208	246	179	328
11	167	188	184	140	175	170	417	331	227	231	174	323
12	172	185	193	150	116	170	413	309	209	224	188	321
13	168	181	181	160	164	172	388	264	236	224	185	282
14	200	180	132	150	140	173	501	268	321	223	180	350
15	259	186	107	140	166	173	626	238	427	229	182	487
16	207	189	191	160	143	215	633	202	507	239	186	379
17	1270	188	244	170	168	239	601	301	365	755	186	375
18	1270	184	163	160	168	224	502	382	327	403	187	398
19	835	181	163	140	168	250	418	413	335	426	187	355
20	841	180	160	160	168	288	344	376	304	348	187	327
21	855	183	150	140	167	765	314	292	488	321	187	305
22	672	188	210	120	168	574	268	246	468	272	179	283
23	509	188	120	130	172	1490	300	279	414	258	179	244
24	410	180	120	140	102	979	371	260	401	205	188	224
25	359	172	150	120	109	951	381	304	348	205	189	235
26	306	141	150	130	162	1030	345	305	308	204	193	204
27	288	194	160	150	186	848	310	553	239	173	191	233
28	256	192	160	160	174	723	265	824	234	576	191	202
29	217	163	160	150	---	601	264	621	237	725	183	224
30	230	171	160	140	---	440	267	578	269	440	179	200
31	199	---	160	150	---	346	---	659	---	456	179	---
TOTAL	11679	5578	5140	4520	4658	12485	11672	11929	9793	11728	6470	8287
MEAN	377	186	166	146	166	403	389	385	326	378	209	276
MAX	1270	211	244	170	247	1490	633	824	546	755	426	487
MIN	167	141	107	120	102	134	264	202	198	173	174	152
CFSM	1.25	.62	.55	.48	.55	1.34	1.29	1.28	1.08	1.26	.69	.92
IN.	1.44	.69	.64	.56	.58	1.54	1.44	1.47	1.21	1.45	.80	1.02

CAL YR 1990 TOTAL 89286 MEAN 245 MAX 1270 MIN 100 CFSM .81 IN. 11.03  
WTR YR 1991 TOTAL 103939 MEAN 285 MAX 1490 MIN 102 CFSM .95 IN. 12.85

## STREAMS TRIBUTARY TO LAKE SUPERIOR

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04029990 MONTREAL RIVER AT SAXON FALLS NEAR SAXON, WI

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 mi<sup>2</sup>.

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 (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 ft<sup>3</sup>/s) since April 1941.

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

AVERAGE DISCHARGE.--37 years (1939-70, 1987-91), 314 ft<sup>3</sup>/s, 16.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,600 ft<sup>3</sup>/s, Apr. 24, 1960, gage height, 7.50 ft; minimum discharge, 2 ft<sup>3</sup>/s, Sept. 21, Oct. 8, 1939, Sept. 9, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,060 ft<sup>3</sup>/s, Mar. 27; minimum daily discharge, 90 ft<sup>3</sup>/s, Feb. 15-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	350	200	145	130	95	628	560	945	380	185	200
2	190	400	200	120	130	95	625	495	945	350	200	180
3	190	400	180	130	130	95	779	445	780	412	210	230
4	235	400	150	135	140	95	1215	445	435	412	210	210
5	250	400	150	135	140	95	1410	445	281	780	200	205
6	220	460	162	135	130	95	1312	550	230	695	250	195
7	220	460	180	140	115	95	1312	1095	195	560	245	195
8	190	460	190	140	135	95	1030	1030	210	405	230	210
9	174	430	190	140	115	95	1030	860	210	350	220	245
10	192	430	159	140	115	95	950	735	215	217	225	235
11	192	430	173	145	110	95	945	735	195	192	230	215
12	200	280	186	140	100	95	795	595	215	188	210	200
13	186	280	186	140	100	95	595	435	195	325	220	200
14	186	280	150	145	100	95	595	381	185	1285	230	220
15	286	260	184	108	90	95	945	281	200	1028	230	215
16	235	260	184	108	90	108	945	236	195	578	220	320
17	300	270	192	108	90	108	860	330	195	585	220	220
18	1600	270	178	110	110	108	700	190	180	795	220	225
19	1600	260	120	135	110	113	700	305	170	410	210	255
20	1300	250	118	135	105	150	628	236	170	286	230	235
21	1020	250	161	140	105	236	559	198	215	286	220	200
22	550	200	149	140	105	415	495	236	210	216	215	200
23	550	195	149	140	95	860	1025	215	210	215	215	200
24	550	215	108	140	95	1095	190	215	200	215	215	190
25	500	215	108	130	95	945	845	230	190	215	215	175
26	450	190	130	130	95	1312	625	230	180	215	185	183
27	450	215	130	130	105	2060	560	230	235	215	150	185
28	450	240	137	130	95	1617	560	325	200	215	205	165
29	450	210	174	130	---	1312	465	495	190	320	135	153
30	400	200	174	130	---	860	435	985	381	260	210	171
31	350	---	145	130	---	820	---	1030	---	230	200	---
TOTAL	13858	9160	4997	4104	3075	13544	23758	14773	8557	12835	6560	6232
MEAN	447	305	161	132	110	437	792	477	285	414	212	208
MAX	1600	460	200	145	140	2060	1410	1090	945	1280	250	320
MIN	174	190	108	108	90	95	190	190	170	188	135	153
CFSM	1.71	1.17	.62	.51	.42	1.67	3.02	1.82	1.09	1.58	.81	.79
IN.	1.97	1.30	.71	.58	.44	1.92	3.37	2.10	1.21	1.82	.93	.88

CAL YR 1990 TOTAL 89043 MEAN 244 MAX 3850 MIN 70 CFMS .93 IN. 12.64  
WTR YR 1991 TOTAL 121453 MEAN 333 MAX 2060 MIN 90 CFMS 1.27 IN. 17.24

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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 those below 3.0 ft<sup>3</sup>/s, which are poor. Flow regulated by Cisco Lake (station 04037400). Several measurements of water temperature were made during the year.

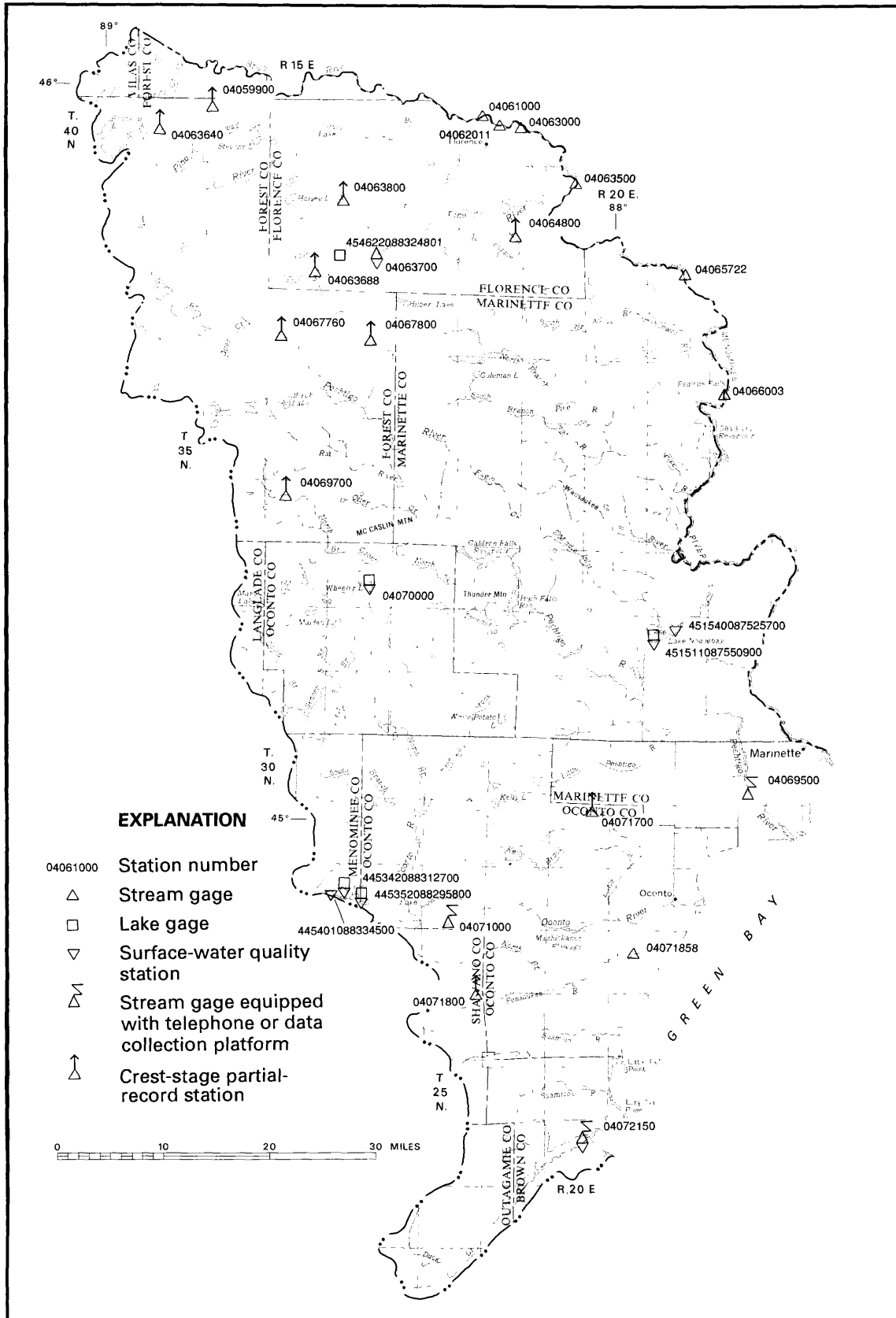
AVERAGE DISCHARGE.--47 years, 46.3 ft<sup>3</sup>/s, 12.40 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 288 ft<sup>3</sup>/s, May 1-4, 1951, gage height, 6.10 ft, present datum; minimum daily, 0.08 ft<sup>3</sup>/s, July 21, Aug. 2, 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 192 ft<sup>3</sup>/s, May 29, gage height, 5.65 ft; minimum daily, 0.52 ft<sup>3</sup>/s, Apr. 26, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	100	71	24	36	37	92	14	179	129	1.1	.68
2	2.6	95	70	24	35	37	97	2.5	173	125	1.1	.68
3	2.4	92	66	24	35	37	82	2.9	98	93	1.0	1.3
4	1.8	91	65	24	35	36	91	3.9	18	26	1.0	32
5	1.7	88	64	23	19	36	92	43	5.0	15	1.1	53
6	1.6	85	62	23	5.2	36	66	110	4.2	1.8	1.1	52
7	1.5	58	41	23	5.4	37	58	136	3.1	1.5	1.0	52
8	1.4	38	20	23	5.5	36	112	135	2.3	1.3	1.0	53
9	1.4	36	20	23	5.5	36	118	132	1.3	1.2	1.0	79
10	1.4	33	14	23	5.8	36	121	129	.91	1.2	1.0	100
11	1.6	33	5.8	23	5.8	36	112	98	.86	1.1	1.0	98
12	1.6	21	5.9	24	5.9	35	112	75	.78	15	1.0	95
13	1.8	6.4	6.1	24	6.1	35	122	50	.94	28	1.0	53
14	1.8	6.7	6.1	24	6.6	34	123	28	1.1	28	1.0	1.8
15	1.6	6.7	6.7	24	6.7	34	123	15	45	28	1.0	1.6
16	31	6.1	7.3	24	7.1	16	121	3.6	76	27	.98	6.7
17	75	6.7	15	24	7.1	4.3	119	20	75	28	15	15
18	128	7.5	23	24	21	4.5	112	56	72	28	28	14
19	126	7.1	23	24	40	4.6	112	55	37	26	27	14
20	117	8.2	23	24	40	4.9	110	54	2.1	26	27	14
21	142	10	23	32	40	38	97	53	1.9	26	26	15
22	181	9.5	24	40	39	87	45	51	1.8	15	24	14
23	174	8.7	24	40	39	91	2.5	52	1.6	1.1	10	6.3
24	157	9.1	24	39	39	89	1.6	50	1.1	1.1	1.0	1.2
25	147	8.7	24	39	39	86	.80	50	1.2	1.2	1.0	1.2
26	129	25	24	38	39	82	.52	97	.84	1.2	.90	1.2
27	118	60	24	37	38	83	.55	184	.83	1.1	.80	1.2
28	135	75	24	38	38	75	.52	186	12	1.1	.74	1.2
29	122	74	24	38	---	69	.98	188	77	1.2	.69	1.3
30	108	73	24	38	---	82	16	186	131	1.2	.67	1.3
31	102	---	24	37	---	76	---	183	---	1.2	.70	---
TOTAL	2033.6	1178.4	877.9	889	644.7	1430.3	2260.47	2442.9	1024.86	681.5	179.88	780.66
MEAN	65.6	39.3	28.3	28.7	23.0	46.1	75.3	78.8	34.2	22.0	5.80	26.0
MAX	181	100	71	40	40	91	123	188	179	129	28	100
MIN	1.4	6.1	5.8	23	5.2	4.3	.52	2.5	.78	1.1	.67	.68
CAL YR 1990	TOTAL	10792.16	MEAN	29.6	MAX	181	MIN	.25	CFSM	.58	IN.	7.92
WTR YR 1991	TOTAL	14424.17	MEAN	39.5	MAX	188	MIN	.52	CFSM	.78	IN.	10.58



Base from U.S. Geological Survey  
State base map, 1968

## MENOMINEE-OCONTO-PESHTIGO RIVER BASIN

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04061000 BRULE RIVER NEAR FLORENCE, WI

LOCATION.--Lat 45°57'31", long 88°15'57", in SE 1/4 SE 1/4 sec.11, T.41 N., R.32 W., Michigan Meridian, Iron County, Hydrologic Unit 04030106, on left bank 40 ft upstream from highway bridge, 1.0 mi upstream from Paint River, 2.5 mi north of Florence, and 5.0 mi upstream from confluence with Michigamme River.

DRAINAGE AREA.--389 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1387: 1914-16. WSP 1911: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,200.55 ft National Geodetic Vertical Datum of 1929 (levels by Owen Ayres Associates). Prior to Aug. 29, 1944, nonrecording gage at bridge 40 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Nov. 30 to Mar. 31. Records excellent except for estimated daily discharges, which are fair. Discharge includes some mine pumpage prior to August 1977. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--48 years (water years 1915, 1945-91), 355 ft<sup>3</sup>/s, 12.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,700 ft<sup>3</sup>/s, July 2, 1953, gage height, 6.57 ft; maximum gage height, 8.60 ft Dec. 20, 1983, backwater from ice; minimum discharge, 118 ft<sup>3</sup>/s, Dec. 2, 1963 (discharge measurement); minimum gage height, 1.76 ft, July 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft<sup>3</sup>/s, Apr. 9, 10, gage height, 3.83 ft; maximum gage height, 5.24 ft, Mar. 30, backwater from ice; minimum daily discharge, 156 ft<sup>3</sup>/s, Jan. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230	241	280	160	185	180	439	754	722	416	264	180
2	228	236	250	156	195	182	399	657	591	458	245	177
3	212	231	220	156	200	183	405	558	534	428	255	210
4	215	228	190	156	215	185	470	500	454	406	260	239
5	223	236	190	157	225	190	570	485	400	389	235	217
6	206	226	230	160	236	196	662	544	362	365	219	231
7	195	221	240	163	235	198	695	611	338	330	213	266
8	189	225	240	167	225	199	915	555	320	310	205	245
9	184	224	240	170	215	195	1410	489	304	298	199	259
10	187	217	235	174	205	190	1400	458	289	276	197	292
11	204	210	225	177	200	185	1100	430	275	261	195	271
12	205	238	220	180	190	180	867	414	275	250	190	237
13	206	237	210	182	185	180	712	398	267	248	188	227
14	267	224	180	183	175	180	659	399	290	237	194	225
15	231	221	195	185	170	182	738	369	402	226	217	265
16	219	218	210	186	170	185	705	359	407	221	215	251
17	320	219	220	186	170	188	639	518	343	233	267	232
18	568	215	220	187	175	193	574	543	298	249	279	238
19	567	205	210	187	180	202	524	440	275	235	246	240
20	456	202	200	186	180	235	482	385	263	228	226	227
21	463	241	195	185	180	370	447	351	314	233	212	220
22	503	283	190	185	180	500	415	334	367	230	203	219
23	449	263	160	185	180	580	404	331	319	220	196	216
24	385	234	160	185	180	680	419	325	283	211	201	209
25	342	228	170	183	178	550	407	322	267	226	202	216
26	314	240	170	182	178	630	394	406	261	221	195	241
27	291	245	165	182	178	770	383	612	248	212	191	238
28	286	282	170	182	178	1050	391	603	492	221	187	226
29	283	300	175	182	---	970	406	767	536	382	182	233
30	262	290	175	182	---	500	669	1090	442	364	179	225
31	274	---	165	182	---	470	---	958	---	304	178	---
TOTAL	9164	7080	6300	5473	5363	10878	18700	15965	10938	8888	6635	6972
MEAN	296	236	203	177	192	351	623	515	365	287	214	232
MAX	568	300	280	187	236	1050	1410	1090	722	458	279	292
MIN	184	202	160	156	170	180	383	322	248	211	178	177
CFSM	.76	.61	.52	.46	.49	.90	1.60	1.32	.94	.74	.55	.60
IN.	.88	.68	.60	.52	.51	1.04	1.79	1.53	1.05	.85	.63	.67
CAL YR 1990	TOTAL	86019	MEAN	236	MAX	700	MIN	160	CFSM	.61	IN	8.23
WTR YR 1991	TOTAL	112356	MEAN	308	MAX	1410	MIN	156	CFSM	.79	IN	10.74



## STREAMS TRIBUTARY TO LAKE MICHIGAN

53

04062011 BRULE RIVER NEAR COMMONWEALTH, WI

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,130 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent. 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. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,430 ft<sup>3</sup>/s, Apr. 9, 1991, gage height, 10.22 ft; minimum daily, 190 ft<sup>3</sup>/s, Oct. 9, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,430 ft<sup>3</sup>/s, Apr. 9, gage height, 10.22 ft; minimum daily, 210 ft<sup>3</sup>/s, Dec. 27.

REVISIONS.--The maximum discharge for the water year 1990 has been revised to 1,860 ft<sup>3</sup>/s, Feb. 23, 1990, gage height, 8.51 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	324	346	393	254	256	263	511	1520	1260	473	355	237
2	345	305	326	367	261	238	492	1380	1260	725	279	256
3	294	240	320	237	278	246	477	835	544	481	340	298
4	346	265	259	222	284	268	638	607	593	567	369	322
5	301	311	262	216	283	253	742	516	492	468	305	285
6	286	426	229	218	264	280	766	670	482	471	302	298
7	281	247	283	234	305	265	829	731	398	428	327	348
8	286	329	323	297	266	285	1260	778	398	396	293	378
9	304	311	340	235	328	290	2600	715	395	368	275	339
10	217	292	299	220	289	251	3060	1180	445	398	275	399
11	242	298	312	225	295	235	2330	822	304	329	269	352
12	334	370	326	262	287	256	2150	512	368	324	272	307
13	257	295	312	264	297	278	1770	505	345	325	292	297
14	388	287	234	263	228	287	1010	484	432	373	289	311
15	333	254	245	268	218	258	826	456	552	286	315	371
16	307	340	276	262	236	269	842	392	643	260	270	351
17	480	274	299	289	255	265	831	515	438	287	389	323
18	749	305	298	319	330	334	750	641	397	296	394	289
19	1330	308	306	241	238	278	561	498	395	404	305	287
20	1230	285	258	264	261	352	482	485	358	330	303	315
21	1190	383	280	269	269	432	512	476	383	294	296	310
22	1250	388	281	267	282	622	512	435	487	348	316	284
23	1280	386	258	239	247	658	492	431	419	284	262	296
24	1560	335	233	278	277	792	547	442	435	246	275	293
25	1630	319	220	291	230	628	495	400	410	281	327	322
26	1470	324	240	253	253	596	477	546	322	338	324	323
27	1540	427	210	243	268	829	561	707	343	299	271	308
28	1450	367	257	251	264	1740	484	712	574	286	251	351
29	1190	404	278	268	---	2070	479	941	688	626	264	295
30	374	343	309	264	---	1290	934	1430	581	444	237	271
31	492	---	268	242	---	568	---	1190	---	367	238	---
TOTAL	22060	9764	8734	8022	7549	15676	28420	21952	15141	11802	9279	9416
MEAN	712	325	282	259	270	506	947	708	505	381	299	314
MAX	1630	427	393	367	330	2070	3060	1520	1260	725	394	399
MIN	217	240	210	216	218	235	477	392	304	246	237	237
CAL YR 1990	TOTAL	132946	MEAN	364	MAX	1630	MIN	198				
WTR YR 1991	TOTAL	167815	MEAN	460	MAX	3060	MIN	210				

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04063000 MENOMINEE RIVER NEAR FLORENCE, WI

LOCATION.--Lat 45°57'04", long 88°11'13", in NE 1/4 sec.16, T.41 N., R.31 W., Michigan Meridian, Iron County, Hydrologic Unit 04030108, on left bank 0.5 mi downstream from confluence of Brule and Michigamme Rivers, 3.5 mi northeast of Florence, and at mile 117.

DRAINAGE AREA.--1,780 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1950 to current year. Published as "at Twin Falls near Iron Mountain, MI" January 1914 to June 1950. Records published for both sites July 1950 to September 1957.

REVISED RECORDS.--WSP 1707: 1953(M). WSP 1911: Drainage area of former site.

GAGE.--Water-stage recorder. Datum of gage is 1,119.23 ft above National Geodetic Vertical Datum of 1929 (levels by Owen Ayres Associates). Prior to July 1950, headwater and tailwater gages and generation data entered hourly in daily log sheets by company employees at the Twin Falls Powerplant of Wisconsin Electric Power Co., 10.4 mi downstream.

REMARKS.--No estimated daily discharges. Records excellent. Prior to July 1950, discharge determined from powerplant records computed on basis of load-discharge rating of hydroelectric units and rating for tailwater gage during periods of spill. Rating 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. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--41 years, 1,833 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft<sup>3</sup>/s, Apr. 26, 1960, gage height, 14.15 ft; minimum, 38 ft<sup>3</sup>/s, Aug. 21, 1962, Sept. 26, 1975; minimum gage height, 1.18 ft Aug. 21, 1962, Nov. 4, 1965; minimum daily discharge, 57 ft<sup>3</sup>/s, Sept. 26, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,740 ft<sup>3</sup>/s, Apr. 9, gage height, 7.40 ft; minimum, 231 ft<sup>3</sup>/s, Nov. 15, gage height, 1.95 ft; minimum daily, 557 ft<sup>3</sup>/s, Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	925	1340	1380	1290	1300	1570	1930	3680	4540	1680	1560	1550
2	1150	1390	1320	1220	1300	1540	1910	3400	3720	2010	1380	1590
3	1110	1110	1310	1280	1320	1550	1900	2940	2380	1900	1420	1680
4	1130	985	1250	1250	1320	1570	1910	2800	1670	1980	1460	1740
5	965	1030	1250	1240	1320	1510	1790	2720	1540	1880	1390	1550
6	812	1010	1230	1240	1300	1570	1820	2860	1510	1920	1390	1740
7	701	923	1270	1260	1340	1550	1690	2910	1430	1950	1400	1720
8	824	992	1310	1250	1290	1580	2070	2960	1370	2040	1380	1800
9	896	915	1300	1260	1360	1570	4380	2880	1340	2110	1090	1700
10	702	860	1290	1240	1320	1530	5320	3310	1190	1980	868	1810
11	781	622	1190	1250	1320	1510	4450	3020	994	1770	798	1830
12	759	989	933	1280	1320	1540	4270	2700	1080	1630	792	1800
13	752	1000	1270	1290	1320	1560	3890	2700	1100	1410	750	1730
14	836	1110	1160	1290	1250	1580	3150	2370	1100	1460	807	1670
15	947	829	1250	1270	1250	1540	2670	2110	1260	1660	620	1790
16	840	1050	1280	1270	1260	1560	2440	2020	1410	1960	557	2070
17	1140	1220	1220	1300	1280	1550	2440	2070	1340	1900	814	2400
18	1570	687	1220	1360	1350	1620	2360	2090	1440	1750	719	2200
19	2170	709	1300	1270	1250	1560	2200	1870	1460	1930	891	1610
20	2240	798	1270	1290	1270	1460	2130	1590	1420	1870	892	1410
21	2210	840	1280	1290	1420	1440	2040	1580	1430	1830	828	1640
22	2250	914	1290	1300	1600	1640	1740	1530	946	1810	848	1570
23	2290	823	1300	1270	1570	2060	1610	1520	899	1640	1220	1360
24	2570	952	1290	1300	1590	2450	1650	1320	1080	1600	1970	925
25	2800	915	1260	1320	1540	2180	1750	1400	1250	1610	1990	1510
26	2910	924	1270	1290	1560	2000	2060	1530	948	1680	1990	1300
27	2860	1090	1230	1280	1580	2190	2640	1760	1040	1650	1930	1230
28	2480	1060	1290	1280	1570	3420	2660	2360	1220	1630	1860	1100
29	2250	1390	1310	1300	---	3960	2670	3260	1750	1950	1820	1050
30	1370	1210	1340	1300	---	2350	3010	4680	1630	1880	1830	1170
31	1580	---	1300	1280	---	1760	---	5040	---	1720	1760	---
TOTAL	46820	29687	39163	39610	38470	56470	76550	78980	45487	55790	39024	48245
MEAN	1510	990	1263	1278	1374	1822	2552	2548	1516	1800	1259	1608
MAX	2910	1390	1380	1360	1600	3960	5320	5040	4540	2110	1990	2400
MIN	701	622	933	1220	1250	1440	1610	1320	899	1410	557	925
CAL YR 1990	TOTAL	470520	MEAN	1289	MAX	3380	MIN	527				
WTR YR 1991	TOTAL	594296	MEAN	1628	MAX	5320	MIN	557				

## STREAMS TRIBUTARY TO LAKE MICHIGAN

55

04063500 MENOMINEE RIVER AT TWIN FALLS NEAR IRON MOUNTAIN, MI

LOCATION.--Lat 46°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 in powerhouse of Wisconsin Electric Power Company at Twin Falls Dam, 3.6 mi north of Iron Mountain, and at mile 106.6.

DRAINAGE AREA.--1,800 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1914 to September 1957, October 1989 to current year. Published as "near Florence, WI" October 1957 to September 1989. Records published for both sites July 1950 to September 1957.

GAGE.--Water-stage recorder. Datum of gage is 1,062 ft above National Geodetic Vertical Datum of 1929 (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.

REMARKS.--Estimated daily discharges: Dec. 5, 6. Records good. 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. Rating 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. Several measurements of water temperature were made during the year.

AVERAGE DISCHARGE.--45 years, 1,792 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 16,700 ft<sup>3</sup>/s, Apr. 23, 24, 1916; minimum daily, 154 ft<sup>3</sup>/s, Aug. 9, 1925.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,550 ft<sup>3</sup>/s, May 30, gage height, 9.76 ft; minimum, 503 ft<sup>3</sup>/s, Nov. 1, gage height, 6.21 ft; minimum daily, 583 ft<sup>3</sup>/s Nov. 18.

REVISIONS.--The maximum discharge for the water year 1990 has been revised to 3,590 ft<sup>3</sup>/s, Mar. 15, 1990, gage height, 8.55 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	945	1310	1340	1340	1460	1720	2000	3630	4240	1830	1560	1520
2	1130	1320	1340	1270	1440	1700	1830	3410	4040	1860	1300	1480
3	1060	830	1440	1370	1390	1660	1910	3030	2380	1820	1090	1670
4	1110	955	1290	1360	1350	1660	1930	2740	1700	1970	1420	1710
5	1030	1110	1300	1290	1300	1630	1880	2750	1520	1810	1360	1560
6	733	1130	1300	1310	1330	1660	1790	2870	1430	1770	1410	1560
7	869	966	1290	1310	1340	1550	1620	3010	1430	1850	1260	1740
8	842	997	1280	1340	1320	1670	1990	2970	1340	2030	1260	1770
9	796	923	1370	1360	1290	1680	4250	2920	1270	1930	1070	1720
10	701	703	1220	1350	1440	1620	5340	3300	1180	1860	856	1820
11	769	641	1200	1360	1390	1640	4370	2930	1010	1750	796	1760
12	747	948	1070	1270	1360	1560	4210	2650	1060	1520	765	1700
13	779	808	1160	1270	1400	1610	3930	2760	1070	1270	700	1700
14	842	830	1180	1390	1330	1640	3300	2400	1080	1350	684	1640
15	1330	903	1230	1330	1410	1600	2790	1980	1270	1600	668	1750
16	1270	1010	1290	1370	1310	1600	2480	1990	1490	1730	660	2090
17	1130	630	1290	1410	1320	1580	2570	2100	1310	1920	708	2370
18	1570	583	1300	1330	1390	1620	2330	1970	1470	1610	737	2090
19	1930	699	1280	1460	1420	1700	2320	2000	1380	1700	803	1560
20	2270	793	1290	1250	1290	1610	2110	1680	1440	1810	885	1400
21	2220	821	1220	1340	1390	1490	1930	1600	1360	1820	809	1500
22	1960	924	1310	1410	1640	1680	1850	1530	1060	1680	795	1540
23	2260	831	1310	1400	1670	2130	1620	1370	804	1580	1150	1360
24	2500	982	1310	1390	1680	2570	1620	1440	1150	1520	1930	962
25	2560	981	1270	1540	1660	2420	1670	1350	1240	1460	2050	1410
26	2680	1060	1300	1450	1650	1860	2060	1480	992	1680	2040	1170
27	2660	1080	1370	1450	1680	2300	2720	1670	973	1610	1770	1190
28	2390	1140	1320	1360	1720	3490	2680	2330	1170	1600	1880	1190
29	2130	1460	1310	1390	---	4080	2560	3360	1670	1930	1790	1070
30	1570	1240	1330	1470	---	2450	2890	4530	1420	2090	1740	1120
31	1420	---	1370	1430	---	1740	---	5090	---	1470	1680	---
TOTAL	46203	28608	39880	42370	40370	58920	76550	78840	44949	53430	37626	47122
MEAN	1490	954	1286	1367	1442	1901	2552	2543	1498	1724	1214	1571
MAX	2680	1460	1440	1540	1720	4080	5340	5090	4240	2090	2050	2370
MIN	701	583	1070	1250	1290	1490	1620	1350	804	1270	660	962
CAL YR 1990	TOTAL	459799	MEAN	1260	MAX	4080	MIN	532				
WTR YR 1991	TOTAL	594868	MEAN	1630	MAX	5340	MIN	583				

## STREAMS TRIBUTARY TO LAKE MICHIGAN

454622088324801 MORGAN LAKE NEAR FENCE, WI

LOCATION.--Lat 45°46'22", long 88°32'48", in NE 1/4 NW 1/4 SW 1/4 sec.18, T.38 N., R.16 E., Florence County, Hydrologic Unit 04030108, at southwest end of lake on dirt road off Forest Service Road 2161, 6 mi west northwest of Fence.

DRAINAGE AREA.--Not determined. Area of lake, 44 acres.

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

GAGE.--Water-stage recorder. Datum of gage is approximately 1,400.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Lake does not have surface inlet or outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed gage height, 65.24 ft, June 1, 3, 22, 1991; minimum observed gage height, 63.61 ft, Oct. 19, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum observed gage height, 65.24 ft, June 1, 3, 22; minimum observed gage height, 64.12 ft, Oct. 10-14.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64.14	64.26	64.29	64.35	64.33	64.29	64.55	64.77	65.24	65.17	65.14	64.82
2	64.14	64.26	64.28	64.35	64.33	64.32	64.55	64.76	65.23	65.17	65.13	64.80
3	64.14	64.26	64.29	64.35	64.33	64.32	64.55	64.76	65.24	65.19	65.13	64.83
4	64.14	64.26	64.30	64.35	64.33	64.32	64.55	64.76	65.22	65.20	65.12	64.83
5	64.14	64.26	64.30	64.35	64.33	64.32	64.56	64.77	65.20	65.21	65.11	64.82
6	64.14	64.25	64.30	64.34	64.33	64.33	64.57	64.79	65.19	65.21	65.10	64.82
7	64.14	64.24	64.30	64.34	64.33	64.34	64.57	64.79	65.18	65.20	65.09	64.83
8	64.14	64.23	64.30	64.34	64.32	64.34	64.60	64.80	65.16	65.20	65.07	64.83
9	64.13	64.23	64.30	64.34	64.32	64.34	64.67	64.80	65.16	65.18	65.06	64.88
10	64.12	64.23	64.30	64.34	64.31	64.34	64.71	64.80	65.15	65.17	65.05	64.91
11	64.12	64.23	64.30	64.33	64.31	64.35	64.71	64.80	65.13	65.16	65.03	64.89
12	64.12	64.23	64.30	64.33	64.31	64.34	64.71	64.80	65.13	65.14	65.02	64.89
13	64.12	64.23	64.28	64.33	64.31	64.34	64.71	64.80	65.11	65.13	65.01	64.89
14	64.12	64.23	64.28	64.34	64.30	64.33	64.74	64.79	65.12	65.11	65.00	64.90
15	64.13	64.23	64.29	64.34	64.29	64.33	64.76	64.78	65.14	65.09	64.99	64.92
16	64.13	64.23	64.30	64.34	64.29	64.33	64.77	64.77	65.14	65.08	64.99	64.91
17	64.18	64.23	64.29	64.34	64.29	64.33	64.78	64.79	65.12	65.09	65.01	64.89
18	64.23	64.23	64.31	64.34	64.29	64.33	64.78	64.77	65.11	65.09	64.98	64.88
19	64.24	64.22	64.31	64.34	64.29	64.33	64.77	64.76	65.09	65.07	64.97	64.86
20	64.24	64.22	64.33	64.34	64.30	64.32	64.76	64.75	65.10	65.07	64.95	64.85
21	64.25	64.23	64.33	64.32	64.30	64.35	64.76	64.74	65.23	65.07	64.94	64.84
22	64.25	64.25	64.33	64.32	64.28	64.37	64.75	64.74	65.24	65.07	64.93	64.83
23	64.25	64.25	64.33	64.33	64.28	64.44	64.75	64.74	65.22	65.06	64.92	64.82
24	64.26	64.25	64.34	64.34	64.29	64.46	64.75	64.73	65.20	65.05	64.93	64.81
25	64.26	64.25	64.34	64.34	64.29	64.47	64.74	64.72	65.19	65.06	64.93	64.82
26	64.26	64.25	64.35	64.34	64.29	64.48	64.74	64.77	65.18	65.04	64.92	64.82
27	64.26	64.25	64.35	64.34	64.29	64.50	64.73	64.79	65.18	65.03	64.91	64.81
28	64.26	64.28	64.35	64.34	64.29	64.54	64.73	64.85	65.20	65.04	64.90	64.80
29	64.26	64.29	64.35	64.34	---	64.54	64.73	64.98	65.20	65.15	64.89	64.79
30	64.26	64.29	64.35	64.32	---	64.54	64.78	65.13	65.18	65.16	64.87	64.79
31	64.26	---	64.35	64.32	---	64.55	---	65.22	---	65.15	64.85	---
MEAN	64.19	64.24	64.31	64.34	64.31	64.38	64.69	64.81	65.17	65.12	65.00	64.85
MAX	64.26	64.29	64.35	64.35	64.33	64.55	64.78	65.22	65.24	65.21	65.14	64.92
MIN	64.12	64.22	64.28	64.32	64.28	64.29	64.55	64.72	65.09	65.03	64.85	64.79

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04063700 POPPLE RIVER NEAR FENCE, WI  
(HYDROLOGIC BENCHMARK STATION)  
(NATIONAL RADIOCHEMICAL SURVEILLANCE NETWORK STATION)

LOCATION.--Lat 45°45'49", long 88°27'47", in 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929. Prior to June 18, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--28 years, 119 ft<sup>3</sup>/s, 11.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,640 ft<sup>3</sup>/s, Apr. 25, 1979, gage height, 4.52 ft; minimum, 5.9 ft<sup>3</sup>/s, Oct. 28, 1976, gage height, 0.75 ft, result of temporary storage from beaver dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Apr. 11	1500	532	2.87	June 1	0600	*981	*3.75
May 2	2300	346	2.43				

Minimum daily discharge, 25 ft<sup>3</sup>/s, Jan. 24-27, 29-31.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 11-13, 25, Nov. 29 to Mar. 30, and Apr. 4.)

1.1	21	2.0	195
1.2	30	2.5	374
1.4	55	3.0	591
1.7	110	4.0	1,130

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	112	110	34	26	33	237	300	974	137	173	35
2	89	105	88	33	27	39	182	337	933	138	137	31
3	93	100	70	32	28	38	169	345	853	147	116	37
4	99	97	62	31	29	38	170	337	730	144	102	45
5	98	94	56	30	32	40	216	329	615	137	91	49
6	94	88	56	30	32	42	251	326	518	131	81	48
7	90	85	56	29	33	39	282	325	435	125	73	49
8	85	81	56	29	34	36	343	322	360	121	67	52
9	79	77	58	30	35	36	441	316	289	113	62	64
10	74	75	58	29	33	36	491	296	229	103	58	82
11	74	80	60	29	31	35	526	271	183	94	54	91
12	77	84	56	29	30	34	517	246	157	86	50	87
13	78	76	49	29	29	34	492	224	136	78	46	84
14	82	67	44	30	30	35	474	201	128	70	44	80
15	93	67	46	32	28	38	463	176	136	64	45	88
16	99	68	47	30	28	42	438	157	135	58	44	95
17	128	67	45	29	33	47	406	167	123	59	47	93
18	208	65	46	29	32	52	378	168	108	59	50	95
19	246	64	44	30	31	56	347	162	98	56	49	91
20	265	63	40	32	31	62	313	147	93	56	47	83
21	278	74	38	29	32	68	276	128	209	58	45	77
22	278	92	36	27	32	78	242	115	270	59	42	79
23	266	102	36	26	31	90	218	111	289	59	40	70
24	254	97	36	25	30	100	198	122	264	58	44	64
25	238	92	37	25	29	120	188	126	236	64	43	62
26	218	92	36	25	30	150	180	130	207	64	42	66
27	196	89	36	25	30	220	174	177	170	61	40	68
28	175	103	37	26	31	260	173	288	146	62	37	67
29	156	110	39	25	---	270	179	463	140	151	35	71
30	137	120	37	25	---	250	233	686	134	202	34	67
31	123	---	35	25	---	248	---	896	---	208	32	---
TOTAL	4553	2586	1550	889	857	2666	9197	8394	9298	3022	1870	2070
MEAN	147	86.2	50.0	28.7	30.6	86.0	307	271	310	97.5	60.3	69.0
MAX	278	120	110	34	35	270	526	896	974	208	173	95
MIN	74	63	35	25	26	33	169	111	93	56	32	31
CFSM	1.06	.62	.36	.21	.22	.62	2.21	1.95	2.23	.70	.43	.50
IN.	1.22	.69	.41	.24	.23	.71	2.46	2.25	2.49	.81	.50	.55

CAL YR 1990 TOTAL 34476 MEAN 94.5 MAX 389 MIN 23 CFSM .68 IN. 9.23  
WTR YR 1991 TOTAL 46952 MEAN 129 MAX 974 MIN 25 CFSM .93 IN. 12.57

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04063700 POPPLE RIVER NEAR FENCE, WI--CONTINUED  
(HYDROLOGIC BENCH-MARK STATION)  
(NATIONAL RADIOCHEMICAL SURVEILLANCE NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1964 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	
NOV 1990 27...	1115	--	87	133	7.9	0.5	2.0	12.6	724	92	K17	
MAR 1991 13...	1200	34	--	250	7.6	0.0	2.0	12.7	736	90	K4	
MAY 09...	0930	--	318	77	7.3	5.5	0.50	11.1	741	91	K6	
AUG 30...	0825	--	123	224	7.9	24.0	1.3	5.8	736	71	58	
DATE		STREP- TOCOCCT FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)	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)
NOV 1990 27...	K2	70	15	7.8	1.4	0.60	71	58	1.8	6.1	0.20	
MAR 1991 13...	K5	140	30	15	2.1	1.1	151	124	7.4	2.5	<0.10	
MAY 09...	E5	40	8.8	4.3	1.2	0.40	35	29	4.5	1.3	<0.10	
AUG 30...	34	120	27	13	1.8	0.80	135	110	5.8	0.90	<0.10	
DATE		SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1990 27...	9.7	103	78	<0.010	<0.100	0.080	0.060	0.70	0.010	0.020	<0.010	
MAR 1991 13...	15	137	149	0.020	0.250	0.190	0.110	0.30	0.020	0.010	<0.010	
MAY 09...	2.8	49	41	0.020	<0.050	0.060	0.060	0.70	0.020	0.020	0.010	
AUG 30...	7.9	132	124	<0.010	<0.050	0.020	0.010	0.50	0.020	0.010	<0.010	

E ESTIMATED.

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04063700 POPPLE RIVER NEAR FENCE, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC, DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM, DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
NOV 1990 27...	1115	--	87	50	<1	8	<0.5	<1.0	2	<3	<1
MAR 1991 13...	1200	34	--	<10	<1	10	<0.5	<1.0	<1	<3	<1
MAY 09...	0930	--	318	60	<1	7	<0.5	<1.0	<1	<3	1
AUG 30...	0825	--	123	20	1	13	1	<1.0	<1	<3	<1

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM, DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY, DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 1990 27...	380	1	<4	59	<0.1	<10	<1	<1	18	<6	4
MAR 1991 13...	260	<1	<4	68	<0.1	<10	<1	<1	28	<6	4
MAY 09...	240	<1	<4	30	<0.1	<10	1	<1	14	<6	6
AUG 30...	120	<1	<4	110	<0.1	<10	2	<1	32	<6	6

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)	TEMPER-ATURE WATER (DEG C) (00010)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990 05...	1500	--	93		132	13.5	--	--
NOV 27...	1115	--	87		133	0.5	4	0.94
JAN 1991 11...	1445	--	29		234	0.0	--	--
FEB 20...	1620	--	31		250	0.0	--	--
MAR 13...	1200	34	--		250	0.0	3	0.28
MAR 28...	1320	--	250		83	0.5	--	--
APR 17...	1150	--	399		68	6.0	--	--
MAY 09...	0930	--	318		77	5.5	5	4.3
JUN 20...	1020	--	92		150	21.5	--	--
JUL 30...	1415	--	205		152	18.0	--	--
AUG 30...	0825	--	123		224	24.0	2	0.66

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL, DIS-SOLVED (UG/L AS U) (22703)
MAR 1991 13...	1200	34	--	1.9	<0.6	2.1	<0.6	1.6	<0.6	0.02	0.65
AUG 30...	0825	--	123	<0.6	<0.6	2.6	<0.6	2.0	<0.6	0.03	0.83

## 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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 820 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 9, 10. Records excellent. 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. Several measurements of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft<sup>3</sup>/s, May 31, 1991, gage height, 12.82 ft; minimum, 815 ft<sup>3</sup>/s, Aug. 3, 4, 1988, gage height, 4.67 ft; minimum daily, 846 ft<sup>3</sup>/s, Aug. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,700 ft<sup>3</sup>/s, May 31, gage height, 12.82 ft; minimum, 890 ft<sup>3</sup>/s, Mar. 12, gage height, 4.72 ft; minimum daily, 1,060 ft<sup>3</sup>/s Aug. 11, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	2130	2180	1670	1680	1990	4190	5230	9260	2580	2670	1920
2	1660	2220	2150	1780	1670	2170	3410	5620	8250	2930	2510	1890
3	2090	1650	1900	1790	1790	1960	3430	4990	6280	3190	1980	2110
4	1580	1560	1780	1750	1730	1970	3460	4490	5060	3440	2130	1870
5	1710	1810	1830	1650	1800	2000	3910	4540	3860	3390	2120	2050
6	1410	1950	1920	1620	1590	1980	3690	4500	3540	3240	2000	1980
7	1350	1720	1890	1690	1700	2000	3820	4830	3020	2940	1770	1960
8	1820	1580	1890	1590	1730	2010	4230	4650	3080	3230	1740	2260
9	1450	1600	1950	1620	1730	2030	6450	4510	2640	3180	1750	2260
10	1280	1250	1940	1740	1830	2000	8780	4820	2460	2690	1210	2160
11	1220	1220	1880	1600	1800	2090	8170	4650	1950	2490	1060	2470
12	1250	1240	1550	1590	1760	1830	7690	4080	2100	2600	1300	2660
13	1110	1460	1830	1670	1720	1970	7060	4060	2010	1980	1140	2570
14	1190	1260	1760	1680	1780	2140	6110	4000	1830	1910	1070	2650
15	1950	1480	1610	1680	1830	2040	6440	3140	1940	2170	1090	2150
16	2220	1480	1880	1640	1600	1950	6030	3110	2390	2540	1080	2750
17	1980	1320	1830	1680	1650	2040	5660	3490	2440	2510	1060	3310
18	2740	1160	1950	1680	1590	2090	5410	3310	2300	2310	1070	2910
19	3720	1260	1740	1720	1720	2180	4710	3470	2200	2280	1210	2400
20	4130	1290	1780	1780	1810	2340	4370	3230	2070	2260	1250	2090
21	4300	1390	1950	1670	1580	2290	3770	2810	2290	2340	1190	2020
22	3840	1540	1820	1660	1900	2720	3650	2730	2340	2310	1170	1960
23	3850	1710	1710	1730	1950	3260	3410	2470	2130	2410	1420	1800
24	4130	1650	1730	1740	2060	4640	3180	2350	2110	2090	2060	1360
25	4150	1820	1760	1810	2000	4220	2960	2210	2350	2120	2220	1760
26	4020	1540	1720	1770	1840	3640	3360	2370	1950	2030	2640	1630
27	4040	1650	1770	1770	1980	4490	4230	3070	1820	2060	2310	1470
28	3920	2040	1780	1710	2010	5860	4000	3940	1920	2080	2160	1620
29	3150	2280	1790	1650	---	7220	3950	5440	2800	2890	2090	1570
30	2830	1970	1760	1640	---	5210	4360	8440	2400	3650	2070	1600
31	2440	---	1840	1600	---	3990	---	10300	---	2800	1910	---
TOTAL	77810	48230	56870	52370	49830	88320	143890	130850	90790	80640	52450	63210
MEAN	2510	1608	1835	1689	1780	2849	4796	4221	3026	2601	1692	2107
MAX	4300	2280	2180	1810	2060	7220	8780	10300	9260	3650	2670	3310
MIN	1110	1160	1550	1590	1580	1830	2960	2210	1820	1910	1060	1360
CAL YR 1990	TOTAL	740200	MEAN	2028	MAX	6540	MIN	1010				
WTR YR 1991	TOTAL	935260	MEAN	2562	MAX	10300	MIN	1060				



## STREAMS TRIBUTARY TO LAKE MICHIGAN

61

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 740 ft, from topographic map. October 1949 to Oct. 27, 1972, water-stage recorder at site 1.0 mi upstream at different datum, and Oct. 28, 1972, to August 1982, water-stage recorder at site 1.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair. 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.

AVERAGE DISCHARGE.--42 years, 2,940 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,900 ft<sup>3</sup>/s, May 8, 1960, gage height, 13.90 ft site and datum then in use; minimum, 694 ft<sup>3</sup>/s, Sept. 3, 1969, gage height, 1.66 ft site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,000 ft<sup>3</sup>/s, June 1, gage height, 13.02 ft; minimum daily, 1,140 ft<sup>3</sup>/s, Aug. 16, 18.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4-9, 13-16, 18-21, and Dec. 23 to Mar. 17.)

6.9	1,100	9.0	3,840
7.0	1,180	10.0	5,600
8.0	2,370	11.0	7,740
		13.0	12,900

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1180	2210	2260	1800	1800	2200	4630	5700	12000	2490	2930	1970
2	1440	2360	2290	1700	1800	2300	3870	5930	9980	3130	2810	1860
3	1770	2010	2070	1800	1900	2100	3610	5320	7750	3340	2260	2220
4	1600	1570	1700	1800	1800	2100	3740	4750	6100	3560	2150	2060
5	1710	1940	1900	1700	2000	2100	4070	4770	4240	3730	2290	2170
6	1510	1830	1800	1600	2000	2100	4200	4740	3920	3290	2110	2210
7	1320	2040	2000	1600	1900	2100	4040	5140	3520	3190	2020	1820
8	1480	1680	1900	1600	1800	2100	4430	4960	3380	3270	1830	2240
9	1580	1660	2100	1600	2000	2200	6450	4580	2950	3380	1810	2380
10	1310	1520	2310	1600	2000	2200	9790	5050	2750	2960	1560	2440
11	1250	1310	2010	1500	2000	2300	9380	5000	2270	2490	1180	2350
12	1260	1330	1700	1500	1900	2300	8540	4230	2290	2730	1260	2750
13	1210	1540	1800	1600	1900	2200	7890	4230	2120	2170	1310	2640
14	1190	1370	1800	1600	1900	2200	6880	4310	2070	1950	1150	2810
15	1720	1440	1800	1600	1700	2300	7420	3360	2110	2070	1160	2170
16	1990	1660	1900	1700	1700	2200	7170	3260	2670	2620	1140	2750
17	1990	1600	1950	1700	1800	2200	6550	4100	2660	2610	1150	3450
18	2600	1360	1900	1700	1800	2400	6160	3900	2670	2510	1140	3030
19	3670	1350	1900	1800	1900	2540	5350	3940	2320	2270	1180	2740
20	4430	1410	1900	1800	1900	2700	4890	3720	2200	2310	1330	2150
21	4460	1430	2100	1700	2000	2660	4170	3220	2570	2450	1300	2140
22	4120	1610	1970	1600	2000	3020	4000	2980	2700	2430	1240	2050
23	3890	1870	1700	1700	2000	3470	3760	2750	2450	2570	1400	1920
24	4270	1790	1700	1800	2100	5240	3450	2650	2200	2310	1950	1560
25	4210	1900	1800	1700	2000	5050	3230	2940	2450	2200	2270	1840
26	4140	1720	1700	1800	1900	4220	3490	2860	2300	2190	2450	1830
27	4200	1690	1800	1900	2000	5180	4410	3630	1980	2180	2620	1760
28	4020	2020	1800	1800	2100	6510	4290	4360	1950	2160	2260	1760
29	3300	2460	1900	1800	---	7990	4240	6010	2720	2840	2160	1840
30	2930	2160	1800	1700	---	6130	4450	9340	2690	4240	2170	1550
31	2590	---	1700	1800	---	4540	---	12200	---	3410	2020	---
TOTAL	78340	51840	58960	52600	53600	98850	158550	143930	103980	85050	55610	66460
MEAN	2527	1728	1902	1697	1914	3189	5285	4643	3466	2744	1794	2215
MAX	4460	2460	2310	1900	2100	7990	9790	12200	12000	4240	2930	3450
MIN	1180	1310	1700	1500	1700	2100	3230	2650	1950	1950	1140	1550

CAL YR 1990	TOTAL	755070	MEAN	2069	MAX	7700	MIN	1100
WTR YR 1991	TOTAL	1007770	MEAN	2761	MAX	12200	MIN	1140

# STREAMS TRIBUTARY TO LAKE MICHIGAN

451511087550900 LAKE NOQUEBAY NEAR CRIVITZ, WI

LOCATION.--Lat 45°15'11", long 87°55'09", in SE 1/4 SE 1/4 sec.7, T.32 N., R.21 E., Marinette County, Hydrologic Unit 04030105, near Crivitz.

DRAINAGE AREAS.--132 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--February to September 1987, April to September 1991.

GAGE.--Staff gage read by Rev. Donald Burkart.

REMARKS.--Lake levels controlled at outlet. Lake levels are drawn down about 1.5 ft from October through April.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 2.50 ft, June 1, 1991; minimum observed, 0.72 ft, Apr. 8, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.50 ft, June 1; minimum observed, 1.96 ft, Apr. 13.

GAGE HEIGHT, FEET, APRIL TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

451511087550900 LAKE NOUEBAY NEAR CRIVITZ, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1987 to August 1988, April to September 1991.

REMARKS.--Lake sampled at a lake depth of approximately 31 ft approximately 4,000 ft northeast of dam outlet.  
Water-quality analyses by Wisconsin State Laboratory of Hygiene.WATER-QUALITY DATA, APRIL 15 TO AUGUST 27, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 15		June 24		July 16		Aug. 27	
Depth of sample (ft)	1.5	43.0	1.5	39.0	1.5	28.0	1.5	42.0
Lake stage (ft)	2.23		2.50		2.15		2.22	
Specific conductance ( $\mu$ S/cm)	250	246	275	286	294	292	303	326
pH (units)	7.8	7.9	8.2	7.7	8.5	7.4	8.3	7.6
Water temperature ( $^{\circ}$ C)	5.2	5.0	23.5	11.6	23.8	13.8	24.7	13.8
Color (Pt-Co. scale)	40	40	---	---	---	---	---	---
Turbidity (NTU)	1.1	1.1	---	---	---	---	---	---
Secchi-depth (meters)	3.5		2.5		2.4		2.6	
Dissolved oxygen	11.9	11.6	7.8	0.0	8.3	1.0	8.4	1.2
Hardness, as $\text{CaCO}_3$	140	140	---	---	---	---	---	---
Calcium, dissolved (Ca)	32	32	---	---	---	---	---	---
Magnesium, dissolved (Mg)	14	14	---	---	---	---	---	---
Sodium, dissolved (Na)	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	0.92	0.84	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	130	131	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	6.0	6.0	---	---	---	---	---	---
Fluoride, dissolved (F)	<0.05	<0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	3.0	3.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	7.4	7.4	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	168	170	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	0.112	0.115	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.014	0.018	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.6	0.6	---	---	---	---	---	---
Phosphorus, total (as P)	0.014	0.012	<0.020	<0.020	0.012	0.012	0.011	0.080
Phosphorus, ortho, dissolved (as P)	0.004	0.004	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g/L}$	60	60	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g/L}$	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g/L}$ )	3.0	---	3.0	---	4.0	---	5.0	---

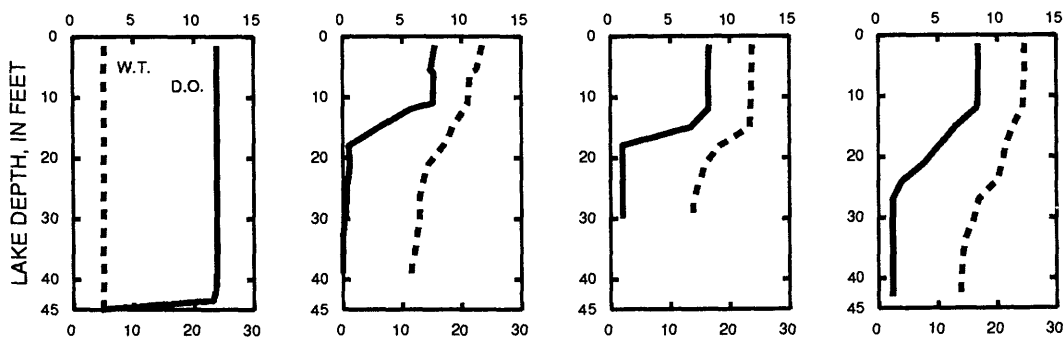
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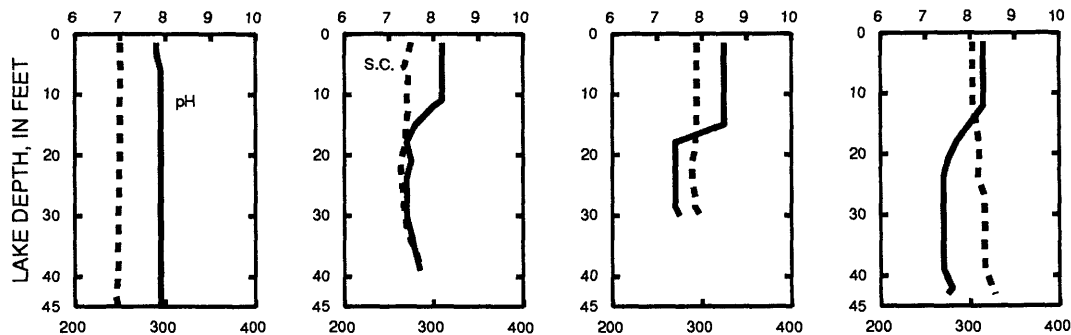
8-27-91

## 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

## STREAMS TRIBUTARY TO LAKE MICHIGAN

451540087525700 LAKE NOQUEBAY, EAST END, NEAR CRIVITZ, WI

LOCATION.--Lat 45°15'40", long 87°52'57", in SE 1/4 NE 1/4 sec.9, T.32 N., R.21 E., Marinette County, Hydrologic Unit 04030105, 5.9 mi northeast of Crivitz.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in east bay. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 15 TO AUGUST 27, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 15	June 24	July 16	Aug. 27
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	2.23	2.50	2.15	2.22
Specific conductance (μS/cm)	248	265	282	296
pH (units)	7.8	8.2	8.5	8.4
Water temperature (°C)	4.9	24.1	24.7	26.1
Secchi-depth (meters)	3.6	2.7	2.3	2.4
Dissolved oxygen	12.1	7.5	8.7	8.6
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.097	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.03	---	---	---
Nitrogen, amm. + org., total (as N)	0.60	---	---	---
Phosphorus, total (as P)	0.012	<0.020	0.012	0.010
Chlorophyll a, phytoplankton (μg/L)	3.0	28.0	5.0	4.0

## STREAMS TRIBUTARY TO LAKE MICHIGAN

65

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Diurnal fluctuation caused by two powerplants upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years, 923 ft<sup>3</sup>/s, 11.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,790 ft<sup>3</sup>/s, May 9, 1960, gage height, 11.59 ft, from rating curve extended above 5,000 ft<sup>3</sup>/s on basis of computation of peak flow through dam gates; minimum, 17 ft<sup>3</sup>/s, Nov. 29, 1966, gage height, 1.00 ft; minimum daily, 84 ft<sup>3</sup>/s, Aug. 5, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,020 ft<sup>3</sup>/s, June 2, gage height, 7.63 ft; minimum daily, 128 ft<sup>3</sup>/s, Sept. 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3, 11-19, and Dec. 21 to Mar. 25.)

0.8	61.0	3.0	1,060
1.0	115	5.0	2,220
1.5	300	8.0	4,320
2.0	525		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	676	933	805	440	450	360	2500	1360	3330	960	1630	247
2	664	1040	687	470	430	420	2300	1590	3890	1230	1470	128
3	691	971	500	520	480	500	1950	1580	3790	1090	1450	549
4	726	822	293	430	450	430	1560	1510	3260	1050	1380	560
5	851	1070	560	400	410	450	1520	1320	2910	971	1040	529
6	834	949	635	490	460	470	1630	1710	2510	1040	969	385
7	743	839	739	460	430	500	1670	1720	1780	1150	884	343
8	678	909	757	470	480	450	1760	1610	1630	915	813	624
9	728	910	687	400	430	380	1970	1590	1220	760	677	472
10	739	807	582	460	520	450	2170	1490	966	821	708	871
11	719	779	620	420	490	420	2790	1440	1170	861	510	786
12	876	692	640	450	470	420	2890	1260	1240	641	727	636
13	833	647	640	500	410	390	3230	1350	872	725	591	585
14	690	672	600	440	450	450	3590	1350	1000	616	428	622
15	733	785	540	420	520	470	3490	1130	1080	496	468	852
16	823	720	600	420	430	480	3770	1180	1270	698	380	1050
17	898	628	640	470	380	500	3500	1130	932	599	470	1050
18	910	737	600	380	400	600	3350	1200	959	562	456	1080
19	911	670	640	440	330	660	2760	1390	934	590	463	673
20	1210	688	531	400	420	760	2670	1310	874	555	438	618
21	1270	650	640	430	370	960	2360	1250	672	509	510	697
22	1340	888	580	460	400	1300	2090	999	1170	586	496	561
23	1300	703	500	410	450	1700	1920	908	1320	822	589	462
24	1270	686	450	400	340	2100	1660	963	1280	533	541	693
25	1190	772	490	390	310	2700	1480	855	1130	577	357	565
26	1180	704	470	460	450	3470	1460	1040	996	698	393	585
27	1080	567	540	400	380	3020	1260	1340	988	546	475	676
28	1080	724	500	370	380	3270	1370	1580	888	498	502	457
29	1040	797	460	420	---	3100	1260	1890	895	1520	415	617
30	949	818	440	420	---	3050	1340	2530	825	1940	434	531
31	939	---	480	400	---	2900	---	2590	---	1940	335	---
TOTAL	28571	23577	17846	13440	11920	37130	67270	44165	45781	26499	20999	18504
MEAN	922	786	576	434	426	1198	2242	1425	1526	855	677	617
MAX	1340	1070	805	520	520	3470	3770	2590	3890	1940	1630	1080
MIN	664	567	293	370	310	360	1260	855	672	496	335	128
CFSM	.85	.73	.53	.40	.39	1.11	2.08	1.32	1.41	.79	.63	.57
IN.	.98	.81	.61	.46	.41	1.28	2.32	1.52	1.58	.91	.72	.64

CAL YR 1990 TOTAL 309732 MEAN 849 MAX 5150 MIN 210 CFSM .79 IN. 10.67  
WTR YR 1991 TOTAL 355702 MEAN 975 MAX 3890 MIN 128 CFSM .90 IN. 12.25

STREAMS TRIBUTARY TO LAKE MICHIGAN  
04070000 WHEELER LAKE NEAR LAKEWOOD, WI

LAKE-STAGE RECORDS

LOCATION.--Lat 45°19'07", long 88°28'58", in NW 1/4 sec.27, T.33 N., R.16 E., Oconto County, Hydrologic Unit 04030104, on south shore of lake, 2.5 mi northeast of Lakewood.

DRAINAGE AREA.--2.27 mi<sup>2</sup>, approximately. Area of Wheeler Lake, 380 acres.

PERIOD OF RECORD.--August 1936 to September 1981, April 1986 to current year.

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

GAGE.--Nonrecording gage. Datum of gage is 90.00 ft above datum assumed by Wisconsin Department of Natural Resources; gage readings have been reduced to elevations above this datum. Staff gage read by Roy A. Green on south side of lake. Prior to Apr. 19, 1936, nonrecording gage was located on east shore of lake. Apr. 20, 1939, to Apr. 13, 1960, nonrecording gage was located on southwest shore of lake.

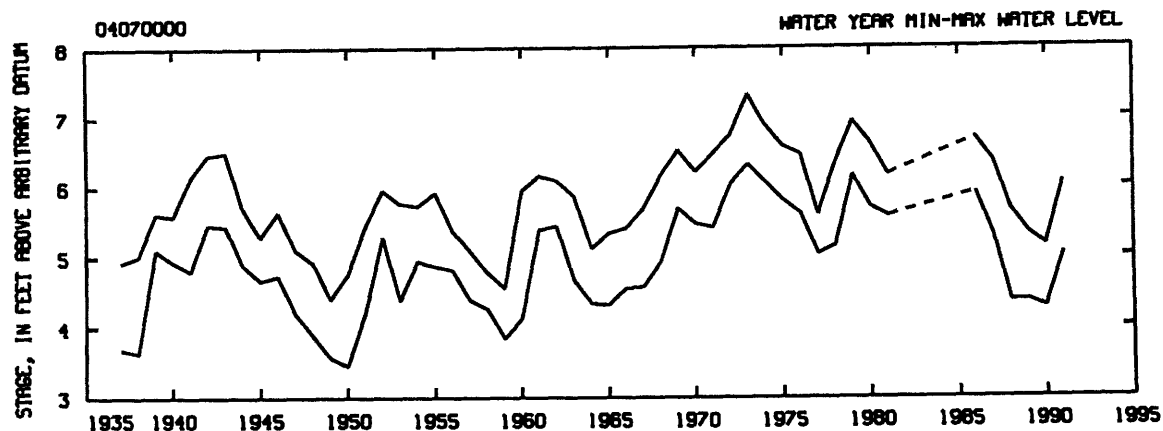
REMARKS.--Add 90 ft to obtain elevation above datum assumed for this lake by Wisconsin Department of Natural Resources. Lake has no surface outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 7.31 ft June 6, 1973; minimum observed, 3.45 ft Feb. 5, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 6.06 ft, June 21; minimum observed, 5.04 ft, Oct. 11.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	5.79
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	6.03	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	5.95	---
11	5.04	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	5.74	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	6.06	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	5.73
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	5.99	---	---	---
25	---	---	---	---	---	---	---	---	5.99	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	5.62	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---



STREAMS TRIBUTARY TO LAKE MICHIGAN

67

04070000 WHEELER LAKE NEAR LAKEWOOD, WI--CONTINUED

WATER-QUALITY RECORDS

LOCATION.--Lat 45°19'07", long 88°28'32", in NE 1/4 sec.27, T.33 N., R.16 E., Oconto County, Hydrologic Unit 04030104, near center of lake, and 2.6 mi northeast of Lakewood.

PERIOD OF RECORD.--July 1985 to current year.

REMARKS.--Secchi disc readings made by Roy A. Green.

SECCHI DISC TRANSPARENCY (IN METERS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SECCHI DISC (M) (00078)	DATE	TIME	SECCHI DISC (M) (00078)
OCT 1990			AUG 1991		
11...	1200	4.9	10...	1200	4.9
JUN 1991			SEP		
21...	1200	7.8	02...	1200	4.0
24...	1200	7.6	22...	1200	3.7
25...	1200	7.6			

## STREAMS TRIBUTARY TO LAKE MICHIGAN

445401088334500 LEGEND LAKE SITE #2 (CENTER) NEAR SHAWANO, WI

LOCATION.--Lat 44°54'01", long 88°33'45", in SE 1/4 SW 1/4 sec. 16, T.28 N., R.16 E., Menominee County, Hydrologic Unit 04030104, 8.6 mi northeast of Shawano.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled near center and approximately 2 mi west of the dam at the east end at a lake depth of about 70 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, OCTOBER 31, 1990 TO APRIL 17, 1991  
(Milligrams per liter unless otherwise indicated)

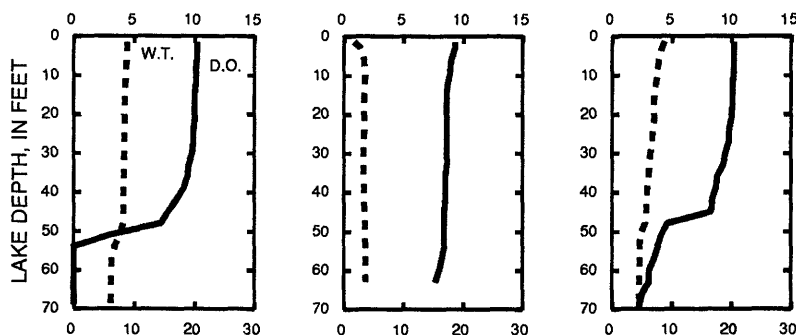
	Oct. 31		Feb. 12		Apr. 17	
Depth of sample (ft)	1.5	69.0	1.5	63.0	1.5	69.0
Lake stage (ft)	---		21.0		1.5	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	259	311	274	294	260	316
pH (units)	8.1	7.2	7.6	7.4	7.4	7.4
Water temperature ( $^{\circ}\text{C}$ )	8.8	6.1	1.7	3.7	8.7	4.6
Color (Pt-Co. scale)	6.0	25.0	---	---	5.0	12.0
Turbidity (NTU)	1.4	4.1	---	---	0.7	2.0
Secchi-depth (meters)	3.8		5.8		3.7	
Dissolved oxygen	10.2	0.0	9.3	7.7	10.2	2.3
Calcium, dissolved (Ca)	24	34	---	---	32	40
Magnesium, dissolved (Mg)	14	17	---	---	18	19
Sodium, dissolved (Na)	1.8	2.2	---	---	2.4	2.3
Potassium, dissolved (K)	0.7	1.2	---	---	0.9	1.2
Alkalinity, as $\text{CaCO}_3$	114	159	---	---	151	171
Sulfate, dissolved ( $\text{SO}_4$ )	5.6	5.0	---	---	11.0	7.8
Fluoride, dissolved (F)	0.2	0.3	---	---	0.2	0.2
Chloride, dissolved (Cl)	2.4	3.0	---	---	3.1	2.7
Silica, dissolved ( $\text{SiO}_2$ )	2.5	8.3	---	---	1.6	8.8
Solids, dissolved, at $180^{\circ}\text{C}$	120	163	---	---	157	182
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	<0.01	0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.100	<0.100	---	---	<0.050	0.054
Nitrogen, ammonia, total (as N)	0.010	0.640	---	---	<0.010	0.130
Nitrogen, amm. + org., total (as N)	0.30	1.00	---	---	0.50	0.80
Phosphorus, total (as P)	0.030	0.143	---	---	0.010	0.008
Phosphorus, ortho, dissolved (as P)	0.010	0.158	---	---	<0.001	<0.001
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	<3.0	2100	---	---	3.0	12.0
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	6.0	2300	---	---	2.0	360
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.9	---	---	---	0.9	---

10-31-90

2-12-91

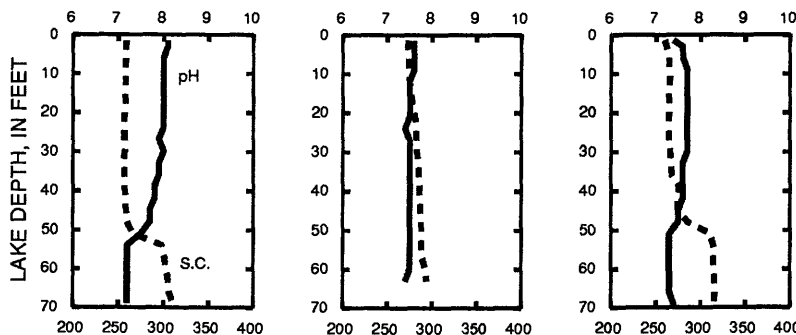
4-17-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS



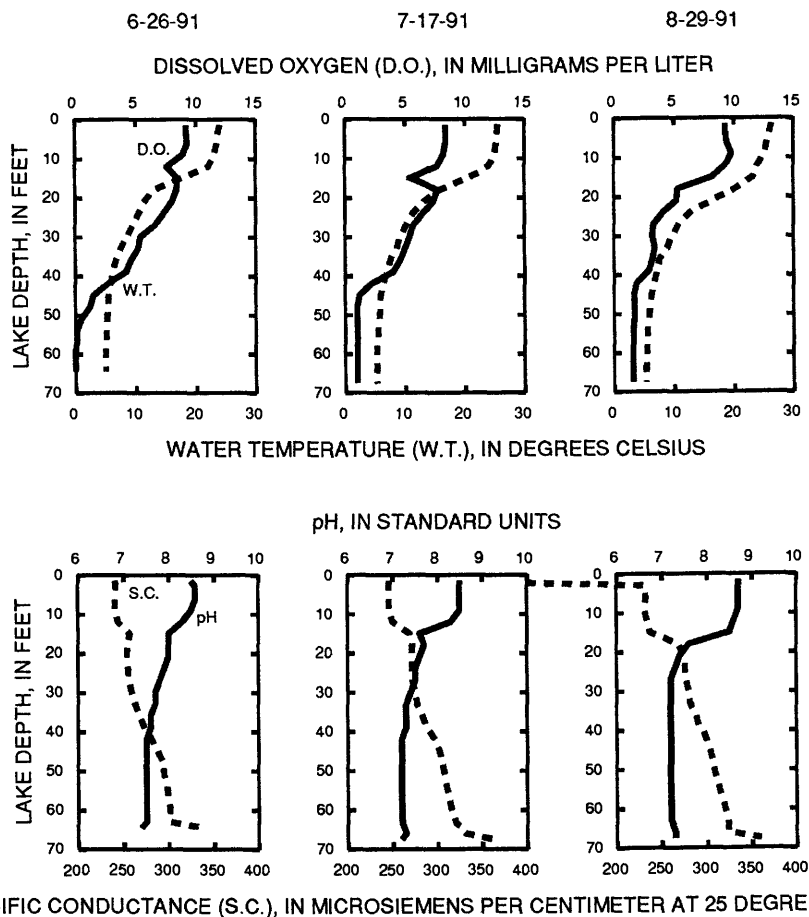
## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS



445401088334500 LEGEND LAKE SITE #2 (CENTER) NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 26 TO AUGUST 29, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 17		Aug. 29	
Depth of sample (ft)	1.5	63.0	1.5	66.0	1.5	66.0
Lake stage (ft)	---	---	---	---	---	---
Specific conductance ( $\mu\text{S}/\text{cm}$ )	241	301	246	331	231	324
pH (units)	8.54	7.48	8.50	7.30	8.70	7.30
Water temperature ( $^{\circ}\text{C}$ )	24.10	5.05	25.60	5.20	26.40	5.30
Secchi-depth (meters)	3.8		4.7		5.1	
Dissolved oxygen	9.19	0.05	8.40	1.00	9.30	1.60
Phosphorus, total (as P)	0.014	0.023	0.008	0.079	0.007	0.085
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.4	---	1.1	---	0.8	---



LOCATION.--Lat 44°53'42", long 88°31'27", in NW 1/4 NE 1/4 sec. 23, T.28 N., R.16 E., Menominee County, Hydrologic Unit 04030104, 9.0 mi northeast of Shawano.

### LAKE-STAGE RECORDS

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.15 ft, Apr. 16; minimum gage-height observed, 1.61 ft, Aug. 28 and Sept. 27.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

445342088312700 LEGEND LAKE SITE #1 (NEAR DAM) NEAR SHAWANO, WI--CONTINUED

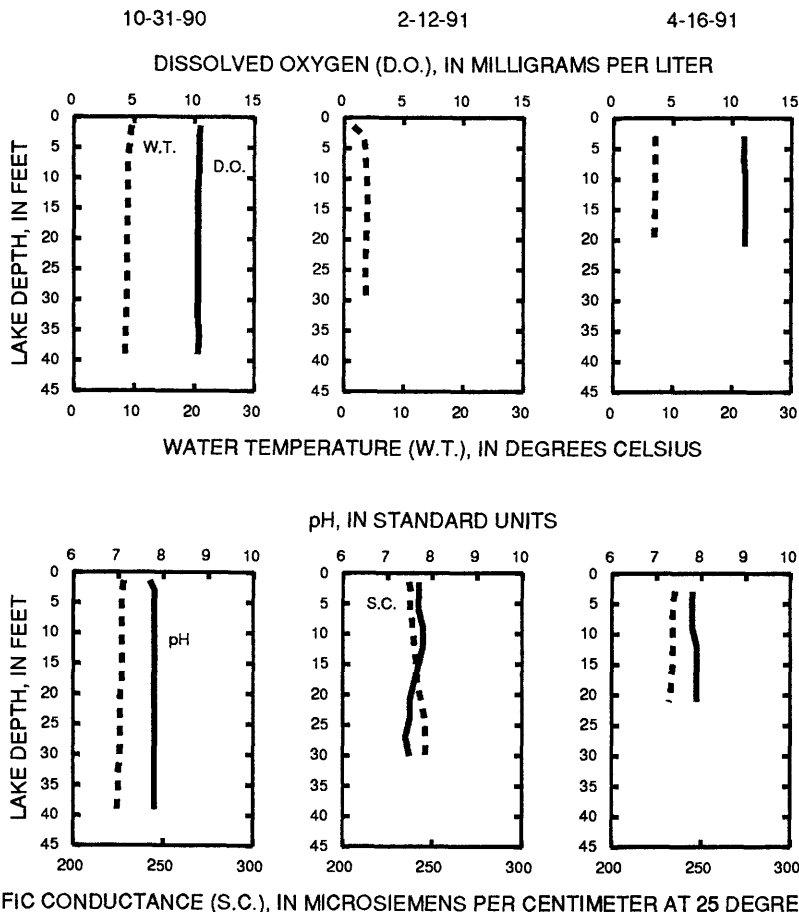
## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled at east end near dam at a lake depth of about 35 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, OCTOBER 31, 1990 TO APRIL 16, 1991  
(Milligrams per liter unless otherwise indicated)

	Oct. 31		Feb. 12		Apr. 16	
Depth of sample (ft)	1.5	39.0	1.5	32.0	1.5	19.5
Lake stage (ft)	1.80		1.79		2.15	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	228	224	237	248	235	233
pH (units)	7.7	7.8	7.7	7.4	7.8	7.9
Water temperature ( $^{\circ}\text{C}$ )	9.6	8.5	1.6	3.6	7.1	6.9
Color (Pt-Co. scale)	6.0	8.0	---	---	6.0	12.0
Turbidity (NTU)	1.2	1.3	---	---	0.5	1.0
Secchi-depth (meters)	4.1		9.4		4.7	
Dissolved oxygen	10.5	10.3	---	---	11.0	11.1
Calcium, dissolved (Ca)	23	28	---	---	27	27
Magnesium, dissolved (Mg)	14	15	---	---	14	14
Sodium, dissolved (Na)	1.8	2.0	---	---	1.8	1.8
Potassium, dissolved (K)	0.8	0.8	---	---	0.7	0.8
Alkalinity, as $\text{CaCO}_3$	115	131	---	---	122	121
Sulfate, dissolved ( $\text{SO}_4$ )	5.7	6.8	---	---	5.4	5.9
Fluoride, dissolved (F)	0.2	0.2	---	---	0.2	<0.1
Chloride, dissolved (Cl)	3.2	3.0	---	---	2.2	2.3
Silica, dissolved ( $\text{SiO}_2$ )	2.9	3.7	---	---	2.6	2.6
Solids, dissolved, at $180^{\circ}\text{C}$	124	136	---	---	134	128
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	<0.01	<0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.10	<0.10	---	---	<0.05	<0.05
Nitrogen, ammonia, total (as N)	<0.01	<0.01	---	---	0.02	0.02
Nitrogen, amm. + org., total (as N)	0.30	0.40	---	---	0.60	0.50
Phosphorus, total (as P)	0.005	0.009	---	---	0.011	0.006
Phosphorus, ortho, dissolved (as P)	0.024	0.003	---	---	<0.001	<0.001
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	12.0	8.0	---	---	17.0	17.0
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	6.0	6.0	---	---	7.0	6.0
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.9	---	---	---	0.9	---

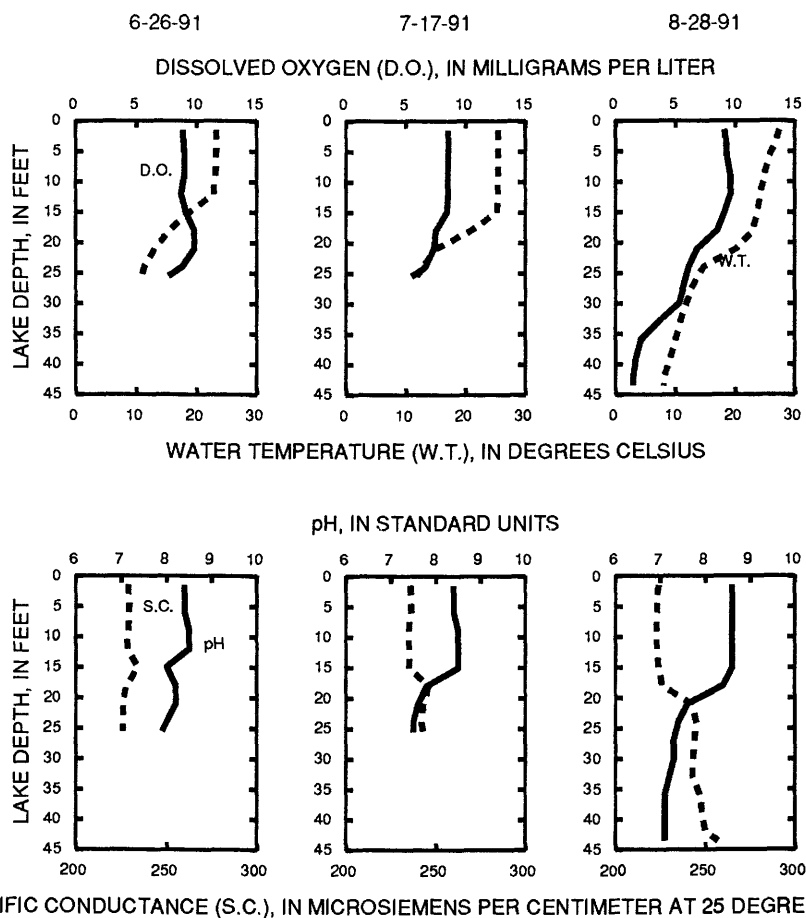


## STREAMS TRIBUTARY TO LAKE MICHIGAN

445342088312700 LEGEND LAKE SITE #1 (NEAR DAM) NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 26 TO AUGUST 28, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 17		Aug. 28	
Depth of sample (ft)	1.5	24.0	1.5	24.0	1.5	42.0
Lake stage (ft)		1.85		1.81		1.61
Specific conductance ( $\mu\text{S}/\text{cm}$ )	229	226	236	242	224	250
pH (units)	8.40	7.95	8.40	7.50	8.60	7.10
Water temperature ( $^{\circ}\text{C}$ )	23.34	11.30	25.50	12.70	27.40	8.20
Secchi-depth (meters)		3.9		4.5		4.6
Dissolved oxygen	8.88	8.81	8.50	6.60	9.10	1.50
Phosphorus, total (as P)	0.006	0.010	0.014	0.010	0.004	0.007
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.4	---	1.0	---	0.3	---



## 73

LOCATION.--Lat 44°53'52", long 88°29'58", in NW 1/4 NE 1/4 sec. 24, T.28 N., R.16 E., Menominee County, Hydrologic Unit 04030104, 9.7 mi northeast of Shawano.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 1.90 ft, Apr. 16; minimum gage-height observed, 1.28 ft, Aug. 28.

[illegible]

## STREAMS TRIBUTARY TO LAKE MICHIGAN

445352088295800 MOSHAWQUIT LAKE NEAR SHAWANO, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled near east end at a lake depth of about 25 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, NOVEMBER 01, 1990 TO APRIL 16, 1991  
(Milligrams per liter unless otherwise indicated)

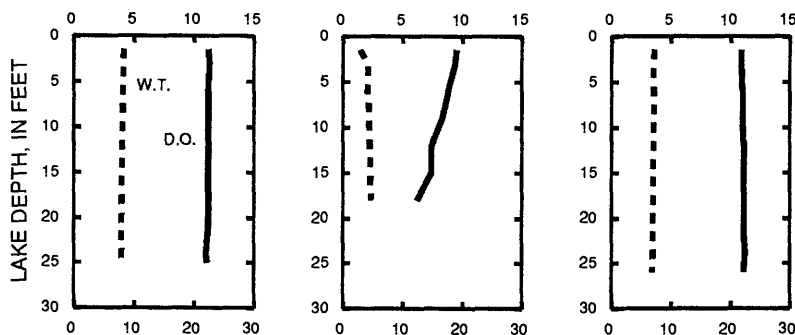
	Nov. 01		Feb. 12		Apr. 16	
Depth of sample (ft)	1.5	25.0	1.5	18.0	1.5	24.0
Lake stage (ft)	1.44		---		1.90	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	223	220	241	251	214	213
pH (units)	7.9	8.0	5.4	6.7	8.0	8.2
Water temperature ( $^{\circ}\text{C}$ )	8.3	7.9	2.9	4.7	7.2	7.0
Color (Pt-Co. scale)	3.0	3.0	---	---	3.0	3.0
Turbidity (NTU)	1.3	1.0	---	---	0.5	0.7
Secchi-depth (meters)	4.5		4.9		3.8	
Dissolved oxygen	11.2	11.1	9.5	6.2	10.9	11.2
Calcium, dissolved (Ca)	23	24	---	---	25	25
Magnesium, dissolved (Mg)	12	12	---	---	12	12
Sodium, dissolved (Na)	3.9	2.3	---	---	2.3	2.2
Potassium, dissolved (K)	1.2	0.7	---	---	0.7	0.7
Alkalinity, as $\text{CaCO}_3$	109	109	---	---	107	107
Sulfate, dissolved ( $\text{SO}_4$ )	4.6	4.3	---	---	4.3	5.3
Fluoride, dissolved (F)	0.1	0.1	---	---	0.1	<0.1
Chloride, dissolved (Cl)	3.7	3.4	---	---	3.0	3.3
Silica, dissolved ( $\text{SiO}_2$ )	7.3	7.8	---	---	3.4	3.4
Solids, dissolved, at $180^{\circ}\text{C}$	118	124	---	---	121	105
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	0.01	<0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.100	<0.100	---	---	0.050	0.061
Nitrogen, ammonia, total (as N)	0.03	0.02	---	---	0.02	<0.01
Nitrogen, amm. + org., total (as N)	0.40	0.60	---	---	0.50	0.20
Phosphorus, total (as P)	0.006	0.005	---	---	0.007	0.009
Phosphorus, ortho, dissolved (as P)	0.023	0.010	---	---	<0.001	<0.001
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	5.0	<3.0	---	---	3.0	<3.0
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	6.0	2.0	---	---	2.0	2.0
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.0	---	---	---	0.9	---

11-1-90

2-12-91

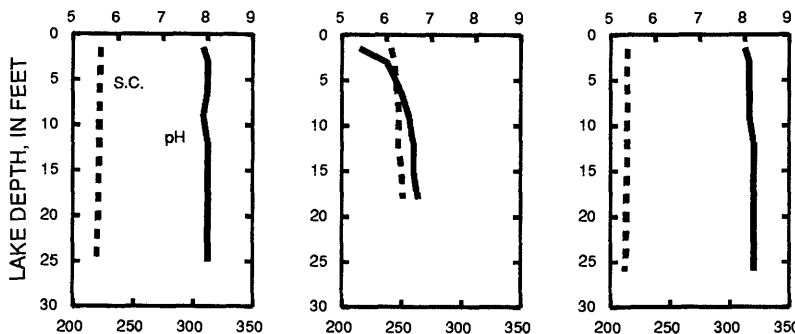
4-16-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

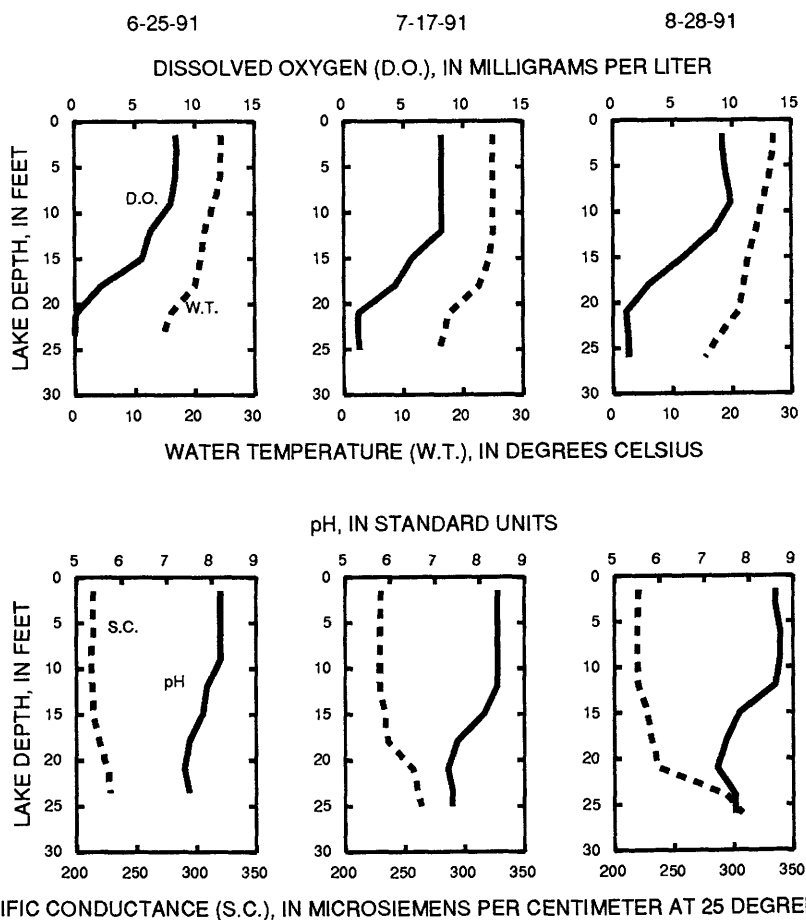


## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

445352088295800 MOSHAWQUIT LAKE NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 25 TO AUGUST 28, 1991  
(Milligrams per liter unless otherwise indicated)

	June 25		July 17		Aug. 28	
Depth of sample (ft)	1.5	21.0	1.5	23.5	1.5	24.0
Lake stage (ft)	1.54		1.40		1.28	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	214	227	230	261	220	294
pH (units)	8.2	7.4	8.4	7.4	8.6	7.7
Water temperature ( $^{\circ}\text{C}$ )	24.4	16.1	25.0	16.8	27.0	17.4
Secchi-depth (meters)	3.0		2.3		2.9	
Dissolved oxygen	8.45	0.08	8.20	1.20	9.20	1.30
Phosphorus, total (as P)	0.009	0.015	0.006	0.049	0.013	0.018
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.6	---	2.1	---	0.9	---



STREAMS TRIBUTARY TO LAKE MICHIGAN  
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 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1906 to March 1909, October 1913 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929 (levels by Wisconsin Department of Transportation). See WSP 1727 for history of changes prior to Aug. 25, 1938.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--80 years (water years 1907-08, 1914-91), 578 ft<sup>3</sup>/s, 11.13 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,400 ft<sup>3</sup>/s, Apr. 10, 1922, gage height, 11.2 ft from flood-marks, caused by a failure of dam at Pulcifer 4 mi above station; minimum, 93 ft<sup>3</sup>/s, Nov. 26, 1941, gage height, 0.13 ft flow retarded by anchor ice above station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 25	1900	ice jam	*8.20	Apr. 16	1600	1,760	3.51
Mar. 26	----	(a)*2,200	ice jam				

(a) Estimated.

Minimum discharge, 267 ft<sup>3</sup>/s, Sept. 2, gage height, 0.79 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3 to Mar. 26.)

0.7	239	3.0	1,400
1.0	330	4.0	2,100
2.0	780		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	468	456	508	340	290	330	1520	862	1410	530	483	272
2	474	453	496	330	290	340	1380	910	1420	605	515	269
3	486	463	480	300	300	350	1260	926	1440	594	607	282
4	485	480	430	310	300	360	1150	880	1400	541	626	305
5	489	495	440	290	300	360	1070	835	1300	500	586	314
6	501	492	470	290	310	360	1020	833	1180	463	479	321
7	476	481	470	290	320	350	994	835	1030	439	422	319
8	457	466	470	290	330	350	1000	861	866	428	428	321
9	444	457	500	290	330	350	1040	886	701	414	434	333
10	442	454	490	290	330	350	1110	845	627	395	415	348
11	465	453	470	290	320	350	1270	803	590	376	384	356
12	497	444	470	290	330	350	1470	758	550	358	357	348
13	509	434	440	290	330	360	1560	714	508	357	328	340
14	501	421	410	290	330	360	1600	689	481	369	328	401
15	497	421	400	290	320	370	1630	624	508	363	324	560
16	497	414	380	300	310	380	1730	587	600	343	318	584
17	497	412	390	310	320	420	1750	615	628	338	317	582
18	527	415	410	310	320	450	1680	690	560	347	324	490
19	590	409	390	320	330	500	1590	708	480	360	336	422
20	603	403	390	310	330	620	1510	689	444	346	331	388
21	598	413	390	300	340	760	1440	660	459	334	321	369
22	615	428	400	300	340	820	1340	623	559	348	314	358
23	625	451	370	290	340	1200	1220	600	699	368	305	323
24	616	479	330	290	340	1400	1120	594	763	380	305	322
25	590	466	340	280	330	1600	1020	577	719	360	315	324
26	562	436	360	290	330	2100	971	637	601	344	324	327
27	534	438	350	290	330	1840	931	761	506	346	315	331
28	511	475	350	290	330	1700	892	885	465	349	304	335
29	491	528	340	290	---	1760	849	1060	466	427	296	335
30	475	550	340	280	---	1770	848	1120	480	497	290	330
31	463	---	340	280	---	1690	---	1290	---	507	281	---
TOTAL	15985	13587	12814	9200	9020	24300	37965	24357	22440	12726	11712	10909
MEAN	516	453	413	297	322	784	1265	786	748	411	378	364
MAX	625	550	508	340	340	2100	1750	1290	1440	605	626	584
MIN	442	403	330	280	290	330	848	577	444	334	281	269
CFSM	.73	.64	.59	.42	.46	1.11	1.80	1.11	1.06	.58	.54	.52
IN.	.84	.72	.68	.49	.48	1.28	2.00	1.29	1.18	.67	.62	.58

CAL YR 1990 TOTAL 190610 MEAN 522 MAX 2710 MIN 210 CFSM .74 IN. 10.06  
WTR YR 1991 TOTAL 205015 MEAN 562 MAX 2100 MIN 269 CFSM .80 IN. 10.82



STREAMS TRIBUTARY TO LAKE MICHIGAN

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04071858 PENSANKEE RIVER NEAR PENSANKEE, WI

LOCATION.--Lat 44°49'08", long 87°57'12", in NW 1/4 NE 1/4 sec.16, T.27 N., R.21 E., Oconto County, Hydrologic Unit 04030103, on right bank 300 ft downstream from bridge on town road, 2.8 mi downstream from Brookside Creek, 2.6 mi west of Pensaukee, 3.5 mi upstream from mouth.

DRAINAGE AREA.--134 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1972 to current year.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 583.69 ft above National Geodetic Vertical Datum of 1929 (Wisconsin Department of Transportation bench mark).

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods and periods of discharge below 10 ft<sup>3</sup>/s, which are fair.

AVERAGE DISCHARGE.--19 years, 88.5 ft<sup>3</sup>/s, 8.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,310 ft<sup>3</sup>/s, May 31, 1979, gage height, 13.58 ft; minimum discharge, 0.44 ft<sup>3</sup>/s, Sept. 13, 1987 and Sept. 22, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 22	0200	ice jam	*9.42	Apr. 15	1500	1,110	7.64
Mar. 24	----	(a)*1,400	ice jam	July 29	1000	898	6.96

(a) Estimated, daily mean discharge.

Minimum daily discharge, 1.2 ft<sup>3</sup>/s, Sept. 1, 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Oct. 24 to Nov. 29, July 21-28, and July 30 to Sept. 30; stage-discharge relation affected by ice Nov. 30 to Dec. 3 and Dec. 5 to Mar. 24.)

2.1	1.0	4.0	210
2.2	3.5	5.0	390
2.3	9.0	6.0	610
2.5	29	7.0	910
3.0	84	9.0	1,650

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	30	45	19	15	40	168	66	168	4.0	58	1.2
2	28	28	36	18	15	90	148	62	141	4.5	73	1.2
3	26	29	30	17	16	92	132	57	110	5.3	339	1.4
4	34	34	25	17	18	88	118	52	82	6.2	220	1.9
5	35	38	31	16	24	94	112	50	61	5.8	119	2.6
6	39	45	30	16	33	100	107	85	48	5.1	61	3.5
7	28	53	28	16	50	110	100	93	38	4.2	32	3.0
8	24	51	30	17	47	100	104	85	29	3.9	20	3.0
9	22	49	35	16	40	100	196	121	23	3.5	29	3.2
10	23	53	40	15	33	110	315	133	19	4.0	33	6.1
11	35	52	47	15	28	110	503	111	16	3.3	23	23
12	37	46	60	15	25	110	451	90	12	3.2	10	29
13	45	39	74	15	20	110	377	73	10	3.5	6.4	19
14	38	35	66	16	17	120	615	58	12	3.3	5.1	19
15	46	35	70	15	15	140	1060	47	17	3.3	3.9	26
16	48	35	64	15	15	170	754	45	18	3.3	3.2	65
17	47	30	58	15	14	200	395	101	15	3.2	3.0	67
18	61	29	54	15	14	270	255	94	13	4.9	2.9	61
19	65	26	50	16	14	350	193	73	9.4	5.9	3.0	52
20	58	24	52	17	14	500	165	59	7.7	6.0	3.2	38
21	72	26	54	16	15	900	139	48	6.8	6.4	2.8	27
22	92	34	45	15	15	1200	120	56	6.8	9.9	2.6	21
23	85	39	37	15	15	1300	108	122	6.8	13	2.3	17
24	75	38	28	14	14	1400	97	101	6.3	11	2.2	12
25	63	33	24	13	14	693	84	69	5.8	9.3	2.2	12
26	57	27	22	14	13	492	74	68	5.2	7.8	2.0	16
27	49	35	22	15	14	475	67	109	4.6	6.9	1.9	17
28	46	49	23	15	16	439	65	109	4.1	14	1.7	14
29	38	60	25	14	---	340	61	253	4.0	652	1.5	13
30	36	52	22	13	---	238	65	282	4.0	288	1.5	12
31	32	---	20	14	---	189	---	194	---	126	1.3	---
TOTAL	1410	1154	1247	479	583	10670	7148	2966	903.5	1230.7	1069.7	587.1
MEAN	45.5	38.5	40.2	15.5	20.8	344	238	95.7	30.1	39.7	34.5	19.6
MAX	92	60	74	19	50	1400	1060	282	168	652	339	67
MIN	22	24	20	13	13	40	61	45	4.0	3.2	1.3	1.2
CFSM	.34	.29	.30	.12	.16	2.57	1.78	.71	.22	.30	.26	.15
IN.	.39	.32	.35	.13	.16	2.96	1.98	.82	.25	.34	.30	.16

CAL YR 1990	TOTAL 27613.5	MEAN 75.7	MAX 1800	MIN 2.7	CFSM .56	IN. 7.67
WTR YR 1991	TOTAL 29448.0	MEAN 80.7	MAX 1400	MIN 1.2	CFSM .60	IN. 8.18

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04072150 DUCK CREEK NEAR HOWARD, WI

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

DRAINAGE AREA.--108 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--Estimated daily discharges: May 23-31 and ice-affected period, Dec. 17 to Mar. 23. Records fair except for estimated daily discharges, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,520 ft<sup>3</sup>/s, June 23, 1990, gage height, 21.0 ft, estimated from flood marks, based on rating curve extended above 1,500 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum, no flow many days during period of record.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,630 ft<sup>3</sup>/s, Apr. 15, gage height, 16.49 ft; minimum, 0.0 ft<sup>3</sup>/s, during the periods June 28 to July 2, July 7-13, and Aug. 30 to Sept. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	13	21	12	6.2	5.6	112	30	23	.00	9.9	.00
2	6.8	14	19	11	6.2	62	91	30	39	.08	7.3	.00
3	6.5	26	41	10	6.5	61	76	26	33	1.9	6.8	.00
4	7.6	47	68	9.0	7.2	59	65	23	26	1.3	5.6	.00
5	7.1	69	35	8.1	8.8	65	58	25	17	.71	4.4	.00
6	8.2	75	22	7.4	12	68	54	34	12	.39	3.6	.00
7	8.3	74	19	7.0	16	75	50	42	8.4	.03	3.4	.00
8	8.8	66	17	7.2	26	70	45	42	6.5	.01	5.4	.00
9	8.6	57	19	6.8	25	66	60	47	5.4	.00	4.6	.00
10	9.0	52	24	6.3	21	72	160	59	4.6	.00	4.5	.00
11	12	54	22	6.2	17	76	428	50	3.9	.00	5.1	.00
12	16	48	27	6.0	14	74	342	41	3.3	.00	4.7	.00
13	19	39	44	6.0	12	73	273	35	2.8	.80	4.1	.00
14	18	34	113	6.2	10	72	723	30	2.8	1.5	3.4	.00
15	17	32	53	6.4	9.0	92	1410	25	3.0	.74	3.0	.35
16	17	29	49	5.8	8.0	115	679	22	3.0	.31	2.5	1.4
17	21	28	35	5.8	7.0	140	358	23	2.4	.41	2.3	.77
18	29	26	37	5.7	6.8	180	178	22	2.2	1.3	2.7	.62
19	28	24	34	5.7	6.5	230	112	22	1.9	1.1	3.0	.75
20	35	22	32	6.3	6.4	320	84	20	1.6	.77	2.7	.97
21	39	24	28	6.5	6.8	800	68	19	1.4	1.2	2.4	.97
22	56	25	25	6.2	7.2	770	57	17	1.7	3.7	2.2	1.1
23	55	29	22	6.0	7.0	740	49	15	1.8	2.5	1.8	1.4
24	43	30	20	5.9	6.6	957	42	14	1.3	1.6	1.8	1.3
25	34	27	18	5.7	6.3	603	37	12	1.1	.93	1.5	1.4
26	29	23	16	5.6	6.2	400	34	11	.82	.83	1.2	1.6
27	25	23	15	6.2	6.0	343	31	14	.34	.55	.82	1.6
28	22	23	14	6.4	5.8	457	31	10	.03	.43	.51	1.4
29	20	24	13	6.0	---	381	30	9.0	.00	21	.29	1.3
30	18	23	14	5.6	---	199	31	8.0	.00	26	.13	1.3
31	16	---	13	5.8	---	138	---	15	---	20	.00	---
TOTAL	647.2	1080	929	210.8	283.5	7763.6	5768	792.0	210.29	90.09	101.65	18.23
MEAN	20.9	36.0	30.0	6.80	10.1	250	192	25.5	7.01	2.91	3.28	.61
MAX	56	75	113	12	26	957	1410	59	39	26	9.9	1.6
MIN	6.5	13	13	5.6	5.8	5.6	30	8.0	.00	.00	.00	.00
CFSM	.19	.33	.28	.06	.09	2.32	1.78	.24	.06	.03	.03	.01
IN.	.22	.37	.32	.07	.10	2.67	1.99	.27	.07	.03	.04	.01

CAL YR 1990 TOTAL 25525.04 MEAN 69.9 MAX 3690 MIN .10 CFSM .65 IN. 8.79  
WTR YR 1991 TOTAL 17894.36 MEAN 49.0 MAX 1410 MIN .00 CFSM .45 IN. 6.16

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

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WATER-QUALITY RECORDS

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

INSTRUMENTATION.--Water-quality sampler since April 1988.

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	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)	SODIUM PERCENT (00932)
OCT 1990												
*25...	1030	--	35	924	6.5	6.5	--	440	110	39	21	9
25...	1031	--	35	924	6.5	6.5	--	--	--	--	--	--
*25...	1100	--	34	--	--	--	--	--	--	--	--	--
DEC												
*12...	0900	--	27	981	6.5	6.5	--	490	120	46	26	10
JAN 1991												
*24...	1000	5.9	--	1010	7.6	0.0	14.1	520	130	47	29	11
MAR												
*06...	1440	--	68	476	7.6	0.5	12.0	210	54	19	13	11
**06...	1445	68	--	--	--	--	--	--	--	--	--	--
*07...	1120	--	75	507	7.9	0.5	12.2	230	59	21	12	10
**07...	1125	75	--	--	--	--	--	--	--	--	--	--
**18...	1625	--	180	456	8.0	0.5	12.6	220	55	19	8.2	7
**18...	1650	180	--	--	--	--	--	--	--	--	--	--
*23...	1300	740	--	463	7.6	2.0	11.7	--	--	--	--	--
*24...	0930	--	1030	--	--	--	--	--	--	--	--	--
*25...	1615	--	554	--	--	--	--	--	--	--	--	--
*26...	1215	--	390	--	--	--	--	--	--	--	--	--
MAY												
*02...	1320	--	29	774	8.7	10.0	13.0	400	100	37	18	9
*02...	1345	--	28	--	--	--	--	--	--	--	--	--
*08...	1900	--	41	--	--	--	--	--	--	--	--	--
*10...	1245	--	61	--	--	--	--	--	--	--	--	--
*30...	0815	--	7.9	718	8.1	23.0	--	--	--	--	--	--
30...	0845	--	7.9	720	8.2	23.0	--	--	--	--	--	--
30...	0910	8.0	--	--	--	--	--	--	--	--	--	--
*30...	0911	8.0	--	--	--	--	--	--	--	--	--	--
JUN												
*19...	1325	--	1.8	748	8.6	29.0	--	350	75	40	20	11
19...	1326	--	1.8	748	8.6	29.0	--	--	--	--	--	--
23...	1045	--	1.8	--	--	--	--	--	--	--	--	--
*23...	1046	--	1.8	--	--	--	--	--	--	--	--	--
JUL												
29...	0445	--	9.1	--	--	--	--	--	--	--	--	--
29...	0545	--	20	--	--	--	--	--	--	--	--	--
29...	0715	--	34	--	--	--	--	--	--	--	--	--
30...	0715	--	29	--	--	--	--	--	--	--	--	--
30...	0900	--	21	--	--	--	--	--	--	--	--	--
31...	0900	--	22	--	--	--	--	--	--	--	--	--
*31...	1129	--	22	530	7.8	20.5	8.6	200	47	20	26	21
31...	1130	--	22	530	7.8	20.5	8.6	--	--	--	--	--
*31...	1135	--	21	--	--	--	--	--	--	--	--	--
31...	1136	--	21	--	--	--	--	--	--	--	--	--
SEP												
*18...	1320	--	0.62	640	8.4	17.0	12.9	260	54	31	30	19
18...	1321	--	0.62	640	8.4	17.0	12.9	--	--	--	--	--
*18...	1355	--	0.62	--	--	--	--	--	--	--	--	--
18...	1356	--	0.62	--	--	--	--	--	--	--	--	--

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

\*\* SINGLE VERTICAL SAMPLE.

04072150 DUCK CREEK NEAR HOWARD, WI--CONTINUED

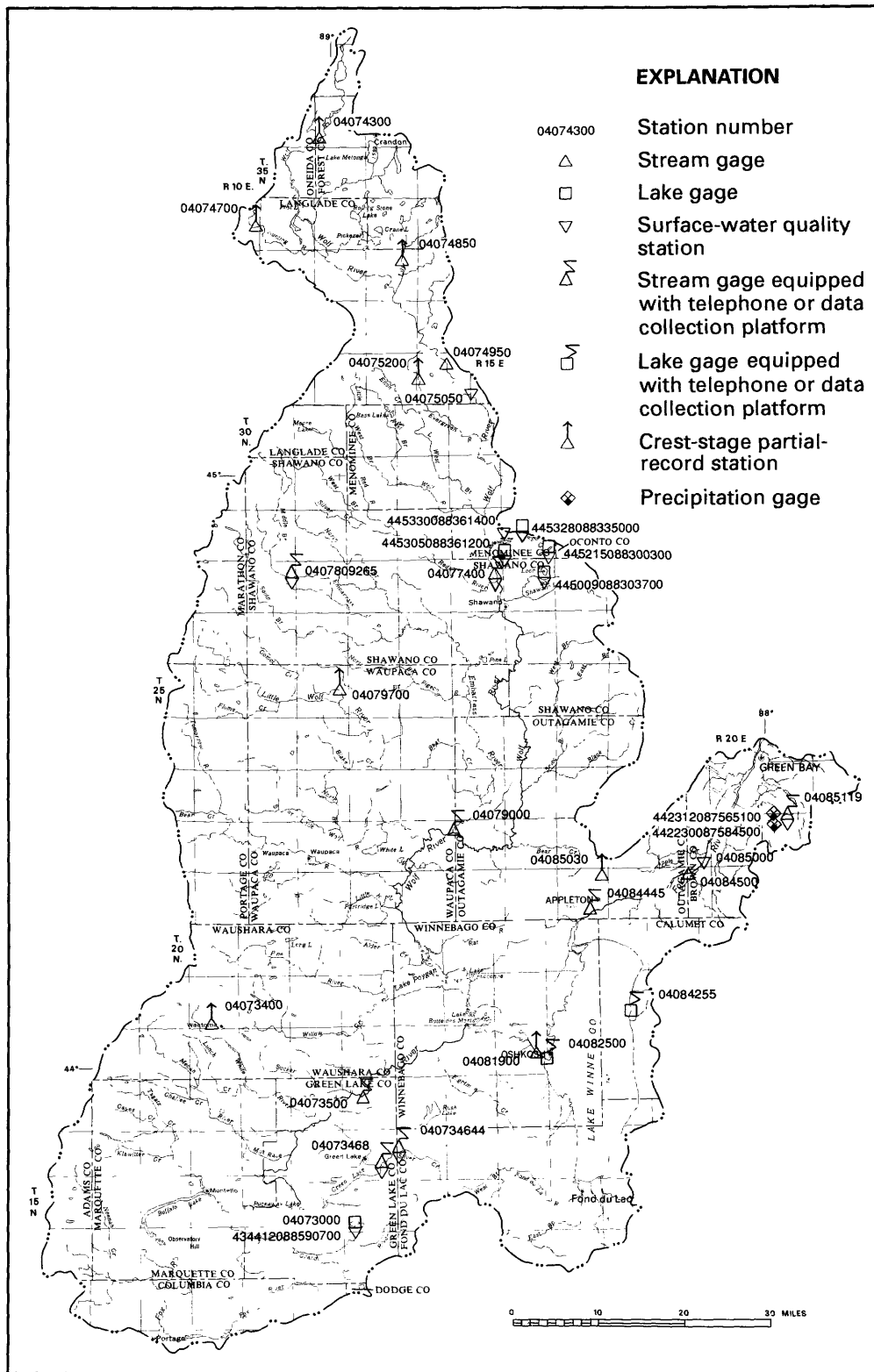
## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1990												
25...	2.50	2.60	0.030	0.050	1.4	1.4	3.9	0.200	0.190	0.150	0.190	--
25...	2.40	2.40	0.030	0.050	2.2	2.2	4.6	0.180	0.120	0.080	0.120	--
25...	--	--	--	--	--	--	--	--	--	--	--	32
DEC 12...	2.30	2.20	0.040	0.040	1.1	1.1	3.4	0.060	0.050	0.040	0.040	--
JAN 1991 24...	2.70	2.50	0.170	0.190	0.93	1.1	3.8	<0.090	0.070	0.090	0.080	48
MAR 06...	2.60	2.90	0.760	0.740	1.5	2.3	4.9	0.270	0.240	0.210	0.160	--
06...	--	--	--	--	--	--	--	--	--	--	--	10
07...	2.70	3.10	0.680	0.700	1.4	2.1	4.8	0.270	0.240	0.200	0.160	--
07...	--	--	--	--	--	--	--	--	--	--	--	10
18...	2.10	2.00	0.530	0.520	1.3	1.8	3.9	0.270	0.180	0.190	0.180	--
18...	--	--	--	--	--	--	--	--	--	--	--	43
23...	2.90	2.90	0.330	0.340	1.4	1.7	4.6	0.200	0.090	0.110	0.090	35
24...	3.00	2.30	0.320	0.320	1.1	1.4	4.4	0.170	0.100	0.110	0.090	36
25...	--	--	--	--	--	--	--	--	--	--	--	39
26...	--	--	--	--	--	--	--	--	--	--	--	32
MAY 02...	1.20	1.20	0.040	0.020	1.2	1.2	2.4	0.080	0.040	0.030	0.020	--
02...	--	--	--	--	--	--	--	--	--	--	--	99
08...	--	--	--	--	--	--	--	--	--	--	--	76
10...	--	--	--	--	--	--	--	--	--	--	--	80
30...	0.590	0.330	0.100	0.060	1.6	1.7	2.3	0.240	0.180	0.200	0.160	--
30...	0.310	0.330	0.080	0.070	1.6	1.7	2.0	0.240	0.180	0.190	0.170	--
30...	--	--	--	--	--	--	--	--	--	--	--	104
30...	--	--	--	--	--	--	--	--	--	--	--	136
JUN 19...	0.059	0.062	0.020	0.030	1.4	1.4	1.5	<0.010	0.120	0.120	0.110	--
19...	0.067	0.087	0.010	0.020	1.6	1.6	1.7	0.200	0.120	0.120	0.100	--
23...	--	--	--	--	--	--	--	--	--	--	--	12
23...	--	--	--	--	--	--	--	--	--	--	--	11
JUL 29...	<0.050	<0.050	0.010	0.020	1.2	1.2	--	0.180	0.060	0.030	0.030	71
29...	0.250	0.270	0.010	0.020	1.3	1.3	1.5	0.360	0.080	0.050	0.060	298
29...	0.180	0.190	0.100	0.110	1.4	1.5	1.7	0.370	0.130	0.110	0.100	164
30...	0.140	0.150	0.020	0.030	1.3	1.3	1.4	0.210	0.090	0.060	0.050	28
30...	0.240	0.250	0.030	0.040	1.1	1.1	1.3	0.220	0.120	0.090	0.090	38
31...	1.70	1.80	0.040	0.030	1.1	1.1	2.8	0.220	0.130	0.100	0.090	26
31...	1.80	1.90	0.040	0.030	0.66	0.70	2.5	0.210	0.140	0.110	0.110	--
31...	1.80	1.90	0.040	0.030	0.76	0.80	2.6	0.190	0.140	0.110	0.100	--
31...	--	--	--	--	--	--	--	--	--	--	--	21
31...	--	--	--	--	--	--	--	--	--	--	--	27
SEP 18...	<0.050	<0.050	0.020	0.010	1.5	1.5	--	0.210	0.110	0.100	0.100	--
18...	<0.050	<0.050	0.030	0.010	1.7	1.7	--	0.200	0.100	0.100	0.090	--
18...	--	--	--	--	--	--	--	--	--	--	--	16
18...	--	--	--	--	--	--	--	--	--	--	--	13



## FOX-WOLF RIVER BASIN

434412088590700 LITTLE GREEN LAKE, AT CENTER, NEAR MARKESAN, WI

LOCATION--Lat 43°44'12", long 88°59'07", in SW 1/4 SW 1/4 sec.29, T.15 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, 2 mi north of Markesan.

PERIOD OF RECORD--February to September 1991.

REMARKS--Lake sampled near center at a lake depth of about 28 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 04		Apr. 24		June 18		July 26		Aug. 14	
Depth of sample (ft)	3.0	26.0	1.5	25.0	1.5	26.0	1.5	25.5	1.5	25.0
Lake stage (ft)	---	---	5.51	---	6.07	---	6.06	---	7.96	---
Specific conductance (μS/cm)	405	418	340	356	203	374	255	528	262	304
pH (units)	7.1	7.1	8.5	7.9	9.4	7.6	9.5	6.8	10.1	8.1
Water temperature (°C)	2.6	4.7	13.8	9.5	26.3	15.1	25.3	17.7	26.2	20.1
Color (Pt-Co. scale)	---	---	10	10	---	---	---	---	---	---
Turbidity (NTU)	---	---	2.1	4.5	---	---	---	---	---	---
Secchi-depth (meters)	---	---	1.00	---	0.50	---	6.06	---	65	---
Dissolved oxygen	12.6	14.1	12.5	5.1	---	0.1	10.9	0.0	25.1	0.1
Hardness, as CaCO <sub>3</sub>	---	---	170	170	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	33	33	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	21	21	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	6.0	6.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	4.44	4.62	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	---	---	162	165	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	---	---	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.1	0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	14	14	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	---	---	<0.2	0.4	---	---	---	---	---	---
Solids, dissolved, at 180°C	---	---	216	216	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	---	---	<0.015	<0.015	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	<0.013	0.020	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.8	1.2	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.041	0.096	0.119	0.480	0.169	1.290	0.189	0.410
Phosphorus, ortho, dissolved (as P)	---	---	0.004	0.005	---	---	---	---	---	---
Iron, dissolved (Fe) μg/L	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton (μg/L)	---	---	14	---	134	---	120	---	130	---

2-4-91

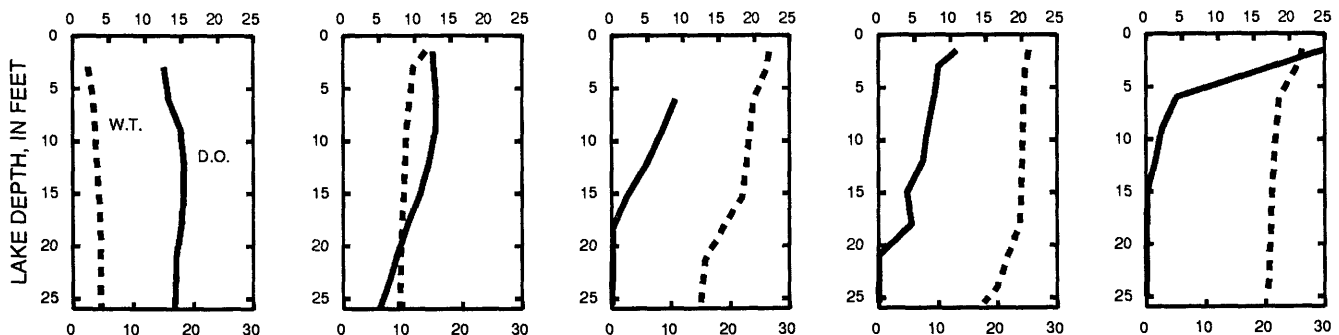
4-24-91

6-18-91

7-26-91

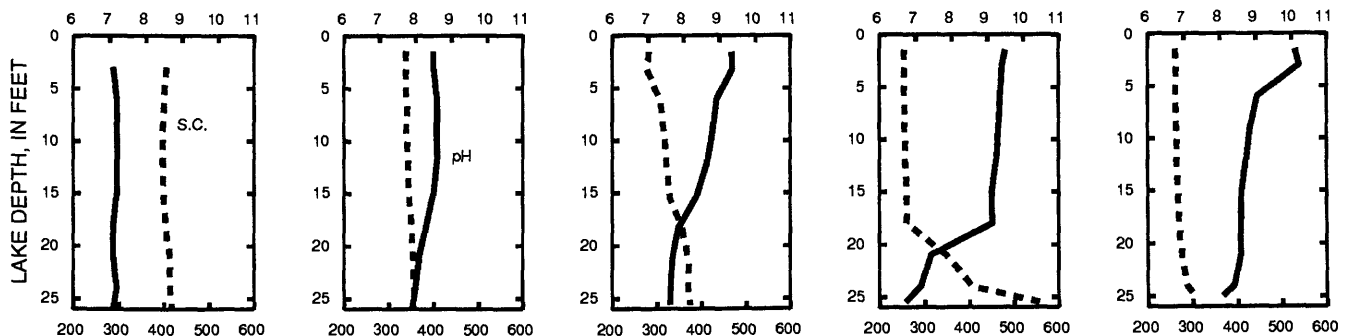
8-14-91

## 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

LOCATION--Lat 43°44'12", long 88°59'07", in SW 1/4 SW 1/4 sec.29, T.15 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, 2 mi north of Markesan.

PERIOD OF RECORD.--August 1936 to September 1964 (fragmentary); April to August 1991.

GAGE.--Nonrecording gage. Datum of gage is 90.00 ft above datum determined by Wisconsin Department of Natural Resources. Gage readings have been reduced to elevation above this datum. Staff mounted on wall of Otis Wendt's property. Staff read by Otis Wendt.

REMARKS.--Add 90 ft to obtain elevation above datum assumed for this lake by Wisconsin Department of Natural Resources.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 6.26 ft, May 21 and June 4; minimum observed, 5.51 ft, Apr. 24.

[illegible]



040734644 SILVER CREEK AT SOUTH KORO ROAD NEAR RIPON, WI

LOCATION.--Lat 43°51'30", long 88°52'17" in NW 1/4 SE 1/4 sec.18, T.16 N., R.14 E., Fond du Lac County, Hydrologic Unit 04030201, on left bank at upstream side of culvert on South Koro Road, 1.8 mi west of Ripon.

DRAINAGE AREA.--36.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR WI-88-1: (M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 810 ft, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 31 to Feb. 11, Aug. 2-6, and ice periods listed in rating table below. Records good, except for estimated daily discharges, which are fair. Approximately 2.1 ft<sup>3</sup>/s of daily flow is effluent from Ripon Wastewater Treatment Plant. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 545 ft<sup>3</sup>/s, May 31, 1989, gage height, 10.83 ft; minimum daily, 1.8 ft<sup>3</sup>/s, July 31, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 129 ft<sup>3</sup>/s, Mar. 2, gage height, 7.27 ft; minimum daily, 6.2 ft<sup>3</sup>/s, Sept. 1.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 31, Jan. 3, 6, 7, 14-30, Feb. 15, 25, and 26.)

5.2	4.8	6.0	31
5.4	9.4	6.5	64
5.7	18	7.0	105
		8.0	196

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	16	16	8.4	6.8	32	46	34	16	10	20	6.2
2	16	16	15	8.5	6.8	110	41	32	20	9.2	17	6.9
3	19	17	14	8.4	6.8	96	37	31	17	8.7	16	15
4	18	18	9.9	8.2	7.0	81	39	29	15	9.3	15	10
5	19	19	11	7.5	7.2	80	34	35	15	9.3	14	9.3
6	21	19	12	7.6	7.6	92	34	36	15	8.6	13	8.9
7	19	20	14	7.6	8.2	75	35	35	14	7.7	13	8.3
8	18	19	14	7.9	9.6	61	35	36	13	8.0	30	7.7
9	18	20	15	7.9	12	61	56	36	12	8.1	22	11
10	20	19	16	7.9	14	54	74	34	13	7.9	20	9.1
11	20	19	16	8.7	14	55	83	32	12	7.4	18	8.3
12	19	19	17	8.3	13	54	76	30	11	26	16	12
13	19	19	17	8.1	12	49	71	36	11	17	15	10
14	23	19	18	8.2	12	46	81	30	19	14	14	14
15	23	19	18	8.4	10	50	89	26	26	13	12	14
16	21	19	18	8.4	10	56	94	25	18	12	11	12
17	22	18	19	8.2	10	59	84	23	16	16	12	11
18	26	17	18	8.2	11	66	74	22	15	13	10	14
19	24	17	14	8.0	11	80	65	21	16	11	10	11
20	24	16	19	8.0	11	93	54	20	16	11	10	10
21	25	19	16	8.0	13	99	48	20	15	44	9.9	9.1
22	24	17	8.5	8.0	14	100	44	21	13	25	9.8	8.8
23	23	17	14	8.0	14	106	43	19	12	24	9.4	8.9
24	22	16	12	8.0	13	100	41	19	12	26	9.0	8.7
25	21	16	10	7.8	13	95	39	18	11	23	8.5	8.8
26	20	17	9.2	7.6	13	88	39	18	11	21	8.6	8.4
27	19	20	8.4	7.6	13	83	38	17	11	18	8.3	8.2
28	18	18	8.2	7.6	13	73	37	16	9.9	18	8.1	7.6
29	18	16	9.2	7.2	---	65	37	15	9.4	41	8.1	7.7
30	17	16	8.0	7.0	---	56	37	15	9.0	27	7.9	7.9
31	17	---	8.2	6.8	---	50	---	14	---	23	6.7	---
TOTAL	629	537	422.6	246.0	306.0	2265	1605	795	423.3	517.2	402.3	292.8
MEAN	20.3	17.9	13.6	7.94	10.9	73.1	53.5	25.6	14.1	16.7	13.0	9.76
MAX	26	20	19	8.7	14	110	94	36	26	44	30	15
MIN	16	16	8.0	6.8	6.8	32	34	14	9.0	7.4	6.7	6.2
CFSM	.56	.49	.38	.22	.30	2.02	1.48	.71	.39	.46	.36	.27
IN.	.65	.55	.43	.25	.31	2.33	1.65	.82	.43	.53	.41	.30
CAL YR 1990	TOTAL 9551.4	MEAN 26.2	MAX 153	MIN 2.9	CFSM .72	IN. 9.82						
WTR YR 1991	TOTAL 8441.2	MEAN 23.1	MAX 110	MIN 6.2	CFSM .64	IN. 8.67						

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040734644 SILVER CREEK AT SOUTH KORO ROAD NEAR RIPON, 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 since April 1987.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 378 tons, May 30, 1989; minimum daily, 0.00 ton, Aug. 12, 1988.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,620 lb, May 30, 1989; minimum daily, 2.3 lb, Aug. 7, 1988.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 62 tons, Mar. 2; minimum daily, 0.16 ton, Jan. 16-19.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 391 lb, Mar. 2; minimum daily, 4.5 lb, Jan. 31.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1990					
03...	1620	--	25	--	23
03...	1635	--	37	--	79
03...	1930	--	23	--	40
*16...	1400	--	22	0.190	15
26...	1545	--	21	--	55
NOV					
*29...	1305	--	17	0.080	18
JAN 1991					
*17...	1445	8.2	--	0.160	7
*31...	1221	6.8	--	0.120	66
FEB					
*11...	1440	14	--	0.420	--
*11...	1445	14	--	--	17
14...	1450	--	13	--	18
MAR					
01...	1425	--	24	0.230	41
01...	1655	--	33	--	111
01...	1715	--	42	0.590	--
01...	1735	--	53	--	374
01...	2010	--	66	0.610	--
01...	2050	--	79	--	300
02...	0135	--	91	0.520	155
02...	0230	--	105	0.580	179
03...	1510	--	100	0.580	51
04...	0310	--	84	--	33
04...	0910	--	78	0.370	--
05...	0910	--	76	--	75
05...	1510	--	77	0.270	--
06...	0910	--	96	0.250	--
07...	0910	--	73	--	16
10...	0910	--	53	--	13
10...	2110	--	53	0.140	--
14...	2110	--	49	--	10
15...	0910	--	48	0.100	--
18...	0910	--	58	--	52
18...	1230	--	70	0.160	--
19...	0030	--	75	--	15
19...	1830	--	88	0.100	--
20...	0030	--	91	--	15
23...	0030	--	115	--	24
24...	0630	--	101	--	15
24...	1230	--	100	0.100	--
24...	1830	--	99	0.110	--
25...	0855	--	95	0.140	12
*25...	0900	--	95	0.150	16
28...	0030	--	78	--	10
*31...	1230	--	51	0.080	--
APR					
01...	0030	--	48	--	9
09...	1335	--	53	0.120	--
09...	1430	--	67	--	35
10...	1930	--	87	0.120	--
11...	0130	--	84	--	24
11...	1310	--	87	--	17
13...	0110	--	72	0.070	--

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040734644 SILVER CREEK AT SOUTH KORO ROAD NEAR RIPON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
APR 1991					
14...	0710	--	67	--	12
14...	1415	--	89	--	20
14...	2015	--	88	0.070	--
16...	1135	--	96	0.060	--
16...	1735	--	98	--	16
21...	1735	--	47	0.050	--
22...	0535	--	44	--	19
MAY					
*02...	1105	--	33	0.080	22
05...	1345	--	49	--	35
06...	0310	--	35	--	35
13...	0940	--	52	0.270	60
13...	0950	--	63	0.340	113
22...	1600	--	41	0.420	295
JUN					
01...	2315	--	35	0.780	380
01...	2325	--	45	0.910	521
02...	0110	--	30	0.450	141
14...	2025	--	32	0.970	495
14...	2035	--	45	--	708
14...	2050	--	56	1.20	--
14...	2105	--	73	--	717
14...	2115	--	85	1.80	959
14...	2215	--	66	--	355
15...	0215	--	38	0.340	83
15...	2305	--	19	0.290	37
16...	1105	--	18	--	17
*19...	1500	--	17	0.270	15
JUL					
12...	0600	--	13	0.800	191
12...	0615	--	21	--	288
12...	0625	--	37	1.70	--
12...	0630	--	51	--	1220
12...	0635	--	61	2.62	--
12...	0645	--	83	--	1730
12...	0655	--	96	1.34	1440
12...	0800	--	75	--	246
12...	1000	--	59	0.420	--
12...	1155	--	30	--	52
12...	1440	--	21	0.390	--
13...	0240	--	16	--	27
13...	0725	--	22	0.430	54
14...	1925	--	14	--	14
15...	0725	--	13	0.380	--
17...	1055	--	21	--	70
17...	1115	--	29	0.550	147
17...	1520	--	20	--	29
21...	0010	--	22	0.550	104
21...	0045	--	34	--	164
21...	0055	--	45	0.910	--
21...	0105	--	58	--	428
21...	0120	--	70	1.16	--
21...	0335	--	84	--	202
21...	0400	--	97	0.760	346
21...	0555	--	86	0.420	--
21...	0605	--	84	--	78
21...	0620	--	79	0.400	67
21...	0630	--	75	0.410	63
21...	0750	--	51	--	47
21...	0805	--	47	0.340	--
21...	0825	--	45	--	46
22...	0705	--	31	0.380	--
24...	1910	--	34	0.500	64
29...	0150	--	34	0.560	103
29...	0225	--	44	0.550	160
29...	0235	--	56	--	223
29...	0245	--	71	0.900	--
29...	0300	--	87	--	536
29...	0320	--	99	1.00	485
29...	1055	--	32	0.450	--
AUG					
02...	0850	17	--	--	16
*06...	1000	13	--	0.380	10
08...	0550	--	37	0.550	180
08...	0620	--	47	0.610	276
08...	0815	--	59	0.450	212
08...	1005	--	43	0.310	128
*08...	1355	--	29	0.270	27
08...	1356	--	29	0.260	26

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040734644 SILVER CREEK AT SOUTH KORO ROAD NEAR RIPON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
SEP 1991				
03...	1135	22	0.860	119
03...	1145	28	0.830	207
03...	1435	19	0.470	63
09...	1025	25	1.19	--
09...	1040	33	1.36	--
09...	1125	22	0.650	--
14...	1025	16	--	454
14...	1040	18	--	556
14...	1125	19	--	120
14...	2130	25	0.590	158
14...	2140	39	1.23	714
14...	2155	49	1.30	963
14...	2235	34	--	229
14...	2310	24	0.510	--
18...	0005	21	--	90

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
JAN 1991				
31...	1220	7.9	1520	1.0
MAY				
02...	1054	32	895	11.5
AUG				
06...	1010	15	1230	19.5
08...	1410	28	880	20.0

## STREAMS TRIBUTARY TO LAKE MICHIGAN

89

040734644 SILVER CREEK AT SOUTH KORO ROAD NEAR RIPON, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.44	2.0	.76	.22	.22	17	1.2	2.0	3.0	.40	.91	.17
2	.44	1.9	.68	.22	.23	62	1.2	1.9	2.8	.37	.72	.19
3	1.4	2.0	.65	.21	.23	18	1.3	2.1	.91	.35	.61	4.8
4	1.0	2.0	.45	.20	.25	9.3	1.6	2.3	.80	.37	.51	.56
5	.99	2.1	.51	.18	.27	13	1.7	3.3	.77	.38	.42	.47
6	1.1	2.0	.54	.18	.29	8.0	2.0	3.4	.73	.35	.35	.42
7	.96	2.0	.60	.18	.32	3.4	2.4	3.3	.68	.31	.35	.37
8	.90	1.9	.61	.18	.39	2.4	2.8	3.4	.62	.32	7.4	.33
9	.85	1.9	.61	.18	.51	2.2	5.1	3.4	.57	.33	1.0	2.7
10	.93	1.8	.66	.17	.61	1.9	5.5	3.2	.56	.32	.79	.70
11	.91	1.7	.64	.19	.64	2.0	4.2	3.0	.53	.30	.70	.58
12	.86	1.6	.67	.17	.61	2.0	3.2	2.8	.48	20	.63	2.0
13	.83	1.6	.64	.17	.56	1.9	2.6	9.9	.45	1.2	.57	.76
14	.99	1.5	.66	.17	.58	1.7	3.7	2.6	13	.60	.51	5.8
15	.97	1.5	.65	.17	.50	1.8	4.3	1.7	5.0	.47	.46	1.5
16	.90	1.4	.63	.16	.51	3.3	4.1	1.6	.99	.43	.42	.91
17	1.0	1.3	.67	.16	.50	5.5	3.7	1.5	.69	1.9	.44	.80
18	1.4	1.2	.64	.16	.54	6.3	3.3	1.3	.65	.52	.36	1.5
19	1.5	1.2	.49	.16	.56	3.2	3.0	1.2	.66	.41	.36	.90
20	1.6	1.1	.62	.17	.55	4.1	2.6	1.2	.64	.37	.34	.81
21	2.0	1.2	.54	.18	.63	5.1	2.4	1.1	.60	15	.33	.71
22	2.1	1.1	.27	.18	.68	5.9	2.2	2.6	.53	1.9	.32	.67
23	2.3	1.0	.45	.19	.67	5.8	2.2	1.3	.49	1.3	.30	.67
24	2.5	.97	.36	.19	.65	3.9	2.1	1.2	.49	1.5	.28	.65
25	2.7	.92	.31	.20	.64	3.6	2.1	1.2	.46	1.2	.27	.64
26	2.9	.92	.27	.20	.64	3.1	2.1	1.1	.43	1.0	.26	.60
27	2.8	1.1	.24	.21	.64	2.4	2.1	1.0	.42	.83	.25	.59
28	2.6	.91	.23	.21	.63	1.9	2.0	.97	.40	.77	.24	.54
29	2.4	.80	.26	.21	---	1.7	2.1	.88	.38	11	.24	.53
30	2.3	.79	.22	.21	---	1.4	2.1	.84	.36	1.4	.23	.54
31	2.1	---	.22	.21	---	1.2	---	.78	---	1.1	.19	---
TOTAL	46.67	43.41	15.75	5.79	14.05	205.0	80.9	68.07	39.09	66.70	20.76	32.41

WTR YR 1991 TOTAL 638.60

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	12	7.0	5.8	4.9	80	21	14	17	12	43	8.3
2	13	12	6.5	5.9	5.5	391	20	14	31	11	36	9.4
3	20	12	6.4	5.9	6.2	302	18	13	23	11	34	37
4	18	13	4.6	5.9	7.1	162	20	13	20	11	31	17
5	18	13	5.4	5.4	8.2	122	18	15	19	11	29	14
6	21	13	5.9	5.6	9.7	122	19	15	18	10	26	13
7	19	13	6.8	5.7	12	88	21	15	17	8.9	25	12
8	18	12	7.1	6.0	15	62	21	16	16	9.0	57	11
9	18	13	7.4	6.1	21	55	36	16	15	9.1	31	27
10	20	12	8.2	6.2	28	43	48	15	15	8.7	27	15
11	20	12	8.2	6.9	31	39	45	14	14	8.0	25	13
12	19	11	9.0	6.6	27	36	33	13	13	95	23	20
13	19	11	8.8	6.6	23	30	27	37	12	37	21	17
14	23	11	9.4	6.8	21	27	30	18	72	30	19	33
15	23	11	9.6	7.0	17	28	32	14	48	26	17	23
16	22	11	9.6	7.1	16	36	31	13	28	22	16	16
17	22	9.7	11	7.1	14	44	26	13	24	34	17	15
18	25	9.2	10	7.0	14	54	22	12	23	24	14	25
19	23	8.9	8.3	6.6	14	48	19	11	24	20	14	18
20	22	8.4	11	6.5	12	50	15	11	23	18	14	16
21	24	9.6	9.7	6.4	13	54	13	11	21	125	14	14
22	22	8.7	5.1	6.2	13	54	12	17	18	43	13	13
23	20	8.3	8.6	6.1	12	57	12	15	17	39	13	13
24	19	7.9	7.2	6.0	11	57	12	14	17	45	12	12
25	18	7.5	6.4	5.7	9.7	71	12	13	15	37	12	12
26	17	7.7	5.8	5.5	8.9	63	13	12	14	33	12	11
27	16	8.9	5.4	5.4	8.3	54	13	11	14	30	11	11
28	15	7.8	5.4	5.2	7.6	43	13	10	13	30	11	10
29	14	6.9	6.1	4.9	---	34	14	9.4	12	121	11	9.9
30	13	7.1	5.4	4.6	---	27	15	8.7	11	57	11	9.9
31	13	---	5.6	4.5	---	22	---	8.0	---	48	9.0	---
TOTAL	587	308.6	230.9	187.2	390.1	2355	651	431.1	624	1023.7	648.0	475.5

WTR YR 1991 TOTAL 7912.1

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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

LOCATION.--Lat 43°49'18", 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 mi<sup>2</sup>.

## 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. Data are stored using CR-21X datalogger with phone modem connection for daily retrieval.

REMARKS.--Discharge estimated Nov. 28 and Sept. 28-30 based on discharge from upstream station, Silver Creek near Ripon (040734644), adjusted for drainage area. Approximately 2.1 ft<sup>3</sup>/s of daily flow is effluent from Ripon Wastewater Treatment Plant. Flows fluctuate due to seiche from Green Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 705 ft<sup>3</sup>/s, May 31, 1989; minimum daily, -0.72 ft<sup>3</sup>/s, June 14, 1991, caused by seiche affect from Green Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 177 ft<sup>3</sup>/s, Mar. 2; minimum daily, -0.72 ft<sup>3</sup>/s, June 14, caused by seiche affect from Green Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	20	20	10	4.4	26	59	56	9.5	7.7	28	3.2
2	19	24	24	10	6.2	177	53	43	25	9.1	20	2.0
3	21	20	8.1	8.5	7.9	113	47	44	26	6.2	14	17
4	32	30	19	8.8	9.4	89	49	40	18	11	15	10
5	31	23	18	6.8	12	81	40	37	12	10	16	9.5
6	40	29	21	6.8	13	117	35	50	9.0	7.6	15	7.7
7	20	31	21	9.1	14	85	50	52	9.6	3.6	9.3	6.2
8	26	30	22	8.2	18	71	42	47	12	9.9	38	5.1
9	19	31	21	9.8	24	68	82	44	9.1	8.4	27	10
10	14	30	22	8.7	24	63	97	45	13	7.5	20	6.0
11	36	29	24	9.2	21	64	106	38	13	8.6	18	8.5
12	26	25	18	10	16	63	97	34	11	28	11	12
13	26	23	29	9.2	14	55	96	40	6.3	24	11	10
14	35	20	25	9.5	12	52	121	36	1.0	14	11	7.9
15	32	27	21	12	10	58	114	29	53	13	13	23
16	27	27	25	11	12	66	117	25	28	13	6.5	13
17	24	23	24	11	11	68	102	31	20	22	17	9.2
18	41	22	25	11	9.8	82	88	15	15	10	8.3	24
19	37	24	26	11	12	100	79	21	14	10	10	14
20	33	13	27	11	12	109	62	22	17	11	13	15
21	30	25	22	11	13	119	56	13	24	79	11	13
22	32	27	24	9.3	16	118	55	23	12	34	7.2	7.3
23	32	28	19	11	17	132	56	20	14	28	13	13
24	31	23	18	9.7	14	121	51	22	14	33	5.3	10
25	24	26	12	6.1	15	114	49	23	10	25	2.5	6.6
26	24	14	12	8.1	15	111	52	13	4.2	21	3.4	12
27	28	26	9.2	7.3	14	99	46	19	12	21	3.8	9.8
28	25	22	8.9	6.5	13	99	45	15	13	20	1.9	9.1
29	21	31	11	7.5	---	80	37	9.1	11	44	2.1	9.2
30	24	20	12	6.2	---	71	40	14	11	33	4.1	9.5
31	17	---	11	6.4	---	68	---	19	---	28	6.8	---
TOTAL	850	743	599.2	280.7	379.7	2739	2023	939.1	446.7	600.6	382.2	312.8
MEAN	27.4	24.8	19.3	9.05	13.6	88.4	67.4	30.3	14.9	19.4	12.3	10.4
MAX	41	31	29	12	24	177	121	56	53	79	38	24
MIN	14	13	8.1	6.1	4.4	26	35	9.1	1.0	3.6	1.9	2.0
CFSM	.51	.46	.36	.17	.25	1.65	1.26	.57	.28	.36	.23	.19
IN.	.59	.52	.42	.20	.26	1.90	1.41	.65	.31	.42	.27	.22

CAL YR 1990 TOTAL 13573.3 MEAN 37.2 MAX 226 MIN 4.3 CFSM .70 IN. 9.44  
WTR YR 1991 TOTAL 10296.0 MEAN 28.2 MAX 177 MIN 1.0 CFSM .53 IN. 7.16

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.--Observer takes samples during periods of low flow and more frequently during runoff periods.

REMARKS.--Records poor. Phosphorus analyses by the Wisconsin State Laboratory of Hygiene. All samples are equal-width increment (EWI).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 456 tons, May 31, 1989; minimum daily, -0.09 ton, June 14, 1991.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 3,230 lb, May 31, 1989; minimum daily, -1.0 lb, June 14, 1991.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 16 tons, Mar. 2; minimum daily, -0.09 ton, June 14.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 407 lb, Mar. 2; minimum daily, -1.0 lb, June 14.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1990					MAY 1991				
10...	1530	14	<0.020	12	02...	0900	43	--	50
18...	1510	41	0.130	30	02...	0905	43	0.170	--
NOV					06...	0855	50	0.220	51
08...	0930	30	0.050	22	15...	1100	29	0.220	40
21...	1515	25	0.120	90	22...	0900	23	0.180	34
28...	1015	22	0.140	73	JUN				
DEC					05...	0900	12	0.300	36
21...	1330	22	--	2	13...	0900	6.3	0.220	41
JAN 1991					15...	0815	53	0.300	48
11...	1500	9.2	0.140	--	17...	0850	20	0.200	39
31...	0945	6.4	0.120	17	19...	1320	14	0.190	22
FEB					25...	0850	10	0.060	11
06...	1000	13	0.180	5	JUL				
11...	1155	21	0.140	16	08...	1335	9.9	0.210	17
MAR					12...	1435	28	0.250	35
01...	1015	26	--	10	17...	0915	22	0.170	15
01...	1140	26	0.100	--	22...	1345	34	0.340	41
04...	1430	89	0.410	17	25...	0845	25	0.360	30
11...	0910	64	0.120	5	29...	0900	44	0.320	43
20...	1040	109	0.100	8	30...	0900	33	0.340	49
25...	0935	114	0.100	6	AUG				
27...	1500	99	0.110	12	06...	1100	15	0.260	42
APR					08...	0800	38	0.300	49
01...	0910	59	0.090	18	08...	1115	38	0.320	40
09...	0930	82	0.120	30	21...	1215	11	0.030	9
10...	0910	97	0.140	24	29...	0900	2.1	0.080	12
15...	0920	114	0.080	17	SEP				
					03...	1005	17	0.040	12
					23...	1325	13	0.120	9

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.3	1.2	.10	.16	.90	2.9	5.3	.78	.21	3.3	.10
2	1.7	1.5	.98	.11	.19	16	2.8	5.6	2.4	.25	2.3	.06
3	1.9	1.3	.23	.10	.20	8.4	2.6	5.9	2.7	.17	1.5	.54
4	3.1	1.9	.47	.10	.19	4.4	2.9	5.4	1.8	.30	1.6	.31
5	3.2	1.4	.41	.08	.20	3.2	2.5	5.0	1.2	.27	1.8	.29
6	4.1	1.8	.44	.09	.20	3.9	2.4	6.8	.90	.21	1.7	.23
7	1.6	1.9	.41	.12	.32	2.4	3.6	6.9	.97	.10	1.2	.19
8	1.6	1.8	.39	.12	.64	1.7	3.2	6.1	1.2	.42	4.3	.15
9	.87	2.1	.34	.15	1.2	1.3	6.4	5.6	.95	.33	2.4	.29
10	.49	2.2	.33	.14	1.2	1.0	6.2	5.5	1.4	.27	1.5	.17
11	1.3	2.4	.33	.15	.90	.92	6.3	4.6	1.4	.48	1.2	.24
12	1.0	2.3	.23	.18	.66	.93	5.4	4.0	1.2	2.4	.59	.33
13	1.2	2.3	.34	.17	.56	.84	5.0	4.6	.71	1.8	.50	.27
14	1.8	2.3	.27	.18	.47	.83	5.9	4.0	-.09	.77	.42	.25
15	1.8	3.4	.21	.24	.38	.96	5.3	3.1	6.6	.55	.42	1.6
16	1.7	3.8	.23	.23	.44	1.1	5.4	2.6	3.2	.53	.18	.92
17	1.7	3.6	.20	.25	.40	1.2	4.6	3.2	2.0	.90	.45	.57
18	3.2	3.8	.19	.26	.34	1.5	4.0	1.5	1.2	.38	.21	1.3
19	2.9	4.6	.18	.27	.41	1.9	3.5	2.1	.85	.35	.25	.64
20	2.6	2.8	.18	.29	.40	2.2	2.7	2.1	.89	.45	.31	.58
21	2.3	5.9	.13	.30	.42	2.3	2.5	1.2	1.1	9.1	.26	.42
22	2.4	6.4	.15	.27	.50	2.2	2.4	2.1	.49	3.9	.17	.20
23	2.4	6.4	.12	.33	.52	2.4	2.4	1.7	.51	2.8	.29	.30
24	2.3	5.1	.12	.31	.42	2.1	2.2	1.7	.45	3.0	.12	.21
25	1.7	5.6	.09	.20	.44	2.0	2.1	1.7	.29	2.0	.05	.13
26	1.7	2.9	.09	.28	.43	2.6	2.2	.88	.12	1.6	.08	.22
27	2.0	5.3	.07	.27	.39	3.2	1.9	1.2	.34	1.5	.10	.17
28	1.7	4.1	.07	.25	.35	3.6	1.8	.87	.37	1.5	.06	.15
29	1.4	4.1	.10	.30	---	3.1	1.6	.50	.31	5.1	.07	.14
30	1.6	1.8	.11	.26	---	3.0	2.5	.87	.31	4.3	.14	.13
31	1.1	---	.11	.27	---	3.1	---	1.4	---	3.5	.22	---
TOTAL	60.26	96.1	8.72	6.37	12.93	85.18	105.2	104.02	36.55	49.44	27.69	11.10

WTR YR 1991 TOTAL 603.56

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	7.4	15	7.6	3.1	19	29	41	13	4.5	47	.90
2	20	8.5	18	7.6	4.6	407	25	39	40	5.8	33	.49
3	23	6.8	6.1	6.4	6.3	278	22	43	48	4.4	22	3.7
4	37	9.7	14	6.7	8.0	198	22	42	31	8.5	23	2.2
5	38	7.1	14	5.1	11	153	18	42	19	8.5	23	2.2
6	48	8.5	16	5.1	13	184	15	59	14	7.1	21	1.9
7	15	8.7	16	6.9	15	112	25	62	14	3.7	14	1.6
8	11	8.2	17	6.2	21	78	24	56	17	11	62	1.3
9	4.3	9.0	16	7.4	30	62	54	52	13	8.8	39	2.7
10	1.8	9.3	17	6.6	24	48	71	53	17	7.5	24	1.7
11	4.8	9.6	18	7.0	16	42	71	45	17	9.8	18	2.5
12	4.4	8.9	14	7.5	12	40	58	40	14	37	9.2	3.6
13	5.5	8.7	22	6.9	10	34	51	48	7.7	30	7.7	3.1
14	9.4	8.1	19	7.0	8.6	32	58	43	-1.0	16	6.4	3.3
15	11	12	16	8.8	7.0	35	50	34	82	14	6.3	32
16	12	12	19	8.0	8.3	39	51	29	36	13	2.6	18
17	13	11	18	7.9	7.4	39	44	35	22	20	5.7	11
18	27	12	19	7.9	6.5	46	38	16	16	9.2	2.3	26
19	25	14	20	7.8	7.8	55	34	22	14	9.2	2.3	14
20	21	7.8	20	7.8	7.7	59	27	23	15	11	2.5	13
21	18	16	17	7.7	8.2	64	24	13	17	153	1.9	10
22	19	18	18	6.5	9.8	64	24	22	6.9	64	1.3	5.3
23	18	19	14	7.6	10	71	24	19	6.6	52	2.7	8.4
24	17	16	14	6.6	8.3	65	22	20	5.4	63	1.2	5.7
25	12	18	9.1	4.1	8.7	62	21	21	3.3	47	.67	3.2
26	12	10	9.1	5.5	8.6	63	22	11	1.5	33	1.0	5.0
27	13	19	7.0	4.9	7.8	58	20	16	4.8	27	1.3	3.6
28	11	17	6.7	4.3	7.2	57	19	12	5.7	24	.74	2.8
29	8.9	23	8.3	4.9	---	44	17	7.6	5.3	74	.88	2.5
30	9.8	15	9.1	4.0	---	37	23	13	5.8	60	1.5	2.2
31	6.6	---	8.3	4.2	---	34	---	22	---	49	2.2	---
TOTAL	499.5	358.3	454.7	202.5	295.9	2579	1003	1000.6	511.0	885.0	386.39	193.89

WTR YR 1991 TOTAL 8369.78



## STREAMS TRIBUTARY TO LAKE MICHIGAN

93

04073500 FOX RIVER AT BERLIN, WI

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 mi<sup>2</sup>.

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 period listed in rating table below. Records good except for period of ice effect, which is fair. Usually less than about 20 ft<sup>3</sup>/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.

AVERAGE DISCHARGE.--93 years, 1,122 ft<sup>3</sup>/s, 11.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft<sup>3</sup>/s, Mar. 17, 18, 1946, gage height, 15.5 ft; minimum observed, 210 ft<sup>3</sup>/s, June 27, 1988, gage height, 7.30 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,480 ft<sup>3</sup>/s, Mar. 27, 28, gage height, 11.89 ft; maximum gage height, 12.65 ft, Mar. 16, backwater from ice; minimum daily discharge, 418 ft<sup>3</sup>/s, Sept. 2.

RATING TABLE (gage height, in feet, and discharge in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 5 to Mar. 21.)

7.7	370	10.0	1,370
8.0	490	11.0	1,950
9.0	910	12.0	2,560

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	979	1000	1020	780	720	740	2390	1980	943	544	953	428
2	942	999	998	780	740	820	2340	1960	961	554	947	418
3	936	1000	924	760	760	920	2290	1940	980	568	916	484
4	971	1000	757	720	760	1000	2230	1920	948	568	881	483
5	971	1010	780	720	780	1100	2160	1910	900	554	843	495
6	965	1010	860	740	800	1200	2100	1910	876	533	804	505
7	927	1050	940	740	840	1300	2040	1890	865	509	768	517
8	867	1120	960	740	880	1400	2010	1890	848	492	824	519
9	844	1180	960	700	880	1500	2000	1880	824	475	859	520
10	850	1200	960	700	860	1500	2010	1870	804	463	896	528
11	908	1200	940	700	840	1600	2010	1840	784	445	905	496
12	974	1180	960	700	800	1800	2030	1790	756	486	905	539
13	991	1160	1000	720	800	2000	2060	1750	717	545	873	576
14	1020	1150	1000	740	800	2200	2140	1690	716	566	842	625
15	1050	1140	980	740	780	2300	2240	1630	723	587	820	718
16	1050	1140	960	740	760	2300	2300	1590	755	585	790	769
17	1060	1100	960	740	760	2300	2330	1550	750	581	781	799
18	1090	1080	940	760	760	2300	2350	1460	751	581	759	819
19	1080	1080	940	780	760	2200	2350	1390	742	600	694	836
20	1100	1110	940	780	780	2200	2320	1340	727	596	667	803
21	1120	1140	960	760	800	2200	2290	1310	713	673	683	780
22	1120	1150	920	740	800	2210	2240	1240	657	735	678	770
23	1120	1140	900	720	800	2280	2210	1160	624	773	640	761
24	1110	1110	860	700	780	2360	2160	1110	645	785	624	724
25	1090	1070	820	680	760	2400	2120	1060	650	818	609	713
26	1090	1030	840	680	760	2430	2080	1010	641	838	600	698
27	1090	1020	860	700	740	2460	2040	1000	663	850	586	693
28	1070	1040	840	700	740	2480	2000	987	660	871	554	701
29	1050	1070	820	680	---	2460	2000	969	631	901	528	682
30	1040	1030	800	680	---	2450	2000	954	595	920	512	657
31	1020	---	800	700	---	2420	---	963	---	942	482	---
TOTAL	31495	32709	28199	22520	22040	58830	64840	46943	22849	19938	23223	19056
MEAN	1016	1090	910	726	787	1898	2161	1514	762	643	749	635
MAX	1120	1200	1020	780	880	2480	2390	1980	980	942	953	836
MIN	844	999	757	680	720	740	2000	954	595	445	482	418
CFSM	.76	.81	.68	.54	.59	1.42	1.61	1.13	.57	.48	.56	.47
IN.	.87	.91	.78	.63	.61	1.63	1.80	1.30	.63	.55	.64	.53

CAL YR 1990 TOTAL 425241 MEAN 1165 MAX 2270 MIN 430 CFSM .87 IN. 11.81  
WTR YR 1991 TOTAL 392642 MEAN 1076 MAX 2480 MIN 418 CFSM .80 IN. 10.90

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04074950 WOLF RIVER AT LANGLADE, WI

LOCATION.--Lat 45°11'24", long 88°44'00", between secs. 3 and 10, 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 mi<sup>2</sup>.

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, from topographic map. Prior to Oct. 1, 1976, nonrecording gage 50 ft downstream at same elevation.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair.

AVERAGE DISCHARGE.--24 years (water years 1967-79, 1981-91), 449 ft<sup>3</sup>/s, 13.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,200 ft<sup>3</sup>/s, Mar. 15, 1973, gage height, 9.48 ft; maximum gage height, 10.18 ft, Mar. 16, 1990, backwater from ice; minimum discharge, 119 ft<sup>3</sup>/s, Nov. 8, 1976, gage height, 7.24 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,770 ft<sup>3</sup>/s, June 3, 4, gage height, 9.73 ft; minimum discharge, 278 ft<sup>3</sup>/s, Sept. 2, gage height, 7.72 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 19 to Mar. 21.)

7.3	135	8.5	647
7.5	197	9.0	973
8.0	397	9.5	1,420
		10.0	1,960

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	469	449	502	320	310	300	977	1050	1590	547	466	267
2	463	448	474	308	320	310	912	997	1670	612	449	262
3	455	454	353	322	340	318	818	980	1750	679	510	277
4	464	455	307	312	360	325	779	975	1750	685	507	305
5	446	449	330	310	345	338	803	996	1650	654	469	301
6	429	441	475	310	332	345	825	1020	1540	621	442	303
7	423	431	531	308	328	340	833	998	1430	577	424	318
8	420	415	478	308	328	340	922	944	1310	556	417	343
9	410	413	440	308	320	355	1300	904	1210	546	401	352
10	402	411	406	320	310	350	1360	835	1120	537	376	345
11	420	399	360	310	300	350	1350	753	1030	519	352	337
12	434	401	347	300	290	350	1280	705	961	482	326	341
13	423	393	351	322	295	355	1210	671	891	447	303	344
14	435	398	363	310	305	358	1220	630	889	420	296	349
15	452	369	367	330	290	362	1280	603	889	402	290	395
16	438	314	450	320	285	368	1240	586	766	387	287	449
17	468	300	420	312	285	385	1160	649	678	415	301	468
18	525	291	447	312	290	390	1090	724	629	436	309	448
19	539	296	430	320	290	400	1050	750	592	432	307	432
20	528	293	430	330	298	500	991	679	562	430	298	386
21	546	322	440	315	300	810	936	605	874	449	294	362
22	555	394	430	312	310	867	873	559	994	472	290	350
23	539	389	380	310	320	1080	834	537	870	477	288	334
24	527	338	330	305	310	1330	796	546	799	460	327	326
25	511	370	295	305	300	1260	729	648	754	472	325	327
26	500	390	315	320	300	1220	655	897	705	467	312	347
27	493	405	330	320	300	1150	619	1000	651	454	300	337
28	484	428	340	310	290	1350	609	983	599	452	291	305
29	468	469	335	300	---	1270	762	1270	661	467	285	294
30	464	498	360	295	---	1130	1050	1440	574	531	281	291
31	456	---	340	298	---	1040	---	1490	---	518	275	---
TOTAL	14586	11823	12156	9682	8651	19646	29263	26424	30388	15603	10798	10295
MEAN	471	394	392	312	309	634	975	852	1013	503	348	343
MAX	555	498	531	330	360	1350	1360	1490	1750	685	510	468
MIN	402	291	295	295	285	300	609	537	562	387	275	262
CFM	1.02	.85	.85	.67	.67	1.37	2.11	1.84	2.19	1.09	.75	.74
IN.	1.17	.95	.98	.78	.70	1.58	2.35	2.12	2.44	1.25	.87	.83

CAL YR 1990 TOTAL 151593 MEAN 415 MAX 1700 MIN 211 CFM .90 IN. 12.18  
WTR YR 1991 TOTAL 199315 MEAN 546 MAX 1750 MIN 262 CFM 1.18 IN. 16.01

## STREAMS TRIBUTARY TO LAKE MICHIGAN

95

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 mi<sup>2</sup>.

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 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	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)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 1990												
24...	1415	527	160	6.4	8.0	--	18	8.5	2.4	1.2	77	3.7
DEC												
11...	1440	380	187	7.9	2.5	--	23	11	2.8	1.2	99	6.3
JAN 1991												
23...	1530	320	237	7.3	0.0	13.1	28	13	2.7	1.1	119	4.5
MAR												
04...	1530	322	230	7.4	0.5	15.0	28	13	2.8	1.1	116	4.1
MAY												
09...	1435	912	143	7.8	11.5	10.4	16	6.9	1.9	0.70	61	2.9
JUN												
18...	1545	627	175	8.2	25.5	8.2	19	8.3	2.0	0.70	76	2.6
JUL												
30...	1545	538	193	8.2	21.0	9.3	21	10	2.2	0.70	89	2.9
SEP												
19...	1155	433	200	8.0	11.5	11.0	22	10	2.5	1.1	97	3.4

DATE	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, 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 ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT 1990											
24...	4.6	<0.10	8.4	111	<0.010	0.100	0.050	0.90	0.020	0.110	<1
DEC											
11...	7.2	<0.10	9.9	149	<0.010	0.300	0.030	0.30	0.020	0.620	<1
JAN 1991											
23...	7.0	0.20	13	146	<0.010	0.600	0.080	0.50	0.030	0.020	<1
MAR											
04...	7.4	0.10	12	138	0.030	0.460	0.060	0.30	0.030	<0.010	<1
MAY											
09...	4.8	<0.10	3.9	85	0.010	<0.050	0.030	0.50	0.020	0.010	<1
JUN											
18...	3.4	0.20	7.9	108	<0.010	0.130	0.020	0.90	0.060	<0.010	1
JUL											
30...	4.5	0.20	7.7	108	<0.010	0.061	<0.010	0.50	0.020	<0.010	<1
SEP											
19...	5.2	0.20	9.6	113	<0.010	0.084	0.020	0.50	0.010	0.010	<1

DATE	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
OCT 1990											
24...	<100	<1	<1	4	480	2	20	<0.10	2	<1	<10
DEC											
11...	100	<1	<1	2	240	2	10	<0.10	2	<1	<10
JAN 1991											
23...	<100	<1	<1	4	340	1	30	<0.10	2	<1	20
MAR											
04...	<100	<1	2	2	250	1	30	<0.10	3	<1	<10
MAY											
09...	<100	<1	<1	3	350	4	40	<0.10	2	<1	<10
JUN											
18...	<100	<1	<1	3	920	2	80	<0.10	3	<1	40
JUL											
30...	<100	<1	1	3	390	2	80	<0.10	<1	<1	20
SEP											
19...	<100	<1	<1	1	250	1	50	<0.10	1	<1	<10

## STREAMS TRIBUTARY TO LAKE MICHIGAN

445330088361400 LEGEND LAKE SITE #3 (NEAR LODGE) NEAR SHAWANO, WI

LOCATION.--Lat 44°53'30", long 88°36'14", in NE 1/4 SW 1/4 sec. 19, T.28 N., R.16 E, Menominee County, Hydrologic Unit 04030202, 7.4 mi north of Shawano.

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled approximately 1 mi east of lodge located on west shore at a depth of about 40 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, NOVEMBER 02, 1990 TO APRIL 18, 1991  
(Milligrams per liter unless otherwise indicated)

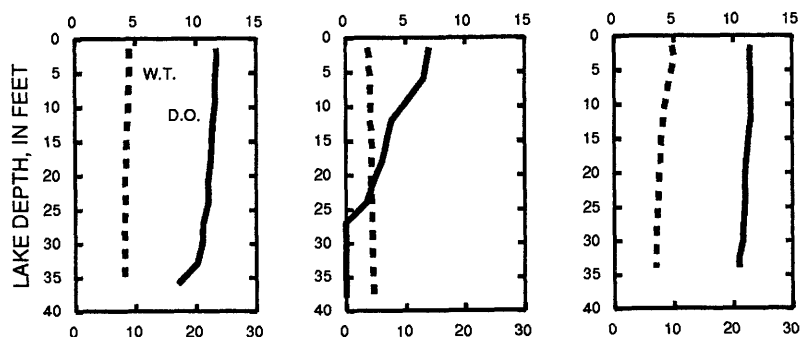
	Nov. 02		Feb. 13		Apr. 18	
Depth of sample (ft)	1.5	36.0	1.5	38.0	1.5	32.5
Lake stage (ft)	---		---		21.0	
Specific conductance (μS/cm)	273	274	309	371	283	286
pH (units)	8.3	7.5	7.6	7.1	8.4	8.2
Water temperature (°C)	9.0	8.2	3.7	4.7	9.9	7.0
Color (Pt-Co. scale)	1.0	2.0	---	---	8.0	5.0
Turbidity (NTU)	1.4	1.0	---	---	0.7	0.9
Secchi-depth (meters)	3.8		4.9		---	
Dissolved oxygen	11.7	8.5	7.0	0.0	11.5	10.5
Calcium, dissolved (Ca)	27	27	---	---	31	33
Magnesium, dissolved (Mg)	18	18	---	---	15	18
Sodium, dissolved (Na)	2.4	2.3	---	---	1.9	2.4
Potassium, dissolved (K)	0.6	0.7	---	---	1.0	1.0
Alkalinity, as CaCO <sub>3</sub>	139	139	---	---	135	151
Sulfate, dissolved (SO <sub>4</sub> )	12.0	11.0	---	---	6.7	11.0
Fluoride, dissolved (F)	0.2	0.2	---	---	0.2	0.2
Chloride, dissolved (Cl)	4.0	3.8	---	---	2.4	3.2
Silica, dissolved (SiO <sub>2</sub> )	1.9	1.9	---	---	5.3	1.6
Solids, dissolved, at 180°C	137	151	---	---	142	160
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	<0.01	<0.01
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , total (as N)	<0.10	<0.10	---	---	<0.05	<0.05
Nitrogen, ammonia, total (as N)	<0.01	0.02	---	---	<0.01	<0.01
Nitrogen, amm. + org., total (as N)	0.40	0.40	---	---	0.30	0.30
Phosphorus, total (as P)	0.007	0.007	---	---	0.009	0.012
Phosphorus, ortho, dissolved (as P)	0.002	0.001	---	---	<0.001	<0.001
Iron, dissolved (Fe) μg/L	4.0	7.0	---	---	28.0	4.0
Manganese, dissolved (Mn) μg/L	2.0	3.0	---	---	7.0	2.0
Chlorophyll a, phytoplankton (μg/L)	1.5	---	---	---	<0.9	---

11-2-90

2-13-91

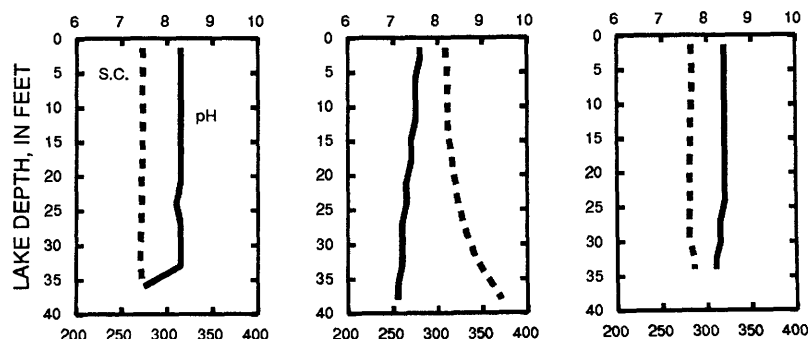
4-18-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

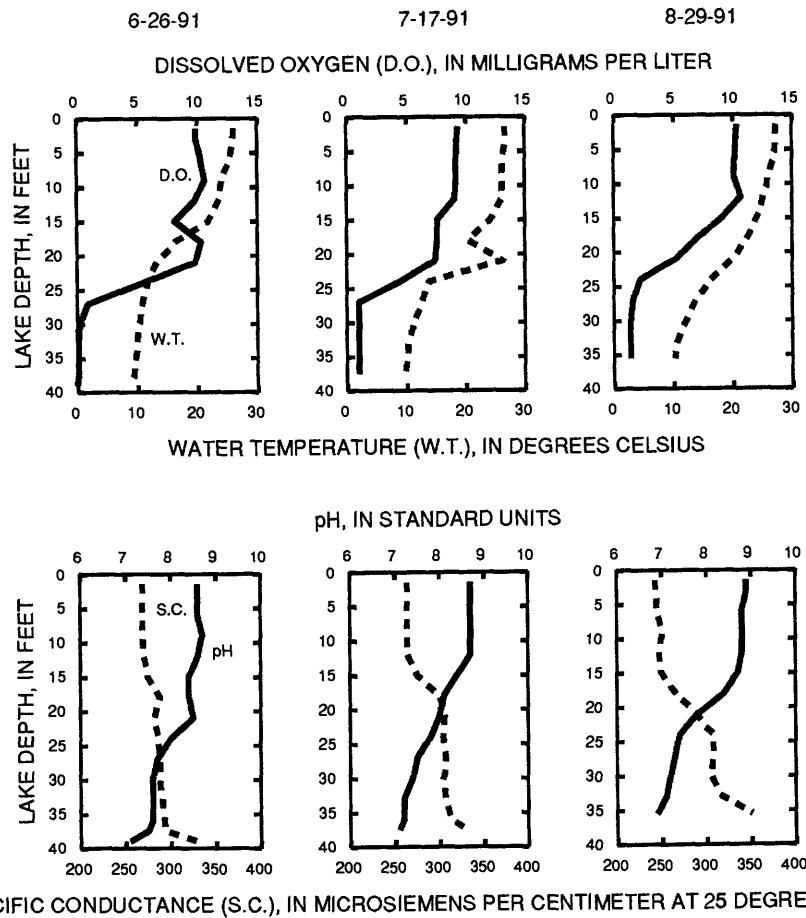


## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

445330088361400 LEGEND LAKE SITE #3 (NEAR LODGE) NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, NOVEMBER 02, 1990 TO APRIL 18, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 17		Aug. 29	
Depth of sample (ft)	1.5	37.5	1.5	36.0	1.52	33.0
Lake stage (ft)		5.48		6.39		---
Specific conductance ( $\mu\text{S}/\text{cm}$ )	269	294	264	313	243	317
pH (units)	8.63	7.50	8.70	7.20	8.90	6.90
Water temperature ( $^{\circ}\text{C}$ )	26.1	9.37	26.7	10.0	27.3	10.7
Secchi-depth (meters)		3.9		3.2		3.9
Dissolved oxygen	9.85	0.08	9.40	1.00	10.40	1.40
Phosphorus, total (as P)	0.011	0.026	0.004	0.044	0.012	0.031
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.4	---	16.0	---	0.4	---



LAKE-STAGE RECORDS

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.98 ft, Nov. 1; minimum gage-height observed, 1.74 ft, Aug. 29.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

445328088335000 ROUND LAKE NEAR SHAWANO, WI--CONTINUED

## WATER-QUALITY RECORDS

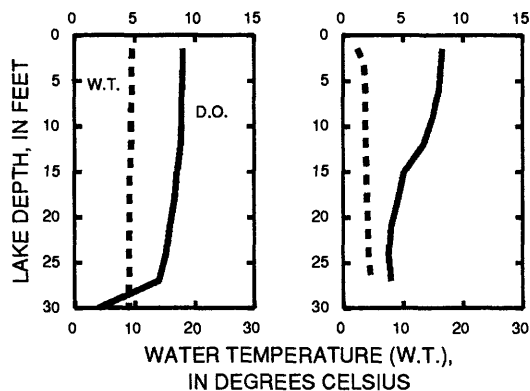
PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled near southeast end at a lake depth of about 35 ft. Lake ice-covered during February sampling.

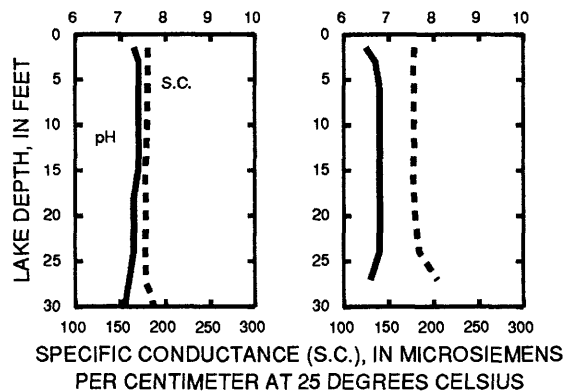
WATER-QUALITY DATA, NOVEMBER 01, 1990 TO APRIL 22, 1991  
(Milligrams per liter unless otherwise indicated)

	Nov. 01		Feb. 12		Apr. 22	
Depth of sample (ft)	1.5	30.0	1.5	27.0	1.5	24.5
Lake stage (ft)	2.98		1.92		---	---
Specific conductance ( $\mu\text{S}/\text{cm}$ )	181	187	179	204	---	---
pH (units)	7.3	7.1	6.5	6.6	7.8	7.8
Water temperature ( $^{\circ}\text{C}$ )	9.6	9.0	2.4	4.7	10.5	7.5
Color (Pt-Co. scale)	7.0	2.0	---	---	7.0	11.0
Turbidity (NTU)	0.5	1.0	---	---	14.0	1.4
Secchi-depth (meters)	3.6		4.0		3.5	
Dissolved oxygen	9.0	2.0	8.3	4.0	11.1	6.7
Calcium, dissolved (Ca)	19	19	---	---	19	19
Magnesium, dissolved (Mg)	8.2	8.1	---	---	8.0	8.1
Sodium, dissolved (Na)	2.2	2.2	---	---	2.2	2.3
Potassium, dissolved (K)	0.4	0.4	---	---	0.6	0.6
Alkalinity, as $\text{CaCO}_3$	80	79	---	---	76	75
Sulfate, dissolved ( $\text{SO}_4$ )	6.4	6.5	---	---	7.1	7.8
Fluoride, dissolved (F)	<0.1	<0.1	---	---	<0.1	<0.1
Chloride, dissolved (Cl)	1.8	1.8	---	---	3.2	3.1
Silica, dissolved ( $\text{SiO}_2$ )	2.8	2.7	---	---	2.5	3.2
Solids, dissolved, at $180^{\circ}\text{C}$	128	110	---	---	89	88
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	<0.01	<0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.10	<0.10	---	---	0.13	0.11
Nitrogen, ammonia, total (as N)	0.13	0.11	---	---	0.10	0.18
Nitrogen, amm. + org., total (as N)	0.50	0.50	---	---	0.50	0.60
Phosphorus, total (as P)	0.012	0.013	---	---	0.008	0.010
Phosphorus, ortho, dissolved (as P)	0.003	0.001	---	---	0.003	0.003
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	5.0	3.0	---	---	17.0	31.0
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	2.0	5.0	---	---	12.0	110
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	3.0	---	---	---	2.6	---

11-1-90 2-12-91

DISSOLVED OXYGEN (D.O.),  
IN MILLIGRAMS PER LITERWATER TEMPERATURE (W.T.),  
IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

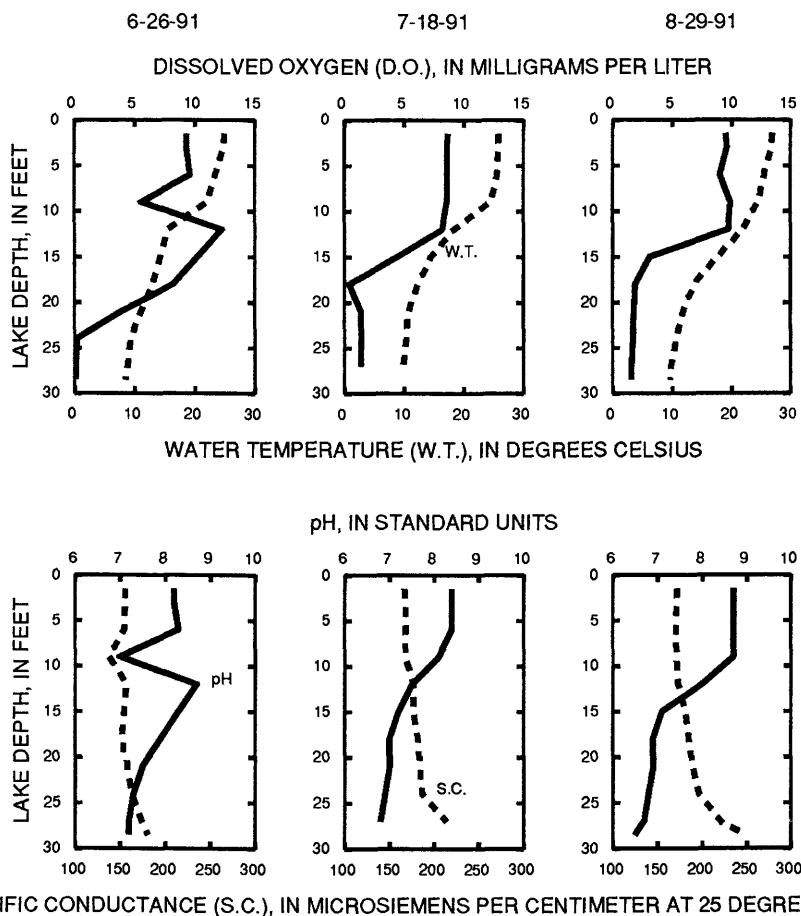


## STREAMS TRIBUTARY TO LAKE MICHIGAN

445328088335000 ROUND LAKE NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 26 TO AUGUST 29, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 18		Aug. 29	
Depth of sample (ft)	1.5	28.5	1.5	25.5	1.5	27.0
Lake stage (ft)	2.72		1.98		1.86	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	156	181	167	187	172	220
pH (units)	8.21	7.21	8.40	6.90	8.70	6.70
Water temperature ( $^{\circ}\text{C}$ )	24.88	8.52	25.80	10.30	26.90	9.80
Secchi-depth (meters)	2.2		3.0		3.8	
Dissolved oxygen	9.27	0.07	8.70	1.40	9.50	1.60
Phosphorus, total (as P)	0.011	0.033	0.008	0.008	0.005	0.031
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.1	---	2.6	---	1.1	---





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LOCATION.--Lat 44°53'05", long 88°36'12", in NE 1/4 NW 1/4 sec. 30, T.28 N., R.16 E., Menominee County, Hydrologic Unit 04030202, 6.9 mi north of Shawano.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.10 ft, May 1; minimum gage-height observed, 1.54 ft, Nov. 1.

[illegible]

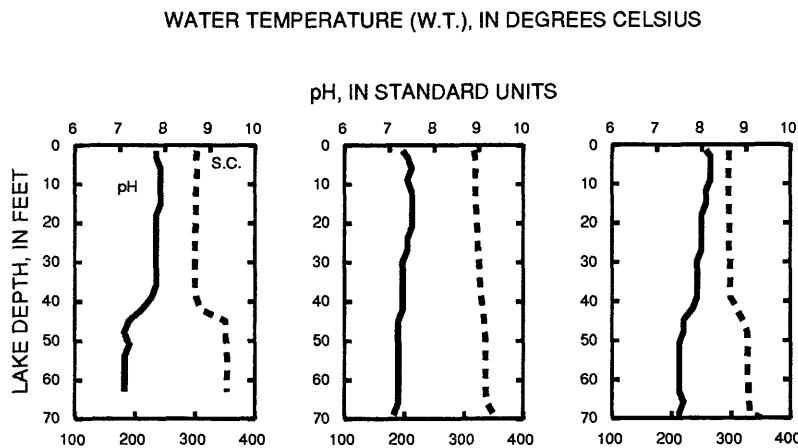
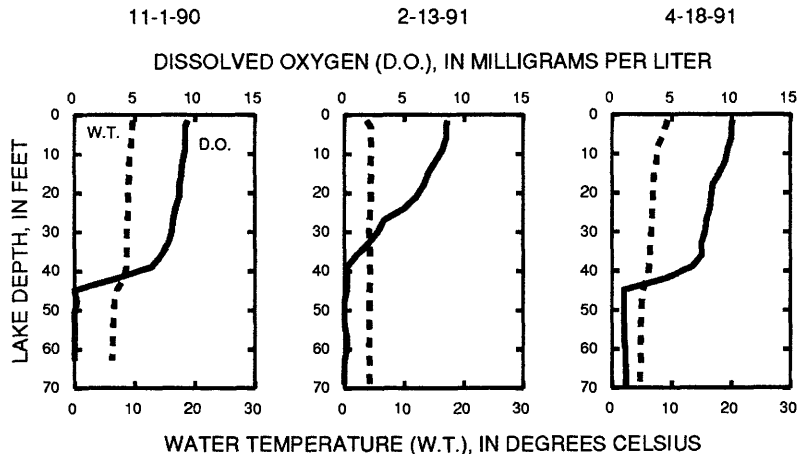
## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1990 to current year.

REMARKS.--Lake sampled near center at a lake depth of about 70 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, NOVEMBER 01, 1990 TO APRIL 18, 1991  
(Milligrams per liter unless otherwise indicated)

	Nov. 01		Feb. 13		Apr. 18	
Depth of sample (ft)	1.5	63.0	1.5	69.0	1.5	69.0
Lake stage (ft)		1.54		---		1.50
Specific conductance ( $\mu$ S/cm)	303	353	317	352	296	332
pH (units)	7.8	7.1	7.3	7.1	8.1	7.5
Water temperature ( $^{\circ}$ C)	9.7	6.2	3.7	4.2	9.3	4.7
Color (Pt-Co. scale)	2.0	25.0	---	---	8.0	6.0
Turbidity (NTU)	1.0	2.5	---	---	0.5	2.0
Secchi-depth (meters)		2.7		9.4		2.5
Dissolved oxygen	9.4	0.0	8.6	0.0	10.1	1.2
Calcium, dissolved (Ca)	34	41	---	---	37	41
Magnesium, dissolved (Mg)	17	18	---	---	17	19
Sodium, dissolved (Na)	3.1	3.5	---	---	3.2	3.6
Potassium, dissolved (K)	0.8	1.0	---	---	0.9	0.9
Alkalinity, as $\text{CaCO}_3$	158	188	---	---	161	185
Sulfate, dissolved ( $\text{SO}_4$ )	4.7	<1.0	---	---	4.2	3.1
Fluoride, dissolved (F)	0.2	0.2	---	---	0.1	0.2
Chloride, dissolved (Cl)	5.9	5.7	---	---	4.4	4.7
Silica, dissolved ( $\text{SiO}_2$ )	9.8	18.0	---	---	9.2	13.0
Solids, dissolved, at $180^{\circ}\text{C}$	162	194	---	---	190	206
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	0.01	<0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.10	<0.10	---	---	<0.05	<0.05
Nitrogen, ammonia, total (as N)	0.06	1.50	---	---	0.11	0.69
Nitrogen, amm. + org., total (as N)	0.4	1.8	---	---	1.3	1.3
Phosphorus, total (as P)	0.008	0.126	---	---	0.018	0.050
Phosphorus, ortho, dissolved (as P)	0.024	0.095	---	---	0.790	0.026
Iron, dissolved (Fe) $\mu\text{g/L}$	4.0	980	---	---	4.0	240
Manganese, dissolved (Mn) $\mu\text{g/L}$	27	1800	---	---	39	780
Chlorophyll a, phytoplankton ( $\mu\text{g/L}$ )	3.3	---	---	---	1.3	---

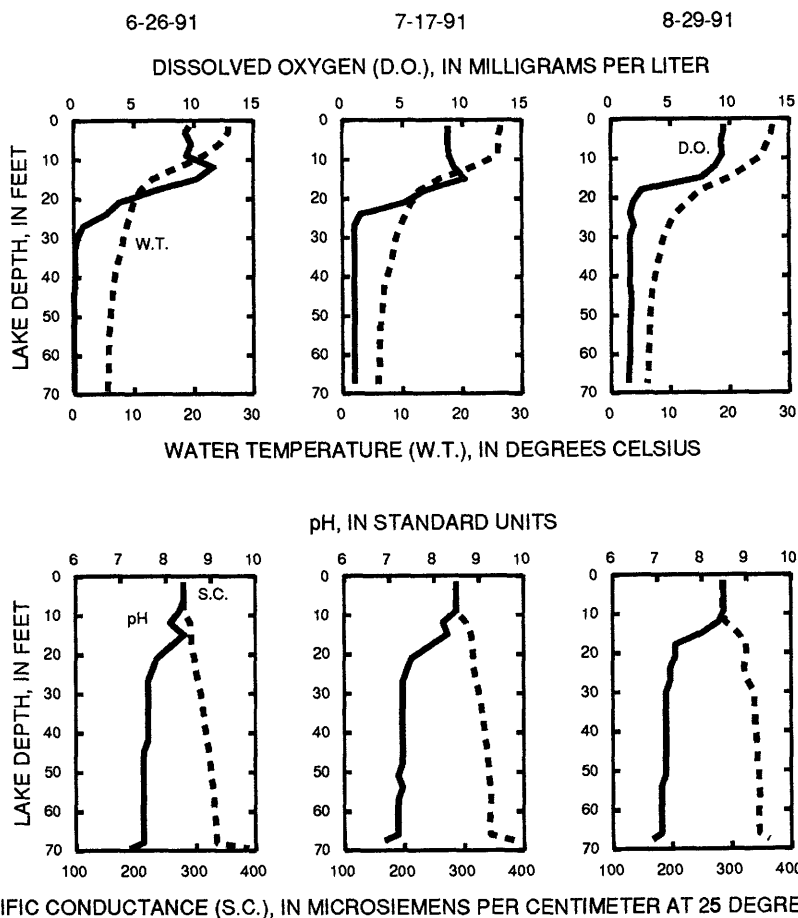


SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

445305088361200 LAMOTTE LAKE NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 26 TO AUGUST 29, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 17		Aug. 29	
Depth of sample (ft)	1.5	68.0	1.5	66.0	1.5	66.0
Lake stage (ft)		1.24		1.26		1.24
Specific conductance ( $\mu\text{S}/\text{cm}$ )	280	334	287	344	285	347
pH (units)	8.45	7.46	8.50	7.20	8.50	7.10
Water temperature ( $^{\circ}\text{C}$ )	25.79	5.63	26.40	6.00	27.10	6.20
Secchi-depth (meters)		2.8		3.2		3.8
Dissolved oxygen	9.61	0.02	8.80	1.00	9.50	1.50
Phosphorus, total (as P)	0.012	0.175	0.007	0.159	0.010	0.131
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.6	---	2.0	---	0.5	---



## 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929, 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 periods, Nov. 29 to Dec. 22 and Dec. 26 to Mar. 24. Records good except those for ice-affected periods, which are poor. Minor regulation by power dam upstream.

AVERAGE DISCHARGE.--82 years (1908, 1911-91), 759 ft<sup>3</sup>/s, 12.63 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge 5,200 ft<sup>3</sup>/s, Mar. 15, 1973; maximum gage height, 15.59 ft, Dec. 2, 1983, from high-water mark in well, at site and datum then in use (backwater from ice); minimum discharge (unregulated), 91 ft<sup>3</sup>/s, Dec. 22, 1939, gage height, 4.67 ft, site and datum then in use, result of ice storage; minimum discharge (regulated), 77 ft<sup>3</sup>/s, Nov. 19, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,500 ft<sup>3</sup>/s, Mar. 28, gage height 10.51 ft; minimum daily (regulated), 448 ft<sup>3</sup>/s Nov. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	782	652	620	480	470	520	1580	1680	1940	865	807	512
2	765	638	580	520	480	520	1400	1560	1980	797	780	514
3	748	667	580	500	500	540	1410	1450	1910	838	918	518
4	768	694	520	500	520	560	1270	1420	1910	882	909	541
5	771	674	520	500	500	580	1260	1330	1820	884	803	579
6	734	667	540	490	540	580	1320	1390	1660	882	763	568
7	692	623	600	490	580	560	1320	1460	1610	803	723	547
8	650	606	660	490	540	580	1350	1410	1490	760	771	573
9	691	659	640	490	540	600	1710	1380	1380	716	772	606
10	662	615	600	520	520	580	2000	1290	1220	723	730	705
11	712	602	620	490	490	580	2080	1120	1240	724	644	611
12	744	593	640	520	470	580	1920	1080	1150	723	590	584
13	733	563	600	500	490	580	1760	1000	1070	789	557	592
14	684	550	540	520	480	600	1780	944	1080	726	565	655
15	689	592	640	500	470	620	1990	901	1230	690	587	811
16	701	608	600	500	460	640	1890	895	1190	640	585	852
17	712	486	640	500	460	640	1760	891	1030	629	585	827
18	726	496	680	500	470	640	1590	957	828	675	614	710
19	842	515	640	520	470	680	1620	974	828	676	673	662
20	864	533	660	500	480	720	1600	978	787	692	623	594
21	848	554	680	490	480	800	1380	949	887	682	564	628
22	832	583	600	490	490	1100	1350	893	1600	724	561	625
23	845	708	633	480	520	1400	1300	961	1470	745	571	595
24	792	655	467	480	490	1700	1330	853	1240	714	603	517
25	757	557	506	460	480	1810	1210	801	1090	705	663	545
26	744	448	520	470	500	1710	1090	1130	981	710	650	561
27	690	597	540	490	480	1930	1020	1420	853	666	604	581
28	678	737	520	490	500	2320	985	1540	840	666	588	586
29	672	660	580	470	---	2250	1010	1700	1010	751	565	543
30	660	600	560	460	---	1800	1460	2020	980	744	549	511
31	645	---	520	460	---	1750	---	1990	---	813	542	---
TOTAL	22833	18132	18246	15270	13870	30470	44745	38367	38304	23034	20459	18253
MEAN	737	604	589	493	495	983	1491	1238	1277	743	660	608
MAX	864	737	680	520	580	2320	2080	2020	1980	884	918	852
MIN	645	448	467	460	460	520	985	801	787	629	542	511
CFSM	.90	.74	.72	.60	.61	1.20	1.83	1.52	1.56	.91	.81	.75
IN.	1.04	.83	.83	.70	.63	1.39	2.04	1.75	1.75	1.05	.93	.83

CAL YR 1990 TOTAL 255247 MEAN 699 MAX 2870 MIN 320 CFSM .86 IN. 11.64  
WTR YR 1991 TOTAL 301983 MEAN 827 MAX 2320 MIN 448 CFSM 1.01 IN. 13.77

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

105

WATER-QUALITY RECORDS

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	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)	ALKA- LITY LAB (MG/L AS CACO3) (90410)
OCT 1990												
24...	1530	--	772	204	6.8	8.5	--	23	11	2.3	0.90	101
DEC												
11...	1545	620	--	258	8.1	2.0	--	29	14	2.6	1.0	122
JAN 1991												
23...	1645	480	--	276	7.6	0.0	14.6	32	15	2.6	1.1	137
MAR												
05...	0830	580	--	280	6.6	0.5	14.7	33	16	2.9	1.2	138
MAY												
09...	1600	--	1200	184	7.6	11.0	10.7	21	9.7	2.1	0.70	83
JUN												
19...	1130	--	869	198	8.0	26.0	6.5	26	11	2.3	0.70	102
JUL												
30...	1700	--	778	251	8.0	19.5	9.1	29	14	2.4	0.80	120
SEP												
19...	1038	--	705	245	8.0	13.5	9.6	27	13	4.2	1.4	120

DATE	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, 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 ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)
OCT 1990												
24...	4.5	7.4	0.10	8.3	126	<0.010	0.200	0.030	0.50	<0.010	<0.010	<1
DEC												
11...	4.6	7.1	0.10	11	151	<0.010	0.400	0.030	0.50	<0.010	0.030	<1
JAN 1991												
23...	5.1	8.5	0.20	13	148	<0.010	0.600	0.050	0.20	0.020	<0.010	<1
MAR												
05...	4.9	8.3	0.20	12	176	0.010	0.620	0.070	0.30	0.030	<0.010	<1
MAY												
09...	3.3	5.6	0.10	5.3	106	<0.010	0.160	0.020	0.60	0.020	0.020	<1
JUN												
19...	3.9	5.1	0.20	8.5	136	<0.010	0.200	0.040	0.60	0.040	<0.010	2
JUL												
30...	4.5	6.1	0.20	8.0	140	<0.010	0.170	<0.010	0.40	0.010	<0.010	<1
SEP												
19...	4.2	8.2	0.20	11	147	<0.010	0.180	0.030	0.60	0.020	0.020	<1

DATE	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
OCT 1990											
24...	<100	<1	<1	2	340	1	10	<0.10	1	<1	<10
DEC											
11...	<100	1	<1	7	250	2	10	<0.10	2	<1	<10
JAN 1991											
23...	<100	<1	<1	2	170	1	20	<0.10	1	<1	<10
MAR											
05...	<1000	<1	<1	3	230	1	20	<0.10	7	<1	<10
MAY											
09...	<100	<1	<1	3	380	1	40	<0.10	5	<1	<10
JUN											
19...	100	<1	<1	3	690	5	80	<0.10	<1	<1	<10
JUL											
30...	<100	<1	1	2	250	2	50	1.0	<1	<1	30
SEP											
19...	<100	<1	<1	1	230	1	40	<0.10	1	<1	<10

STREAMS TRIBUTARY TO LAKE MICHIGAN  
445215088300300 BASS LAKE NEAR SHAWANO. WI

LOCATION.--Lat 44°52'15", long 88°30'03", in SE 1/4 SE 1/4 sec. 25, T.28 N., R.16 E., Menominee County, Hydrologic Unit 04030202, 8.1 mi northeast of Shawano.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--May 1990 to current year.

GAGE.--Staff gage read by A. Fowler. Elevation of gage 835 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 3.04 ft, June 6; minimum gage-height observed, 2.55 ft, Nov. 1.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

445215088300300 BASS LAKE NEAR SHAWANO, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1990 to current year.

REMARKS.--Lake sampled near west end at a lake depth of about 25 ft. Lake ice-covered during February sampling.

WATER-QUALITY DATA, NOVEMBER 01, 1990 TO APRIL 17, 1991  
(Milligrams per liter unless otherwise indicated)

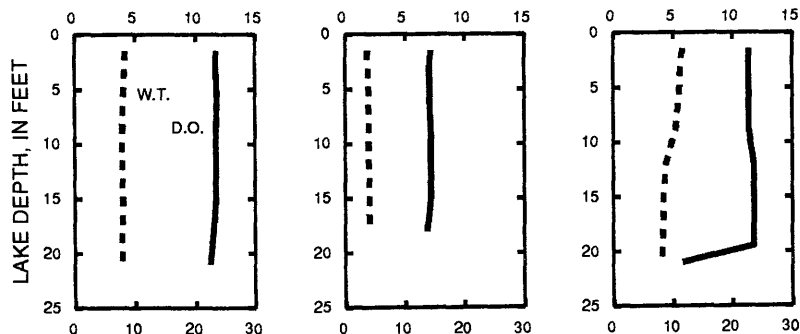
	Nov. 01		Feb. 11		Apr. 17	
Depth of sample (ft)	1.5	21.0	1.5	18.0	1.5	19.5
Lake stage (ft)	2.55		2.66		2.85	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	112	109	118	121	103	101
pH (units)	7.9	7.8	6.4	6.5	7.2	7.5
Water temperature ( $^{\circ}\text{C}$ )	8.4	7.9	3.7	4.1	11.6	8.2
Color (Pt-Co. scale)	1.0	2.0	---	---	2.0	2.0
Turbidity (NTU)	1.0	1.0	---	---	1.0	1.2
Secchi-depth (meters)	---		5.2		---	
Dissolved oxygen	11.7	11.2	7.2	6.9	11.4	11.8
Calcium, dissolved (Ca)	10.0	10.0	---	---	10.0	10.0
Magnesium, dissolved (Mg)	4.5	4.5	---	---	4.3	4.3
Sodium, dissolved (Na)	1.5	1.5	---	---	1.4	1.4
Potassium, dissolved (K)	0.3	0.4	---	---	0.4	0.4
Alkalinity, as $\text{CaCO}_3$	37	37	---	---	36	37
Sulfate, dissolved ( $\text{SO}_4$ )	6.6	6.4	---	---	6.4	6.8
Fluoride, dissolved (F)	<0.10	<0.10	---	---	<0.10	<0.10
Chloride, dissolved (Cl)	3.1	3.2	---	---	3.1	3.7
Silica, dissolved ( $\text{SiO}_2$ )	0.70	0.30	---	---	<0.10	<0.10
Solids, dissolved, at $180^{\circ}\text{C}$	52	46	---	---	55	52
Nitrogen, nitrite, total (as N)	<0.01	<0.01	---	---	<0.01	<0.01
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	<0.10	<0.10	---	---	<0.05	<0.05
Nitrogen, ammonia, total (as N)	0.02	0.02	---	---	0.05	0.04
Nitrogen, amm. + org., total (as N)	0.70	0.70	---	---	0.90	0.50
Phosphorus, total (as P)	0.002	0.002	---	---	0.005	0.007
Phosphorus, ortho, dissolved (as P)	0.003	0.005	---	---	<0.001	<0.001
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	7.0	5.0	---	---	6.0	5.0
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	2.0	3.0	---	---	2.0	1.0
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.9	---	---	---	<0.4	---

11-190

2-11-91

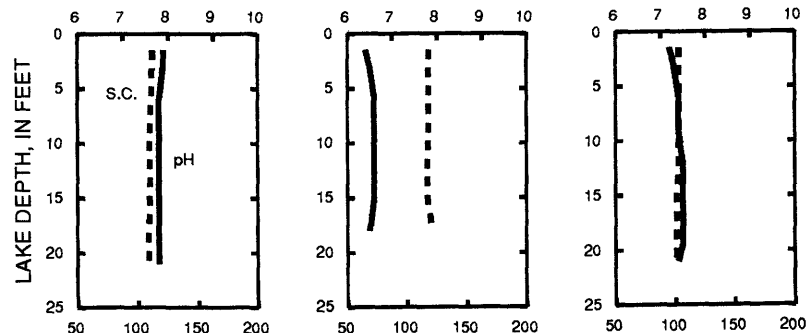
4-17-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS



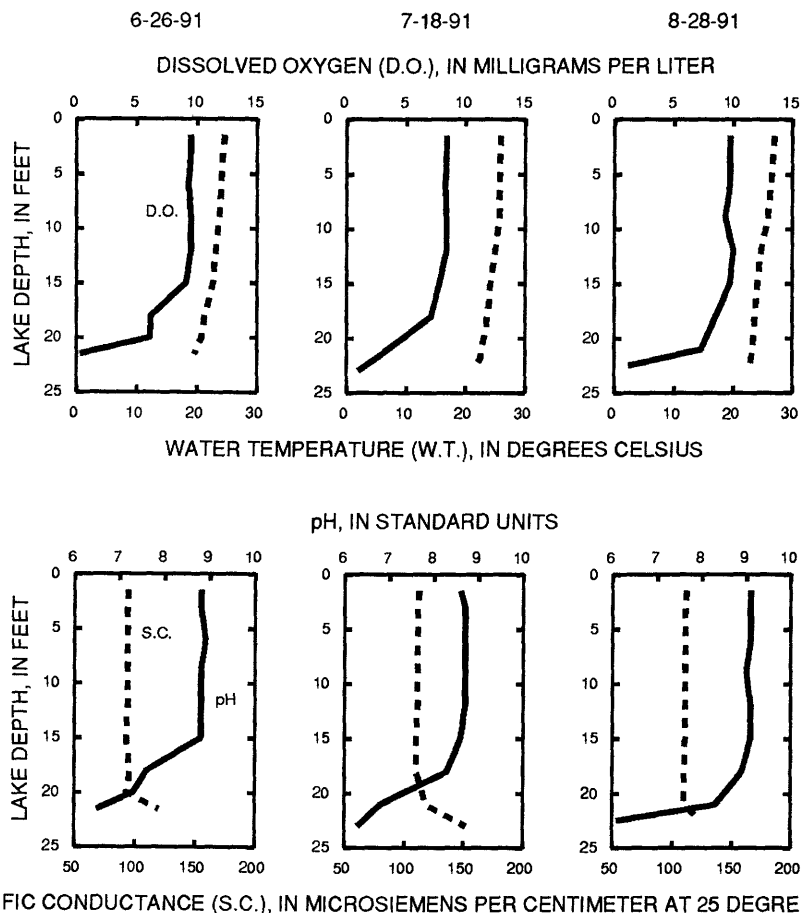
## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

## STREAMS TRIBUTARY TO LAKE MICHIGAN

445215088300300 BASS LAKE NEAR SHAWANO, WI--CONTINUED

WATER-QUALITY DATA, JUNE 26 TO AUGUST 28, 1991  
(Milligrams per liter unless otherwise indicated)

	June 26		July 18		Aug. 28	
Depth of sample (ft)	1.5	20.0	1.5	21.0	1.5	21.0
Lake stage (ft)		2.80		2.73		2.60
Specific conductance ( $\mu\text{S}/\text{cm}$ )	94	93	112	118	112	110
pH (units)	8.86	7.30	8.60	6.80	9.10	8.30
Water temperature ( $^{\circ}\text{C}$ )	24.6	20.8	25.9	22.8	26.9	23.3
Secchi-depth (meters)		3.8		3.8		3.5
Dissolved oxygen	9.52	6.05	8.40	3.50	9.70	7.30
Phosphorus, total (as P)	0.013	0.010	0.012	0.059	0.006	0.010
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.5	---	1.9	---	0.5	---





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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,118.24 ft above National Geodetic Vertical Datum of 1929 (levels by Wisconsin Department of Transportation.)

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair, and periods of missing gage-height record, Dec. 22-27, 30-31, Jan. 2-17, and Jan. 21 to Feb. 18, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 710 ft<sup>3</sup>/s, Mar. 14, gage height 4.77 ft, backwater from ice; minimum, 7.6 ft<sup>3</sup>/s Nov. 28, gage height, 0.17 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 402 ft<sup>3</sup>/s, Mar. 28, gage height 3.26 ft; minimum daily, 16 ft<sup>3</sup>/s, Jan. 2-3.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 26, Nov. 28 to Dec. 7, and Dec. 11 to Mar. 25.)

0.3	13	1.5	100
0.5	21	2.0	165
0.7	32	3.0	345
1.0	52	4.0	585

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	41	48	17	22	27	147	322	155	49	39	25
2	49	41	45	16	26	27	123	264	156	49	42	25
3	50	42	35	16	27	27	114	184	121	46	69	28
4	54	45	33	17	28	29	118	126	97	44	71	37
5	58	46	33	17	29	31	128	105	73	45	51	36
6	54	45	37	18	29	30	135	117	62	45	41	32
7	45	42	38	18	29	30	137	124	55	40	38	33
8	41	39	38	18	30	31	151	112	51	38	45	34
9	40	39	38	19	29	32	194	113	48	38	54	36
10	41	39	38	19	28	34	259	111	47	36	47	46
11	47	39	37	20	26	33	258	96	45	35	39	46
12	61	36	36	20	25	34	196	85	42	35	35	43
13	63	34	33	18	25	36	152	77	41	51	33	48
14	60	39	30	18	23	38	152	71	48	55	32	50
15	58	41	31	17	22	39	181	65	79	44	30	82
16	58	41	30	18	22	37	192	61	67	39	29	85
17	55	42	29	19	23	38	168	62	52	42	30	63
18	57	41	29	20	23	41	126	66	46	43	32	50
19	61	39	26	21	23	44	126	61	41	40	36	43
20	65	38	30	20	23	50	134	55	42	37	36	40
21	64	41	31	19	24	70	123	53	93	39	32	38
22	63	46	30	18	24	110	100	53	279	41	31	36
23	64	53	27	18	24	200	94	63	362	40	29	34
24	60	46	24	18	23	280	93	60	249	36	31	33
25	54	42	25	18	22	310	86	55	109	34	32	34
26	51	41	22	19	22	339	79	76	68	33	31	36
27	49	45	20	20	23	360	74	123	57	33	29	36
28	49	46	21	21	24	398	71	169	58	38	28	34
29	45	50	24	20	---	323	172	203	56	48	28	33
30	43	50	22	18	---	231	270	193	52	50	28	33
31	42	---	19	19	---	187	---	178	---	47	26	---
TOTAL	1647	1269	959	574	698	3496	4353	3503	2751	1290	1154	1229
MEAN	53.1	42.3	30.9	18.5	24.9	113	145	113	91.7	41.6	37.2	41.0
MAX	65	53	48	21	30	398	270	322	362	55	71	85
MIN	40	34	19	16	22	27	71	53	41	33	26	25
CFSM	.70	.55	.41	.24	.33	1.48	1.90	1.48	1.20	.55	.49	.54
IN.	.80	.62	.47	.28	.34	1.70	2.12	1.71	1.34	.63	.56	.60

CAL YR 1990 TOTAL 20170 MEAN 55.3 MAX 601 MIN 13 CFSM .72 IN. 9.83  
WTR YR 1991 TOTAL 22923 MEAN 62.8 MAX 398 MIN 16 CFSM .82 IN. 11.18

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1989 to current year.

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

REMARKS.--Records represent water temperature at sensor within 0.5°C. Interruptions in record were due to malfunctions of the instrument.

## EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 28.5°C, Aug. 30, 1991; minimum, 0.0°C, on many days during winter.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 28.5°C, Aug. 30; minimum, 0.0°C, on many days during winter.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990				
01...	1546	48	380	13.5
NOV				
21...	0942	40	399	6.0
JAN 1991				
08...	1250	18	450	0.0
FEB				
22...	1300	24	392	0.0
APR				
15...	1315	180	203	6.0
MAY				
29...	1400	200	230	22.0
JUN				
11...	1045	44	398	21.0
AUG				
06...	1255	43	353	19.0

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	9.5	5.0	7.0	2.5	.0	1.0	.0	.0	.0
2	---	---	---	10.5	7.0	9.0	.5	.0	.0	.0	.0	.0
3	---	---	---	9.5	7.5	9.0	.0	.0	.0	.0	.0	.0
4	---	---	---	8.0	6.0	7.0	.5	.0	.0	.0	.0	.0
5	---	---	---	6.0	5.0	5.5	.5	.0	.0	.0	.0	.0
6	---	---	---	5.0	3.5	4.5	.5	.0	.0	.0	.0	.0
7	---	---	---	4.0	1.5	3.0	.5	.0	.0	.0	.0	.0
8	---	---	---	3.0	.5	2.0	.5	.0	.0	.0	.0	.0
9	---	---	---	4.0	1.5	2.5	.5	.0	.0	.0	.0	.0
10	---	---	---	3.5	1.0	2.0	.5	.0	.0	.0	.0	.0
11	---	---	---	3.5	.5	1.5	.5	.0	.0	.0	.0	.0
12	---	---	---	3.0	.5	1.5	1.0	.5	.5	.0	.0	.0
13	---	---	---	3.0	.5	1.5	.5	.0	.0	.0	.0	.0
14	---	---	---	5.0	1.0	3.0	.0	.0	.0	.0	.0	.0
15	---	---	---	6.0	2.5	4.0	.0	.0	.0	.0	.0	.0
16	10.0	6.5	8.0	5.0	2.5	3.5	.0	.0	.0	.0	.0	.0
17	---	---	---	5.0	2.0	3.0	.0	.0	.0	.0	.0	.0
18	9.5	6.0	8.0	5.5	2.5	4.0	.5	.0	.0	.0	.0	.0
19	7.5	5.0	6.0	5.0	2.5	3.5	.0	.0	.0	.0	.0	.0
20	7.0	5.0	6.0	5.0	2.5	4.0	.0	.0	.0	.0	.0	.0
21	6.5	5.0	6.0	8.0	5.0	6.5	.0	.0	.0	.5	.0	.0
22	7.5	4.0	5.5	6.0	4.5	5.0	.5	.0	.0	.0	.0	.0
23	8.5	5.5	6.5	5.0	1.5	4.0	.5	.0	.0	.0	.0	.0
24	7.0	5.0	6.0	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
25	7.5	4.0	5.5	1.5	.0	1.0	.0	.0	.0	.0	.0	.0
26	7.5	3.5	5.5	2.0	.0	1.0	.0	.0	.0	.0	.0	.0
27	6.5	4.5	5.5	3.0	2.0	2.5	.0	.0	.0	.0	.0	.0
28	6.5	3.5	5.5	2.5	.0	1.5	.0	.0	.0	.0	.0	.0
29	7.0	3.0	4.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
30	7.5	3.5	5.0	1.5	.0	.5	.0	.0	.0	.0	.0	.0
31	7.5	4.0	5.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	---	---	---	10.5	.0	3.5	2.5	.0	.0	.5	.0	.0

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.0	.0	.0	.0	.0	.0	5.0	2.0	3.0	10.5	8.5	9.5
2	.0	.0	.0	.0	.0	.0	6.5	2.5	4.5	8.5	7.0	8.0
3	.0	.0	.0	.0	.0	.0	8.0	3.5	5.5	8.5	6.5	7.5
4	.5	.0	.0	.0	.0	.0	7.0	5.0	5.5	10.5	8.0	9.0
5	.0	.0	.0	.0	.0	.0	8.5	5.0	6.5	9.5	8.5	9.0
6	.0	.0	.0	.0	.0	.0	11.5	7.0	9.5	8.5	7.5	8.0
7	.5	.0	.0	.0	.0	.0	15.5	10.5	13.0	10.5	7.0	8.5
8	.5	.0	.0	.0	.0	.0	14.0	10.5	13.0	9.5	9.0	9.5
9	.5	.0	.0	.0	.0	.0	10.5	5.0	8.0	12.5	9.0	10.0
10	.5	.0	.0	.0	.0	.0	5.5	3.0	4.5	16.0	11.0	13.5
11	.5	.0	.0	.0	.0	.0	5.5	5.0	5.5	19.5	14.5	17.0
12	.0	.0	.0	.0	.0	.0	5.0	2.5	4.0	22.0	17.0	19.0
13	.0	.0	.0	.0	.0	.0	4.0	2.0	3.0	23.5	18.5	21.0
14	.0	.0	.0	.5	.0	.0	4.5	3.5	4.0	25.0	18.5	21.5
15	.0	.0	.0	.5	.0	.0	7.0	4.0	5.0	24.0	18.5	21.0
16	.0	.0	.0	.0	.0	.0	8.5	6.0	7.5	22.5	19.5	21.0
17	.0	.0	.0	.0	.0	.0	11.5	8.0	9.5	21.0	15.5	18.5
18	.0	.0	.0	.5	.0	.0	11.0	8.5	9.5	15.5	13.0	14.0
19	.0	.0	.0	.5	.0	.0	10.0	8.5	9.0	18.0	12.0	14.0
20	.0	.0	.0	.5	.0	.0	11.0	7.5	9.0	20.5	12.5	16.0
21	.0	.0	.0	.5	.0	.5	12.0	8.0	9.5	21.0	15.5	18.0
22	.0	.0	.0	.5	.0	.5	13.5	8.5	10.5	20.5	17.5	19.0
23	.0	.0	.0	.5	.5	.5	12.5	10.0	11.0	22.5	18.5	20.0
24	.0	.0	.0	1.0	.0	.5	14.0	9.0	11.0	24.5	20.0	22.0
25	.0	.0	.0	2.0	.0	1.0	13.5	9.5	11.5	22.0	19.5	20.5
26	.0	.0	.0	2.5	.5	1.5	14.5	11.0	12.5	21.0	19.0	20.0
27	.0	.0	.0	3.0	2.5	2.5	15.5	12.0	13.5	22.0	18.5	20.0
28	.0	.0	.0	2.5	1.5	2.0	18.5	12.5	15.0	21.5	19.5	20.5
29	---	---	---	2.0	1.0	1.5	14.5	13.5	14.0	22.0	20.0	21.0
30	---	---	---	3.0	1.0	1.5	13.5	10.5	12.5	21.5	21.0	21.5
31	---	---	---	3.5	1.5	2.5	---	---	---	21.0	19.5	20.0
MONTH	.5	.0	.0	3.5	.0	.5	18.5	2.0	8.7	25.0	6.5	16.1
JUNE			JULY			AUGUST			SEPTEMBER			
1	20.0	19.0	19.5	21.0	19.5	20.5	25.0	17.5	21.0	24.0	17.5	20.0
2	21.0	19.0	20.0	24.5	19.0	21.5	21.0	19.0	19.5	23.0	16.0	19.5
3	22.0	19.5	20.5	23.0	19.5	21.0	20.0	18.0	19.0	22.0	18.5	20.0
4	22.0	18.5	20.0	23.5	19.5	21.0	21.5	17.0	19.0	22.5	16.5	19.0
5	22.0	17.5	19.5	25.5	19.0	22.0	22.0	16.5	18.5	18.5	16.0	17.5
6	23.0	17.0	19.5	27.5	20.5	23.5	19.0	16.5	18.0	21.0	15.0	17.5
7	23.5	17.5	20.0	24.0	20.5	22.0	20.0	17.0	18.0	21.5	16.5	19.0
8	24.5	17.5	20.5	25.5	19.5	22.5	20.0	17.0	18.0	20.5	18.0	19.0
9	24.0	18.5	20.5	25.0	19.0	21.5	21.5	16.5	18.5	23.0	18.0	20.0
10	23.0	19.5	21.0	26.5	19.0	22.5	23.0	17.0	19.5	21.0	18.5	20.0
11	25.5	18.0	21.5	26.0	19.5	22.5	24.0	17.0	20.0	18.5	16.5	17.5
12	25.5	18.5	21.5	21.5	20.0	21.0	24.5	17.5	20.5	17.0	16.0	16.5
13	26.0	18.5	21.5	23.0	19.0	20.5	25.5	18.0	21.5	19.0	16.0	17.0
14	24.0	20.5	22.0	24.0	18.0	20.5	26.5	19.5	22.5	18.0	16.5	17.0
15	22.0	20.5	21.5	25.0	17.5	21.0	25.5	20.5	23.0	19.5	17.5	18.5
16	24.5	19.0	21.5	27.0	19.5	23.0	24.0	20.5	22.0	19.0	16.5	18.0
17	25.5	18.5	21.5	26.5	21.0	23.5	25.0	20.5	22.0	18.5	15.5	16.5
18	26.0	19.5	22.5	27.5	22.0	24.0	22.0	19.0	20.5	16.0	12.5	14.5
19	27.5	20.5	23.5	28.0	22.0	24.5	21.5	17.5	19.5	12.5	10.5	12.0
20	25.5	20.5	23.0	24.5	22.5	23.0	22.0	16.5	19.0	13.5	9.0	11.0
21	22.0	17.5	20.0	23.0	21.5	22.5	22.5	16.0	19.0	14.0	8.5	11.0
22	17.5	16.0	16.5	27.0	21.0	23.5	24.5	18.0	20.5	12.5	10.5	11.5
23	17.5	15.5	16.5	26.0	20.5	23.0	21.5	18.5	20.0	13.5	9.5	11.0
24	18.5	16.0	17.0	23.5	19.5	21.5	23.0	18.5	20.5	12.0	9.5	10.5
25	21.0	17.5	19.0	22.0	18.0	20.0	24.5	18.5	21.0	12.5	9.5	10.5
26	24.0	18.5	21.0	23.5	16.5	19.5	26.5	20.0	22.5	11.5	8.0	9.5
27	27.0	21.5	24.0	21.5	16.5	19.0	27.0	20.5	23.5	11.5	7.0	9.0
28	27.5	23.0	25.0	18.5	17.5	18.0	27.5	20.5	24.0	12.5	6.5	9.0
29	28.0	22.5	25.0	19.0	17.0	17.5	28.0	21.5	24.5	12.5	7.5	9.5
30	25.0	21.0	23.0	22.0	16.0	18.5	28.5	23.0	25.5	13.0	9.0	10.5
31	---	--	---	23.5	17.5	20.0	23.0	19.0	21.5	---	---	---
MONTH	28.0	15.5	20.9	28.0	16.0	21.4	28.5	16.0	20.7	24.0	6.5	15.1

## STREAMS TRIBUTARY TO LAKE MICHIGAN

445009088303700 LOON LAKE NEAR SHAWANO, WI

LOCATION.--Lat 44°50'09", long 88°30'37", in NE 1/4 NE 1/4 sec. 11, T.27 N., R.16 E., Shawano County, Hydrologic Unit 04030202, 6.1 mi northeast of Shawano.

DRAINAGE AREA.--15.6 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--May to September 1991.

GAGE.--Nonrecording gage. Staff read by David F. Grether. Elevation of lake is 803 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.49 ft, June 2; minimum observed, 1.35 ft, July 12, 27, 31, and Aug. 1.

GAGE HEIGHT, FEET, MAY TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	1.90	---	1.55	1.35	1.41
2	---	---	---	---	---	---	---	---	2.49	1.53	1.43	1.38
3	---	---	---	---	---	---	---	---	2.48	1.51	1.54	1.43
4	---	---	---	---	---	---	---	---	2.44	1.49	1.54	1.44
5	---	---	---	---	---	---	---	---	2.37	1.48	1.53	1.43
6	---	---	---	---	---	---	---	1.64	2.31	1.46	1.51	1.42
7	---	---	---	---	---	---	---	---	2.25	1.44	1.50	1.42
8	---	---	---	---	---	---	---	---	2.17	1.42	1.56	1.42
9	---	---	---	---	---	---	---	---	2.09	1.40	1.58	1.42
10	---	---	---	---	---	---	---	---	2.02	1.38	1.57	1.54
11	---	---	---	---	---	---	---	---	1.96	1.36	1.55	1.53
12	---	---	---	---	---	---	---	---	1.91	1.35	1.54	1.56
13	---	---	---	---	---	---	---	1.66	1.87	1.43	1.52	1.56
14	---	---	---	---	---	---	---	---	1.85	1.42	1.51	1.60
15	---	---	---	---	---	---	---	---	1.84	1.40	1.49	1.94
16	---	---	---	---	---	---	---	---	1.83	1.36	1.48	2.01
17	---	---	---	---	---	---	---	---	1.79	1.40	1.49	2.03
18	---	---	---	---	---	---	---	---	1.76	1.42	1.52	2.04
19	---	---	---	---	---	---	---	---	1.74	1.40	1.52	---
20	---	---	---	---	---	---	---	---	1.71	1.39	1.51	---
21	---	---	---	---	---	---	---	1.50	1.68	1.39	1.50	1.92
22	---	---	---	---	---	---	---	1.48	1.68	1.43	---	1.90
23	---	---	---	---	---	---	---	1.58	1.66	1.40	---	1.86
24	---	---	---	---	---	---	---	1.60	1.63	1.38	---	1.84
25	---	---	---	---	---	---	---	1.60	1.61	1.37	---	1.81
26	---	---	---	---	---	---	---	1.70	1.58	1.36	---	1.78
27	---	---	---	---	---	---	---	1.79	1.55	1.35	1.49	1.75
28	---	---	---	---	---	---	---	1.90	1.55	1.36	1.46	1.73
29	---	---	---	---	---	---	---	2.15	1.53	1.39	1.46	1.76
30	---	---	---	---	---	---	---	2.31	1.51	1.37	1.45	1.70
31	---	---	---	---	---	---	---	---	---	1.35	1.41	---
MAX	---	---	---	---	---	---	---	---	---	1.55	---	---
MIN	---	---	---	---	---	---	---	---	---	1.35	---	---

445009088303700 LOON LAKE NEAR SHAWANO, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled near center of lake at lake depth of about 22 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 11 TO AUGUST 28, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 11		Apr. 15		June 27		July 16		Aug. 28	
Depth of sample (ft)	1.5	20.0	1.5	18.0	1.5	18.0	1.5	16.0	1.5	18.0
Lake stage (ft)	---		---		1.55		1.36		1.46	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	167	174	130	128	117	127.4	138	167	144	209
pH (units)	6.30	6.80	7.50	7.50	7.60	7.05	8.00	7.20	7.90	7.30
Water temperature ( $^{\circ}\text{C}$ )	2.40	4.40	6.80	6.70	25.10	11.02	26.30	12.70	25.70	15.40
Color (Pt-Co. scale)	---	---	50	60	---	---	---	---	---	---
Turbidity (NTU)	---	---	3.5	4.5	---	---	---	---	---	---
Secchi-depth (meters)	---		1.7		1.2		1.4		2.4	
Dissolved oxygen	9.70	5.40	10.90	10.90	7.40	0.08	8.40	1.40	8.40	1.30
Hardness, as $\text{CaCO}_3$	---	---	60	60	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	14	14	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	6.0	6.0	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	0.61	0.57	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	59	57	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	<0.05	<0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	1.0	1.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	6.9	6.9	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	90	92	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.089	0.102	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.023	0.024	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.70	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.031	0.028	<0.020	---	0.017	0.019	0.014	0.030
Phosphorus, ortho, dissolved (as P)	---	---	0.005	0.005	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	290	270	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	68	71	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	5.0	---	7.0	---	5.0	---	4.0	---

2-11-91

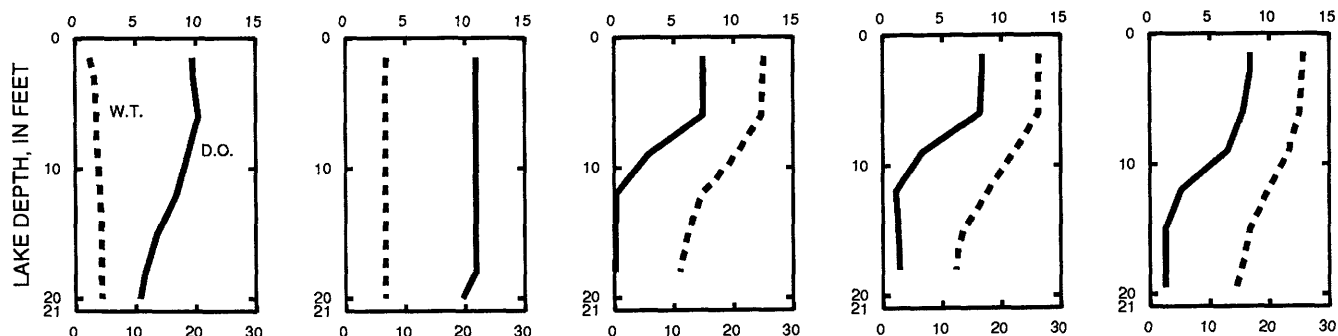
4-15-91

6-27-91

7-16-91

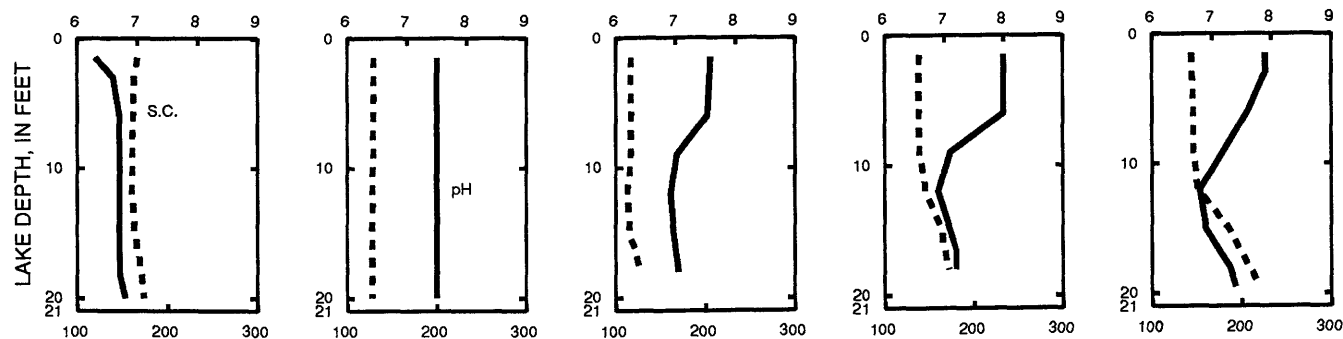
8-28-91

## 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

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 4, 1951, nonrecording gage.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Gage-height telemeter and data-collection platform at station.

AVERAGE DISCHARGE.--95 years, 1,754 ft<sup>3</sup>/s, 10.54 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 15,500 ft<sup>3</sup>/s, Apr. 13, 1922, gage height, 11.4 ft; maximum gage height, 11.83 ft, Apr. 3, 1979, backwater from ice; minimum daily, 150 ft<sup>3</sup>/s, Mar. 1, 1900.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,910 ft<sup>3</sup>/s, Mar. 29, gage height, 8.79 ft; minimum discharge, 808 ft<sup>3</sup>/s, Sept. 3, but may have been less during period of ice effect, gage height, 1.31 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 1 to Mar. 25.)

1.0	700	6.0	2,950
2.0	1,060	7.0	3,730
4.0	1,910	8.0	4,990
5.0	2,380	9.0	7,540

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1660	1380	1100	940	820	900	6260	3390	3040	1760	1220	821
2	1550	1360	1100	920	840	900	5950	3380	3220	1690	1220	819
3	1490	1380	1000	920	840	920	5610	3320	3440	1650	1240	811
4	1470	1370	860	900	840	940	5220	3260	3670	1600	1350	825
5	1440	1370	860	900	860	960	4840	3210	3920	1540	1540	857
6	1440	1390	960	900	880	980	4490	3270	4060	1490	1650	867
7	1420	1420	1000	880	920	980	4190	3300	4080	1440	1610	874
8	1390	1410	1100	880	960	980	4000	3350	4010	1420	1570	872
9	1350	1410	1100	860	940	980	3920	3360	3880	1390	1520	881
10	1310	1390	1100	860	920	1000	3940	3350	3680	1350	1500	894
11	1290	1370	1200	860	900	1000	3980	3350	3460	1300	1510	914
12	1310	1350	1200	900	880	1000	4040	3310	3260	1250	1460	1070
13	1340	1330	1200	900	900	1000	4130	3250	3070	1240	1360	1200
14	1370	1310	1100	920	880	1100	4340	3180	2900	1270	1290	1240
15	1430	1310	1100	920	860	1100	4780	3080	2790	1320	1170	1270
16	1460	1290	1100	920	820	1200	5200	2990	2660	1350	1040	1410
17	1470	1270	1100	940	820	1300	5530	2900	2510	1310	976	1730
18	1500	1270	1100	940	840	1400	5590	2800	2400	1280	918	1910
19	1500	1260	1000	940	840	1500	5530	2720	2270	1230	916	1960
20	1520	1210	1000	940	860	1600	5390	2650	2140	1230	940	1950
21	1560	1180	1100	920	860	1800	5180	2540	2020	1200	961	1850
22	1600	1180	1100	880	880	2300	4950	2470	1900	1230	1030	1680
23	1630	1200	1000	860	900	2800	4730	2510	1780	1260	1010	1460
24	1640	1190	940	840	900	3700	4490	2480	1780	1220	943	1300
25	1640	1200	900	840	860	4800	4250	2460	1860	1190	906	1250
26	1630	1240	900	840	860	5720	4040	2420	1960	1170	896	1200
27	1580	1280	940	840	860	6330	3830	2410	2050	1140	901	1140
28	1540	1310	960	840	880	6770	3640	2480	2050	1140	883	1100
29	1500	1280	960	840	---	6880	3470	2520	1970	1160	863	1070
30	1470	1260	960	820	---	6780	3410	2620	1870	1190	853	1070
31	1410	---	960	820	---	6550	---	2780	---	1200	838	---
TOTAL	45910	39170	32000	27480	24420	76170	138920	91110	83700	41210	36084	36295
MEAN	1481	1306	1032	886	872	2457	4631	2939	2790	1329	1164	1210
MAX	1660	1420	1200	940	960	6880	6260	3390	4080	1760	1650	1960
MIN	1290	1180	860	820	820	900	3410	2410	1780	1140	838	811
CFSM	.66	.58	.46	.39	.39	1.09	2.05	1.30	1.23	.59	.52	.54
IN.	.76	.64	.53	.45	.40	1.25	2.29	1.50	1.38	.68	.59	.60

CAL YR 1990 TOTAL 601691 MEAN 1648 MAX 7640 MIN 580 CFSM .73 IN. 9.90  
WTR YR 1991 TOTAL 672469 MEAN 1842 MAX 6880 MIN 811 CFSM .82 IN. 11.07

## 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 mi<sup>2</sup>, at lake outlet at Menasha Dam. Area of Lake Winnebago, 215 mi<sup>2</sup>.

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.--Records good. 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 gage height, 3.48 ft, May 17, local condition due to seiche; minimum, 1.10 ft, Feb. 21, 23.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.39	2.26	2.05	1.88	1.34	1.17	2.19	2.86	3.02	2.98	3.02	2.84
2	2.43	2.25	2.10	1.85	1.32	1.31	2.25	2.92	3.04	2.99	3.05	2.79
3	2.36	2.27	2.21	1.83	1.30	1.35	2.28	2.96	3.08	2.99	3.01	2.81
4	2.35	2.32	1.97	1.81	1.28	1.37	2.32	2.93	3.06	2.99	3.00	2.84
5	2.39	2.31	2.01	1.81	1.26	1.38	2.37	2.96	3.03	3.00	2.97	2.81
6	2.39	2.30	2.00	1.80	1.25	1.39	2.40	2.84	3.01	2.98	2.96	2.81
7	2.39	2.28	1.99	1.77	1.24	1.41	2.44	2.95	3.02	2.98	2.94	2.80
8	2.38	2.28	2.00	1.75	1.23	1.40	2.50	3.05	3.03	2.97	3.05	2.80
9	2.34	2.27	2.00	1.74	1.22	1.38	2.57	3.06	3.00	2.93	3.06	2.77
10	2.29	2.27	2.01	1.72	1.21	1.37	2.61	3.10	3.00	2.93	3.08	2.79
11	2.30	2.29	2.01	1.71	1.21	1.35	2.71	3.13	3.03	2.91	3.08	2.80
12	2.26	2.28	1.99	1.71	1.20	1.32	2.70	3.17	3.06	2.99	3.08	2.78
13	2.26	2.29	1.98	1.69	1.18	1.30	2.67	3.20	3.02	3.02	3.08	2.79
14	2.23	2.26	2.03	1.67	1.19	1.29	2.73	3.22	3.03	3.00	3.07	2.79
15	2.23	2.25	2.04	1.65	1.19	1.31	2.77	3.21	3.14	2.97	3.05	2.84
16	2.24	2.23	2.04	1.63	1.18	1.32	2.81	3.18	3.19	2.95	3.04	2.79
17	2.23	2.24	2.06	1.61	1.16	1.33	2.86	3.25	3.20	2.97	3.04	2.81
18	2.17	2.20	2.08	1.59	1.15	1.37	2.82	3.18	3.16	3.00	3.06	2.73
19	2.31	2.19	2.08	1.57	1.15	1.40	2.87	3.10	3.13	2.97	3.03	2.79
20	2.25	2.21	2.06	1.55	1.14	1.44	2.82	3.07	3.10	2.98	2.99	2.77
21	2.26	2.15	2.04	1.54	1.13	1.49	2.81	3.06	3.12	3.03	2.96	2.73
22	2.29	2.17	2.03	1.52	1.13	1.55	2.81	3.06	3.11	3.00	2.97	2.69
23	2.28	2.10	2.04	1.50	1.14	1.65	2.81	3.06	3.02	3.02	2.97	2.71
24	2.28	2.18	2.02	1.48	1.15	1.73	2.87	3.05	2.99	2.99	2.93	2.73
25	2.30	2.13	1.99	1.47	1.15	1.82	2.88	3.07	2.98	3.00	2.91	2.67
26	2.26	2.14	1.97	1.45	1.15	1.88	2.90	3.01	2.96	2.99	2.91	2.72
27	2.20	2.10	1.95	1.43	1.15	1.89	2.89	3.02	2.96	2.95	2.91	2.73
28	2.28	2.03	1.93	1.41	1.15	1.91	2.91	3.00	2.98	2.97	2.91	2.71
29	2.24	2.11	1.94	1.39	---	2.08	2.93	2.97	2.99	3.07	2.89	2.72
30	2.25	2.05	1.92	1.38	---	2.11	2.76	2.97	3.03	3.04	2.89	2.67
31	2.27	---	1.90	1.36	---	2.11	---	3.00	---	3.02	2.91	---
MEAN	2.29	2.21	2.01	1.62	1.20	1.52	2.68	3.05	3.05	2.99	2.99	2.77
MAX	2.43	2.32	2.21	1.88	1.34	2.11	2.93	3.25	3.20	3.07	3.08	2.84
MIN	2.17	2.03	1.90	1.36	1.13	1.17	2.19	2.84	2.96	2.91	2.89	2.67

CAL YR 1990 MEAN 2.38 MAX 3.41 MIN 1.24  
WTR YR 1991 MEAN 2.37 MAX 3.25 MIN 1.13

## 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 mi<sup>2</sup>, at lake outlet at Menasha Dam. Area of Lake Winnebago, 215 mi<sup>2</sup>.

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.--Records good. 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 gage height observed, 3.82 ft, May 30, 1989, local condition due to seiche. Minimum observed, 0.30 ft, Mar. 1, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 3.81 ft, July 17, local condition due to seiche; minimum, 1.09 ft, Feb. 21, 22.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.50	2.23	2.06	1.83	1.30	1.12	2.18	3.05	2.98	2.92	3.04	2.75
2	2.41	2.23	1.99	1.82	1.28	1.25	2.22	2.98	3.01	2.99	2.97	2.76
3	2.41	2.24	1.70	1.80	1.26	1.31	2.25	2.86	2.98	3.01	2.96	2.81
4	2.48	2.25	2.02	1.77	1.24	1.33	2.29	2.83	2.91	3.00	2.94	2.83
5	2.39	2.17	2.02	1.77	1.23	1.34	2.35	2.83	2.94	3.00	2.90	2.81
6	2.34	2.29	1.98	1.76	1.22	1.36	2.41	3.06	2.97	2.98	2.87	2.77
7	2.24	2.33	1.97	1.74	1.20	1.38	2.42	3.02	2.99	2.96	2.86	2.78
8	2.21	2.29	1.96	1.72	1.19	1.36	2.43	2.97	2.99	2.93	2.91	2.76
9	2.18	2.31	1.96	1.70	1.19	1.36	2.45	3.01	3.01	2.91	3.00	2.77
10	2.20	2.31	1.97	1.68	1.19	1.35	2.62	3.06	3.04	2.91	3.04	2.78
11	2.30	2.32	1.98	1.68	1.18	1.32	2.59	3.10	3.02	2.86	3.05	2.72
12	2.25	2.30	2.00	1.68	1.16	1.29	2.53	3.15	2.98	2.88	3.04	2.72
13	2.23	2.26	2.00	1.65	1.15	1.27	2.55	3.19	2.96	2.94	3.05	2.75
14	2.25	2.25	1.99	1.63	1.16	1.26	2.66	3.20	3.04	2.96	3.05	2.76
15	2.29	2.24	1.99	1.61	1.17	1.26	2.80	3.19	3.17	2.96	3.07	2.84
16	2.22	2.24	2.03	1.59	1.14	1.27	2.87	3.17	3.18	2.96	3.06	2.94
17	2.25	2.21	2.03	1.58	1.13	1.29	2.83	3.05	3.17	2.98	3.06	2.85
18	2.33	2.18	2.06	1.55	1.12	1.33	2.77	2.97	3.13	2.97	2.98	2.94
19	2.29	2.16	2.04	1.53	1.12	1.37	2.67	3.02	3.10	2.98	2.92	2.83
20	2.23	2.16	2.03	1.52	1.11	1.40	2.72	3.03	3.07	2.96	2.96	2.75
21	2.29	2.17	2.03	1.51	1.09	1.45	2.77	3.03	2.96	2.99	2.95	2.73
22	2.28	2.23	2.04	1.48	1.10	1.53	2.79	3.03	2.90	3.03	2.94	2.75
23	2.27	2.27	2.01	1.47	1.10	1.61	2.83	3.04	2.93	3.06	2.90	2.76
24	2.27	2.19	1.98	1.45	1.11	1.73	2.85	3.04	2.95	3.03	2.87	2.69
25	2.25	2.15	1.96	1.43	1.11	1.79	2.85	3.00	2.95	2.95	2.89	2.79
26	2.27	2.05	1.94	1.41	1.11	1.84	2.84	3.02	2.97	2.93	2.91	2.79
27	2.32	2.09	1.91	1.38	1.11	1.90	2.83	3.00	2.99	2.92	2.89	2.70
28	2.26	2.27	1.89	1.37	1.11	2.03	2.87	2.97	2.99	2.88	2.88	2.69
29	2.23	2.17	1.91	1.36	---	2.04	2.88	2.95	3.00	2.96	2.87	2.65
30	2.22	2.14	1.89	1.34	---	2.09	3.10	2.95	2.93	3.02	2.87	2.69
31	2.22	---	1.86	1.32	---	2.15	---	2.96	---	3.04	2.76	---
MEAN	2.29	2.22	1.97	1.58	1.16	1.50	2.64	3.02	3.01	2.96	2.95	2.77
MAX	2.50	2.33	2.06	1.83	1.30	2.15	3.10	3.20	3.18	3.06	3.07	2.94
MIN	2.18	2.05	1.70	1.32	1.09	1.12	2.18	2.83	2.90	2.86	2.76	2.65

CAL YR 1990 MEAN 2.36 MAX 3.41 MIN 1.20  
WTR YR 1991 MEAN 2.35 MAX 3.20 MIN 1.09



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 mi<sup>2</sup>.

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

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path, mid-depth transducer installation. Data are stored using CR-21x datalogger with phone modem connection for daily retrieval.

REMARKS.--Estimated daily discharges: Oct. 17-24 and Dec. 22 to Jan. 15. Records good, except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--5 years, 3,762 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 16,300 ft<sup>3</sup>/s, Oct. 7, 1987; minimum daily, 840 ft<sup>3</sup>/s, Aug. 17, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 11,900 ft<sup>3</sup>/s, Apr. 18; minimum daily, 1,540 ft<sup>3</sup>/s, Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4340	3420	4280	3400	3420	2430	7970	7580	4670	2140	2460	1740
2	3990	3450	4160	3500	3420	2740	7660	6890	4710	2140	2580	1880
3	4600	3430	3540	3400	3430	2730	6940	5940	4670	2240	3310	1940
4	4450	3380	3700	3400	3420	2660	6900	5920	4490	2260	3380	1780
5	4210	3260	4060	3500	3390	3370	7090	5950	4490	2220	3060	1850
6	4220	3380	4130	3400	3390	4230	7190	6540	4560	2190	2250	1840
7	3370	3460	3810	3100	3370	4590	7240	5270	4630	2120	2080	1840
8	3340	3610	3180	3100	3350	5200	7190	3500	4700	2020	2430	1840
9	3310	3650	3110	3300	3370	5820	6990	3580	4760	2180	2400	1970
10	3600	3500	2900	3300	3330	5830	7340	3860	4750	2120	2410	1700
11	4120	3480	3100	3400	3320	5780	7890	3900	4580	2060	2370	1720
12	4140	3450	3160	3500	3350	5730	8240	3950	4280	2180	2460	1810
13	4100	3810	3100	3500	3340	5670	8240	4580	3560	2120	2450	1740
14	4140	4490	3100	3600	3350	5300	8800	5950	3690	2140	2490	1930
15	3900	4640	3110	3700	3330	4590	9440	7220	4060	2250	2480	2020
16	3540	4370	3130	3770	3290	4580	9600	7540	3930	2300	2530	2380
17	3400	4370	3180	3740	3290	4620	10500	6920	4870	2350	2530	3120
18	3100	4420	3620	3720	3220	4700	11900	6730	5970	2330	2340	3220
19	3200	3980	4260	3700	3340	4840	9920	6780	5640	2340	1970	3010
20	3300	3360	4170	3690	3260	5090	8720	6890	5150	2300	2170	2960
21	3300	3980	4110	3690	2800	5100	9040	6500	4180	2340	2390	3080
22	3200	4420	3000	3630	2450	5070	9200	6580	3200	2450	2210	3220
23	3300	4390	3300	3660	2440	5360	8400	6100	3250	2230	2240	2960
24	3200	4340	3500	3660	2440	5380	7140	6450	2980	2300	2200	2710
25	3400	4280	3100	3620	2430	5370	7400	6420	2340	2320	2220	1870
26	3400	4250	3500	3610	2420	6180	7330	6520	2330	1900	2210	1540
27	3440	4310	3500	3600	2420	7500	7370	6460	2340	2180	2180	1580
28	3340	4340	3300	3380	2390	7760	7340	6390	2380	2350	2100	1660
29	3460	4410	3500	3440	---	7790	7470	5960	2340	2580	2140	1620
30	3380	4540	3500	3530	---	7830	8240	5580	2170	2210	2080	1690
31	3360	---	3500	3590	---	8080	---	5110	---	2540	1690	---
TOTAL	113150	118170	108610	109130	86770	161920	244690	183560	119670	69400	73810	64220
MEAN	3650	3939	3504	3520	3099	5223	8156	5921	3989	2239	2381	2141
MAX	4600	4640	4280	3770	3430	8080	11900	7580	5970	2580	3380	3220
MIN	3100	3260	2900	3100	2390	2430	6900	3500	2170	1900	1690	1540

WTR YR 1991 TOTAL 1453100 MEAN 3981 MAX 11900 MIN 1540

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.

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 three times a day and used to compute the discharge records.

REMARKS.--Flow regulated by storage in Lake Winnebago (see sta. 04082500 and 04084255). Daily discharge determined from records of flow through turbines, head, gate openings, and lockages through navigation canal. Usually less than about 20 ft<sup>3</sup>/s is diverted into basin from Wisconsin River at Portage Canal throughout the year.

COOPERATION.--Figures of daily discharge furnished by U.S. Army Corps of Engineers. Records reviewed by Geological Survey.

AVERAGE DISCHARGE.--95 years. 4.248 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 24,000 ft<sup>3</sup>/s, Apr. 18, 1952; minimum daily, 138 ft<sup>3</sup>/s, Aug. 2, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during year, 10,800 ft<sup>3</sup>/s, Apr. 17; minimum daily, 1,430 ft<sup>3</sup>/s, Sept. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4620	3280	3900	3580	3170	2700	7780	7540	4640	1810	2280	1580
2	4170	3250	3780	3660	3300	3220	5730	7320	5420	2110	2240	1820
3	4580	3240	3180	3640	3310	2690	5730	5960	5000	2160	2930	1930
4	4520	3290	3540	3640	3360	2670	6130	6470	4580	2240	2970	1760
5	4360	3080	3690	3650	3390	3490	6400	6690	4560	2160	2820	1690
6	4260	3310	3830	3600	3240	4340	6500	6640	4750	2180	2150	1860
7	4150	3340	3500	3210	3410	4540	6440	5500	4760	2120	1810	1760
8	3760	3430	3090	3280	3320	4930	7220	2930	4820	1990	2480	1800
9	3840	3500	3030	3470	3380	5180	7080	3430	4880	2110	2280	2020
10	3860	3300	2600	3540	3170	5260	7250	3750	4820	2100	2390	1670
11	3960	3300	3100	3580	3080	5100	7970	3890	4580	2030	2370	1570
12	4020	3250	3030	3580	3250	5170	8040	3940	4380	2370	2370	1850
13	3980	3470	2660	3520	3170	5290	8110	4650	3680	2090	2440	1670
14	3890	4290	3440	3560	2960	4700	8790	7780	3900	2080	2520	1950
15	3620	4430	3120	3510	2990	4250	8980	6960	4140	2170	2510	2210
16	3390	4120	3020	3660	3180	4420	9730	7670	4020	2290	2440	2290
17	3530	4150	3130	3480	3250	4250	10800	6860	5420	2240	2660	3200
18	3280	4170	3170	3370	3160	4360	10000	6790	6340	2160	2300	3390
19	3340	3610	3940	3490	3190	4440	8830	6960	6470	2180	1900	2920
20	3520	3330	3710	3380	3240	4740	7960	7140	5530	2160	2110	2900
21	3500	4010	3700	3160	2500	4410	7420	6800	3980	2110	2320	3040
22	3410	4190	3040	3540	2380	4630	9440	6860	3210	2500	2160	3290
23	3500	4000	3430	3330	2300	4830	8030	6460	3370	2140	2140	2640
24	3350	4030	3640	3490	2380	4650	7990	6630	2530	2180	2170	2650
25	3260	4090	3370	3320	2370	4450	8600	6700	2060	2280	2230	1850
26	3170	4050	3680	3370	2340	5950	8070	6830	2110	1880	2220	1530
27	3240	4180	3720	3340	2370	8070	8330	6660	2020	2260	2120	1430
28	3130	4120	3560	2910	2280	7540	8320	6550	2020	2400	2080	1620
29	3300	3740	3690	3420	---	7490	8800	6080	2290	2300	2040	1540
30	3160	4180	3700	3350	---	7570	9440	5920	2140	2300	2110	1680
31	3190	---	3660	3430	---	7810	---	5850	---	2330	1680	---
TOTAL	114860	111730	105650	107060	83440	153140	239910	190210	122420	67430	71240	63110
MEAN	3705	3724	3408	3454	2980	4940	7997	6136	4081	2175	2298	2104
MAX	4620	4430	3940	3660	3410	8070	10800	7780	6470	2500	2970	3390
MIN	3130	3080	2600	2910	2280	2670	5730	2930	2020	1810	1680	1430
CAL YR 1990	TOTAL 1605190		MEAN 4398	MAX 15500								
WTR YR 1991	TOTAL 1430200		MEAN 3918	MAX 10800								

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085000 FOX RIVER AT WRIGHTSTOWN, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

LOCATION.--Lat 44°19'36", long 88°09'54", in NE 1/4 NW 1/4 sec.2, T.21 N., R.19 E., Brown County, Hydrologic Unit 04030204, at bridge on State Highway 96 at Wrightstown.

DRAINAGE AREA.--6,050 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--Water years 1970, 1974 to current year.

REMARKS.--Records of discharge used are for 04084500 Fox River at Rapide Croche Dam near Wrightstown.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 1990											
20...	1130	3330	387	9.0	3.5	4.6	14.5	761	109	K190	72
MAR 1991											
14...	1220	4700	443	8.3	0.0	4.8	13.4	760	92	140	K18
MAY											
07...	0925	5500	400	8.7	7.5	4.3	11.3	758	95	200	40
AUG											
28...	0840	2080	364	9.0	25.5	9.5	8.3	761	102	78	K17

DATE	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
NOV 1990											
20...	180	40	20	11	2.5	175	14	166	25	14	0.30
MAR 1991											
14...	210	45	23	13	3.2	220	--	180	25	19	0.20
MAY											
07...	190	42	21	11	3.0	184	8	164	24	20	<0.10
AUG											
28...	160	31	21	17	3.5	143	12	138	28	25	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1990											
20...	0.06	224	213	0.010	<0.100	0.070	0.080	1.3	0.100	0.010	<0.010
MAR 1991											
14...	3.5	253	242	0.010	0.280	0.140	0.150	1.0	0.070	0.030	0.010
MAY											
07...	0.14	245	221	0.010	0.270	0.120	0.100	1.2	0.100	0.020	<0.010
AUG											
28...	0.12	210	208	<0.010	<0.050	0.020	0.020	1.3	0.140	0.020	<0.010

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

STREAMS TRIBUTARY TO LAKE MICHIGAN  
04085000 FOX RIVER AT WRIGHTSTOWN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 1990											
20...	1130	3330	20	<1	23	<0.5	<1.0	3	<3	2	12
MAR 1991											
14...	1220	4700	10	<1	24	<0.5	<1.0	<1	<3	2	13
MAY											
07...	0925	5500	20	<1	23	<0.5	<1.0	<1	<3	<1	12
AUG											
28...	0840	2080	40	1	19	<0.5	<1.0	<1	<3	1	11

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 1990										
20...	1	5	3	<0.1	<10	1	<1	160	<6	7
MAR 1991										
14...	<1	<4	8	<0.1	<10	1	<1	160	<6	4
MAY										
07...	1	<4	3	<0.1	<10	1	<1	140	<6	7
AUG										
28...	<1	<4	2	<0.1	<10	<1	<1	220	<6	7

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1990						
20...	1130	3330	387	3.5	21	189
MAR 1991						
14...	1220	4700	443	0.0	8	102
MAY						
07...	0925	5500	400	7.5	15	223
AUG						
28...	0840	2080	364	25.5	28	157

## STREAMS TRIBUTARY TO LAKE MICHIGAN

121

442312087565100 BOWER CREEK RAIN GAGE NUMBER 2 NEAR DE PERE, WI

LOCATION.--Lat 44°23'12", long 87°56'51", in NE 1/4 SW 1/4 sec.17, T.22 N., R.21 E., Brown County, Hydrologic Unit 04030204, on CTH X, 0.3 mi south of junction with Zion Road, near De Pere.

PERIOD OF RECORD.--January to September 1991 (non-frozen precipitation).

REMARKS.--Gage established on Jan. 29, 1991. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Feb. 18, 19, 24, Mar. 6, 9, and Apr. 9, 10. Recorded precipitation interpreted as combination of collector rain/snowmelt, and rainfall estimated to be 0.00 for Mar. 2, 18, 31, and Apr. 12.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.56 in., June 14.

RAINFALL ACCUMULATED (INCHES), JANUARY TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	.75	.00	.00	.01	.43	.00	.00
2					.00	.00	.00	.00	.27	.06	.51	.00
3					.00	.00	.00	.00	.00	.02	.00	.28
4					.00	.00	.00	.00	.00	.02	.00	.00
5					.00	.00	.00	.45	.00	.00	.00	.00
6					.00	.00	.00	.00	.00	.00	.00	.00
7					.00	.00	.00	.00	.00	.00	.06	.13
8					.00	.00	.31	.36	.00	.00	1.24	.03
9					.00	.00	.00	.00	.00	.00	.10	.29
10					.00	.00	.00	.00	.00	.00	.00	.00
11					.00	.00	.00	.00	.00	.00	.00	.08
12					.00	.00	.00	.00	.00	.67	.00	.11
13					.00	.00	.03	.00	.00	.20	.34	.00
14					.00	.00	.63	.00	1.56	.00	.00	.29
15					.00	.00	.11	.00	.13	.00	.00	.44
16					.00	.00	.00	1.06	.00	.00	.06	.02
17					.00	.00	.00	.23	.00	.78	.03	.40
18					.00	.00	.00	.00	.00	.00	.16	.05
19					.00	.00	.02	.00	.00	.00	.17	.02
20					.00	.14	.00	.00	.00	.00	.00	.00
21					.00	.07	.00	.00	.01	.00	.00	.00
22					.00	.03	.00	.09	.15	.52	.00	.24
23					.00	.28	.07	.00	.00	.00	.03	.00
24					.00	.00	.00	.00	.00	.04	.00	.08
25					.00	.00	.00	.01	.00	.01	.00	.24
26					.00	.05	.00	.16	.00	.01	.00	.00
27					.00	.10	.15	.00	.00	.00	.00	.00
28					.00	.00	.01	.02	.00	.21	.02	.00
29				.00	---	.00	.07	.00	.00	.86	.00	.00
30				.00	---	.00	.00	.00	.01	.00	.00	.00
31				.00	---	.00	---	.84	---	.00	.00	---
TOTAL				---	0.00	1.42	1.40	3.22	2.14	3.83	2.72	2.70

## STREAMS TRIBUTARY TO LAKE MICHIGAN

442230087584500 BOWER CREEK RAIN GAGE NUMBER 1 NEAR DE PERE, WI

LOCATION.--Lat 44°22'30", long 87°58'45", in SE 1/4 SE 1/4 sec.9, T.22 N., R.21 E., Brown County, Hydrologic Unit 04030204, on CTH G, just west of the junction with Langers Corner Road, near De Pere.

PERIOD OF RECORD.--January to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Jan. 29, 1991. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Feb. 18, 19, 24, Mar. 6, 9, and Apr. 9, 10. Recorded precipitation interpreted as combination of rain/snow, and rainfall estimated to be 0.00 for Mar. 2, 18, 31, and Apr. 12.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.73 in., June 14.

RAINFALL ACCUMULATED (INCHES), JANUARY TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	.76	.00	.00	.01	.50	.00	.00
2					.00	.00	---	.00	.30	.11	.28	.00
3					.00	.00	.00	.00	.00	.01	---	.30
4					.00	.00	.00	.00	.00	.02	---	.00
5					.00	.00	.00	.55	.00	.00	---	.00
6					.00	.00	.01	.00	.00	.00	---	.00
7					.00	.00	---	.00	.00	.00	.05	.12
8					.00	.00	.34	.40	.00	.00	1.29	.03
9					.00	.00	.00	.00	.00	.00	.07	.27
10					.00	.00	.00	.00	.00	.00	.00	.00
11					.00	.00	.00	.00	.00	.00	.00	.08
12					.00	.00	.00	.00	.00	.64	.00	.14
13					.00	.00	.03	.00	.00	.12	.42	.00
14					.00	.00	.78	.00	1.73	.00	.01	.29
15					.00	.00	.12	.00	.08	.00	.00	.38
16					.00	.00	.00	.85	.00	.00	.05	.03
17					.00	.00	.00	.40	.00	1.03	.03	.37
18					.00	.00	.00	.01	.00	.00	.25	.05
19					.00	.00	.03	.00	.00	.00	.18	.01
20					.00	.15	.00	.00	.00	.02	.00	.00
21					.00	.07	.00	.00	.01	.00	.00	.00
22					.00	.10	.00	.12	.20	.71	.00	.28
23					.00	.30	.06	.00	.00	.00	.03	.00
24					.00	.01	.00	.00	.00	.05	.00	.03
25					.00	.00	.00	.01	.00	.00	.00	.25
26					.00	.05	.00	.05	.00	.00	.00	.00
27					.00	.14	.44	.00	.00	.00	.00	.00
28					.00	.00	.01	.11	.00	.19	.01	.00
29				.00	---	.00	.06	.00	.00	.90	.00	.00
30				.00	---	.00	.01	.00	.00	.01	.00	.00
31				.00	---	.00	---	.95	---	.00	.00	---
TOTAL				---	0.00	1.58	---	3.45	2.33	4.31	---	2.63

## STREAMS TRIBUTARY TO LAKE MICHIGAN

123

04085119 BOWER CREEK, AT COUNTY MM, NEAR DE PERE, WI

LOCATION.--Lat 44°25'21", long 87°56'24", in NE 1/4 NE 1/4 sec.34, T.23 N., R.21 E., Brown County, Hydrologic Unit 04030204, on right bank upstream from bridge on Highway MM, 1.1 mi east from intersection of Highways G and MM, and 6.2 mi southeast of post office in De Pere.

DRAINAGE AREA.--14.8 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 790 ft from topographic map.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records are poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 23, 1990, maximum discharge, 4,020 ft<sup>3</sup>/s, gage height, 14.11 ft, estimated from floodmarks, based on step-backwater model.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 605 ft<sup>3</sup>/s, Mar. 2, gage height, 9.55 ft; no flow June 10-14 and June 22 to Sept. 30.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 21 to Jan. 1, Jan. 11, 12, 21-28, Jan. 30 to Feb. 1, Feb. 15-18, and 26, 27.)

5.35	0.00	6.10	23.7
5.39	.20	6.40	41.4
5.43	.51	6.70	67.0
5.50	1.27	7.00	101
5.60	2.90	7.50	168
5.72	6.04	8.00	244
5.88	12.8	8.50	329

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	.77	1.5	1.1	.22	14	3.1	1.1	5.5	.00	.00	.00
2	.48	.83	1.3	1.0	.27	263	2.8	.98	6.9	.00	.00	.00
3	.37	1.6	2.9	.97	.36	32	2.3	.80	2.5	.00	.00	.00
4	.72	7.3	6.1	.74	1.8	19	1.9	.79	1.1	.00	.00	.00
5	.64	11	1.9	.58	17	10	1.9	1.1	.61	.00	.00	.00
6	.49	19	2.5	.51	33	88	1.5	2.4	.37	.00	.00	.00
7	.40	9.0	1.9	.49	29	25	1.2	2.1	.17	.00	.00	.00
8	.41	4.6	1.6	.45	55	16	1.4	1.9	.10	.00	.00	.00
9	.56	3.2	1.5	.58	58	7.7	5.9	3.5	.02	.00	.00	.00
10	.81	5.6	2.0	.48	29	15	45	2.8	.02	.00	.00	.00
11	1.4	4.7	2.4	.43	21	28	59	1.8	.00	.00	.00	.00
12	2.3	2.4	9.4	.42	12	25	22	1.5	.00	.00	.00	.00
13	1.5	1.4	18	.45	4.7	18	59	1.2	.00	.00	.00	.00
14	2.3	.98	9.9	.43	3.9	18	175	.99	10	.00	.00	.00
15	4.2	.91	7.0	.45	3.0	22	67	.71	4.2	.00	.00	.00
16	3.5	1.0	4.5	.42	2.0	39	23	1.0	2.1	.00	.00	.00
17	2.6	.92	3.7	.42	1.5	39	8.4	7.0	.86	.00	.00	.00
18	22	.92	3.4	.45	1.0	45	4.6	7.3	.40	.00	.00	.00
19	16	.90	3.2	.48	.87	86	3.4	2.8	.18	.00	.00	.00
20	5.1	.77	3.1	.52	.66	76	2.7	1.5	.11	.00	.00	.00
21	9.9	1.3	2.7	.35	2.0	125	2.1	1.1	.01	.00	.00	.00
22	7.6	3.0	2.0	.30	14	40	1.9	1.1	.02	.00	.00	.00
23	3.5	2.8	1.7	.26	12	83	1.6	1.3	.00	.00	.00	.00
24	2.5	1.7	1.5	.24	8.8	46	1.5	1.2	.00	.00	.00	.00
25	2.0	1.2	1.3	.23	3.3	15	1.2	.85	.00	.00	.00	.00
26	1.4	.86	1.2	.22	2.5	16	1.3	.92	.00	.00	.00	.00
27	1.2	1.1	1.1	.21	2.2	23	1.5	1.1	.00	.00	.00	.00
28	1.1	4.0	1.1	.20	2.1	23	2.0	.85	.00	.00	.00	.00
29	.94	3.7	2.0	.20	---	8.2	1.9	1.1	.00	.00	.00	.00
30	.89	2.0	1.5	.20	---	4.6	1.3	.85	.00	.00	.00	.00
31	.79	---	1.2	.20	---	3.1	---	4.6	---	.00	.00	---
TOTAL	97.99	99.46	105.1	13.98	321.18	1272.6	507.4	58.24	35.17	0.00	0.00	0.00
MEAN	3.16	3.32	3.39	.45	11.5	41.1	16.9	1.88	1.17	.000	.000	.000
MAX	.22	.19	.18	1.1	.58	263	175	7.3	.10	.00	.00	.00
MIN	.37	.77	1.1	.20	.22	3.1	1.2	.71	.00	.00	.00	.00
CFSM	.21	.22	.23	.03	.77	2.77	1.14	.13	.08	.00	.00	.00
IN.	.25	.25	.26	.04	.81	3.19	1.27	.15	.09	.00	.00	.00

WTR YR 1991 TOTAL 2511.12 MEAN 6.88 MAX 263 MIN .00 CFSM .46 IN. 6.29

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1990 to September 1991.

DISSOLVED OXYGEN: April to June 1991.

SUSPENDED-SOLIDS DISCHARGE: October 1990 to September 1991.

TOTAL-PHOSPHORUS DISCHARGE: October 1990 to September 1991.

INSTRUMENTATION.--Stage-activated water-quality sampler since October 1990. Continuous water-temperature recorder since October 1990. Dissolved-oxygen recorder during open-water periods from April to June 1991.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Dissolved-oxygen concentrations greater than 20.0 mg/L are out of calibration range of meter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 30.0°C, June 19; minimum observed, 0.0°C, many days during winter period.

DISSOLVED OXYGEN: Maximum observed, 17.4 mg/L, Apr. 22; minimum observed, 0.0 mg/L, May 18.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 229 tons, Apr. 14; minimum daily, 0.0 ton, many days during summer period.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,710 lb, Mar. 2; minimum daily, 0.0 lb., many days during summer period.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
OCT 1990								
*17...	1450	--	2.4	3.7	130	210	15	600
18...	0040	--	9.4	11	--	--	23	594
18...	0345	--	20	7.7	--	--	184	768
18...	1545	--	25	9.2	--	--	204	760
19...	0345	--	24	5.8	--	--	58	546
NOV								
*06...	1504	--	15	19	50000	26000	40	560
*25...	1230	--	1.3	4.3	2500	980	25	724
DEC								
*10...	1300	--	2.1	2.2	20	210	3	640
JAN 1991								
*21...	1425	0.35	--	5.8	80	160	14	664
*29...	1635	--	0.20	2.5	20	30	8	722
FEB								
*07...	1300	--	21	25	2500	4600	23	296
*18...	1430	1.0	--	2.5	20	250	8	526
MAR								
02...	0350	--	484	>20	--	--	212	404
02...	0430	--	551	>21	--	--	188	390
02...	0935	--	421	17	--	--	128	320
02...	1120	--	304	16	--	--	98	292
02...	1235	--	221	15	--	--	92	282
02...	1445	--	149	14	--	--	82	278
02...	1755	--	84	13	--	--	62	256
*03...	1600	--	30	8.9	630	1800	24	246
06...	0425	--	60	16	--	--	32	212
06...	0625	--	83	14	--	--	52	206
06...	0810	--	107	13	--	--	48	194
06...	1110	--	136	13	--	--	57	202
06...	1945	--	69	9.8	--	--	23	166
18...	1805	--	61	--	--	--	90	318
18...	2045	--	83	--	--	--	104	332
19...	1430	--	61	--	--	--	64	278
19...	1615	--	82	--	--	--	130	342
19...	1705	--	110	--	--	--	214	432
19...	1835	--	140	--	--	--	228	432
20...	0450	--	71	--	--	--	58	248
20...	1555	--	62	7.4	--	--	80	288
20...	1745	--	84	6.8	--	--	110	318
20...	2205	--	110	9.2	--	--	154	370
21...	0545	--	141	10	--	--	208	448
23...	0445	--	61	5.8	--	--	50	396
23...	0555	--	83	6.8	--	--	118	458
23...	0730	--	108	9.5	--	--	231	588
23...	1930	--	80	8.3	--	--	69	446
24...	0730	--	55	6.8	--	--	31	406

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.



## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
APR								
*07...	1430	--	1.3	3.2	--	--	9	462
10...	1720	--	42	--	--	--	41	484
10...	1920	--	80	--	--	--	154	518
10...	2110	--	134	--	--	--	380	728
11...	2225	--	40	--	--	--	28	386
13...	1300	--	58	--	--	--	28	390
13...	1415	--	80	--	--	--	47	402
14...	0330	--	51	--	--	--	51	404
14...	1010	--	73	--	--	--	187	530
14...	1110	--	168	--	--	--	228	556
14...	1130	--	196	--	--	--	352	662
14...	1435	--	341	--	--	--	740	1160
14...	2240	--	176	--	--	--	412	820
15...	0210	--	110	5.2	--	--	150	534
*25...	1210	--	1.2	2.5	20	20	11	452
MAY								
*23...	1330	--	1.3	4.3	--	--	8	452
JUN								
*05...	1210	--	0.60	3.7	610	160	24	548
14...	0920	--	11	13	--	--	60	516
14...	0950	--	21	8.8	--	--	52	522
14...	2150	--	13	--	--	--	500	1140
*17...	1340	--	1.0	5.2	3600	270	136	648
JUL								
*10...	1520	--	0.0	7.4	720	110	16	436

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1990							
17...	172	11	4	0.410	0.030	0.04	0.510
18...	162	17	6	0.400	0.060	0.08	0.640
18...	186	156	28	0.200	0.070	0.09	1.16
18...	182	176	28	1.40	0.110	0.14	1.69
19...	158	44	14	2.30	<0.100	--	1.09
NOV							
06...	196	28	12	3.20	1.60	2.1	1.24
25...	208	15	10	0.700	1.00	1.3	0.500
DEC							
10...	172	--	<2	0.680	0.120	0.15	0.170
JAN 1991							
21...	164	10	4	0.720	0.326	0.42	0.170
29...	166	4	4	0.940	0.292	0.38	0.150
FEB							
07...	116	9	14	1.25	4.46	5.7	1.00
18...	148	4	4	0.810	0.886	1.1	0.300
MAR							
02...	116	172	40	--	--	--	--
02...	112	156	32	--	--	--	--
02...	92	104	24	--	--	--	--
02...	86	78	20	--	--	--	--
02...	86	74	18	--	--	--	--
02...	84	68	14	--	--	--	--
02...	80	50	12	--	--	--	--
03...	80	20	4	2.09	1.38	1.8	0.610
06...	88	20	12	1.42	2.85	3.7	0.950
06...	82	32	20	1.39	2.10	2.7	0.930
06...	82	35	13	1.25	1.98	2.5	0.880
06...	80	43	14	1.40	2.12	2.7	0.900
06...	78	12	11	1.42	1.74	2.2	0.760
18...	102	64	26	0.785	1.18	1.5	0.710
18...	106	76	28	0.813	1.39	1.8	0.760
19...	92	46	18	0.951	1.24	1.6	0.680
19...	102	100	30	0.886	1.16	1.5	0.780
19...	112	180	34	0.838	1.10	1.4	0.840
19...	112	194	34	0.853	1.10	1.4	0.810
20...	88	40	18	0.952	1.15	1.5	0.570
20...	94	60	20	0.840	0.979	1.3	0.560
20...	100	84	26	0.870	0.943	1.2	0.570
20...	104	130	24	0.861	0.944	1.2	0.660

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)			
MAR 1991											
21...		122	174	34	1.25	1.03	1.3	0.720			
23...		136	42	8	1.47	0.895	1.2	0.480			
23...		150	104	14	1.36	0.878	1.1	0.540			
23...		184	206	25	1.68	0.887	1.1	0.750			
23...		170	58	11	2.24	0.993	1.3	0.610			
24...		136	25	6	2.78	0.884	1.1	0.550			
APR											
07...		134	2	7	0.120	0.025	0.03	0.320			
10...		160	33	8	1.47	0.661	0.85	0.520			
10...		152	134	20	1.52	0.474	0.61	0.590			
10...		178	338	42	1.89	0.549	0.71	1.05			
11...		140	22	6	3.42	0.479	0.62	0.420			
13...		144	24	4	2.64	0.235	0.30	0.310			
13...		140	39	8	2.66	0.236	0.30	0.360			
14...		124	43	8	3.19	0.315	0.41	0.460			
14...		136	167	20	2.82	0.371	0.48	0.590			
14...		134	200	28	2.35	0.320	0.41	0.640			
14...		142	314	38	2.10	0.281	0.36	0.780			
14...		186	660	80	2.55	0.331	0.43	1.53			
14...		162	360	52	3.85	0.335	0.43	1.09			
15...		138	130	20	4.54	0.327	0.42	0.710			
25...		144	8	3	0.060	0.041	0.05	0.180			
MAY											
23...		142	--	--	0.704	0.051	0.07	0.470			
JUN											
05...		180	19	5	3.07	0.317	0.41	0.530			
14...		156	32	28	0.157	<0.005	--	0.450			
14...		150	28	24	0.655	0.010	0.01	0.640			
14...		240	420	80	7.56	0.367	0.47	1.18			
17...		236	114	22	5.91	0.277	0.36	0.480			
JUL											
10...		166	6	10	<0.007	0.015	0.02	0.620			
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	SIMA- ZINE TOTAL (UG/L) (39055)
JUN 1991											
14...	0935	18	--	--	0.20	11	11.0	2	1	3.1	3.2
14...	0936	18	18	17	0.15	9.4	10.0	2	2	2.8	3.0

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	11.0	7.5	9.0	3.0	1.5	2.0	.0	.0	.0
2	---	---	---	13.5	10.5	12.0	2.0	1.0	1.5	.0	.0	.0
3	---	---	---	13.0	10.0	12.0	1.0	.5	.5	.0	.0	.0
4	---	---	---	10.0	6.5	8.0	.5	.0	.5	.0	.0	.0
5	---	---	---	6.5	3.5	5.0	.5	.0	.0	.0	.0	.0
6	---	---	---	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
7	---	---	---	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
8	---	---	---	2.5	1.0	2.0	.0	.0	.0	.0	.0	.0
9	---	---	---	2.5	1.5	2.0	.5	.0	.0	.0	.0	.0
10	---	---	---	3.5	1.5	2.5	.5	.0	.0	.0	.0	.0
11	---	---	---	2.0	.5	1.5	.5	.0	.0	.0	.0	.0
12	---	---	---	2.0	.0	1.0	.0	.0	.0	.0	.0	.0
13	---	---	---	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
14	---	---	---	4.5	1.0	2.5	.0	.0	.0	.0	.0	.0
15	---	---	---	8.0	4.5	6.5	.0	.0	.0	.0	.0	.0
16	---	---	---	8.5	7.5	8.5	.0	.0	.0	.0	.0	.0
17	---	---	---	7.5	4.5	5.5	.0	.0	.0	.0	.0	.0
18	---	---	---	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
19	8.0	6.0	7.0	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0
20	9.5	6.5	8.0	5.5	4.0	4.5	.0	.0	.0	.0	.0	.0
21	9.5	8.0	9.0	9.5	5.5	7.5	.0	.0	.0	.0	.0	.0
22	8.5	6.0	7.5	9.5	6.0	7.5	.0	.0	.0	.0	.0	.0
23	9.0	7.0	8.0	6.0	2.5	4.5	.0	.0	.0	.0	.0	.0
24	8.5	7.0	7.5	2.5	.5	1.5	.0	.0	.0	.0	.0	.0
25	8.0	6.0	7.0	2.0	1.5	2.0	.0	.0	.0	.0	.0	.0
26	7.5	5.0	6.0	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
27	8.0	6.0	7.0	7.0	2.5	5.5	.0	.0	.0	.0	.0	.0
28	8.0	6.0	6.5	7.5	1.5	5.0	.0	.0	.0	.0	.0	.0
29	7.0	4.5	6.0	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
30	8.5	6.0	7.0	1.5	.0	1.0	.0	.0	.0	.0	.0	.0
31	9.5	7.0	8.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	---	---	---	13.5	.0	4.6	3.0	.0	.1	.0	.0	.0
FEBRUARY			MARCH			APRIL			MAY			
1	.0	.0	.0	.0	.0	.0	7.0	3.0	5.0	11.5	10.5	11.0
2	.0	.0	.0	.0	.0	.0	9.0	3.0	5.5	10.0	8.5	9.0
3	.0	.0	.0	.0	.0	.0	9.5	5.0	7.5	11.0	7.5	9.0
4	.0	.0	.0	.0	.0	.0	9.0	7.5	8.5	13.0	9.0	11.0
5	.0	.0	.0	.0	.0	.0	14.0	7.5	10.5	12.0	9.0	10.0
6	.0	.0	.0	.0	.0	.0	17.5	12.0	14.5	---	---	---
7	.0	.0	.0	.0	.0	.0	19.5	14.0	16.5	12.0	6.5	9.0
8	.0	.0	.0	.0	.0	.0	18.0	11.0	15.0	11.0	8.5	9.5
9	.0	.0	.0	.0	.0	.0	10.5	1.0	7.0	15.5	8.0	11.5
10	.0	.0	.0	.0	.0	.0	7.0	.5	3.0	20.5	12.5	16.5
11	.0	.0	.0	.0	.0	.0	5.0	1.5	3.5	22.5	16.5	19.5
12	.0	.0	.0	.0	.0	.0	4.0	2.0	3.0	26.0	19.5	22.5
13	.0	.0	.0	.0	.0	.0	8.0	1.5	4.5	27.0	21.0	24.0
14	.0	.0	.0	.0	.0	.0	7.5	4.5	6.0	26.0	21.0	23.5
15	.0	.0	.0	.0	.0	.0	9.0	5.5	7.0	25.5	20.5	23.0
16	.0	.0	.0	.0	.0	.0	11.0	6.0	8.5	24.0	21.0	22.5
17	.0	.0	.0	.0	.0	.0	13.5	7.0	10.0	22.5	13.0	17.0
18	.0	.0	.0	.0	.0	.0	13.0	8.0	10.5	13.0	11.0	11.5
19	.0	.0	.0	.5	.0	.0	11.0	8.0	9.5	18.5	10.5	14.0
20	.0	.0	.0	1.0	.0	.0	11.5	5.5	8.5	21.0	13.5	17.0
21	.0	.0	.0	2.5	.0	1.0	13.5	7.5	10.5	21.0	15.5	18.0
22	.0	.0	.0	2.0	1.0	1.5	15.0	8.0	11.0	22.5	18.0	20.0
23	.0	.0	.0	3.0	2.0	3.0	14.5	10.0	12.0	24.5	19.5	21.5
24	.0	.0	.0	2.5	1.5	2.0	16.0	9.5	12.5	25.0	21.0	23.0
25	.0	.0	.0	6.5	.5	3.5	14.5	11.0	12.5	22.5	19.5	20.5
26	.0	.0	.0	11.0	4.5	7.5	16.0	12.0	14.0	23.5	19.0	21.0
27	.0	.0	.0	12.0	9.5	10.5	15.0	13.0	14.0	27.0	20.5	23.5
28	.0	.0	.0	9.0	4.0	6.5	20.5	13.5	16.5	25.5	22.0	23.5
29	---	---	---	5.5	1.0	3.0	17.5	15.5	16.5	27.5	21.5	24.0
30	---	---	---	5.5	.5	3.0	15.5	11.5	13.5	27.5	22.5	25.0
31	---	---	---	6.0	2.0	4.0	---	---	---	24.0	19.5	22.5
MONTH	.0	.0	.0	12.0	.0	1.5	20.5	.5	9.9	---	---	---

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	22.0	18.5	20.5	---	---	---	---	---	---	---	---	---
2	21.5	19.0	20.5	---	---	---	---	---	---	---	---	---
3	24.0	19.0	21.0	---	---	---	---	---	---	---	---	---
4	23.0	18.0	20.0	---	---	---	---	---	---	---	---	---
5	21.5	18.0	19.5	---	---	---	---	---	---	---	---	---
6	24.0	17.5	20.5	---	---	---	---	---	---	---	---	---
7	25.5	18.0	21.5	---	---	---	---	---	---	---	---	---
8	26.5	19.0	22.5	---	---	---	---	---	---	---	---	---
9	22.5	20.0	21.5	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	20.5	19.5	20.0	---	---	---	---	---	---	---	---	---
16	27.0	19.0	22.0	---	---	---	---	---	---	---	---	---
17	29.0	20.0	23.5	---	---	---	---	---	---	---	---	---
18	27.5	20.0	23.5	---	---	---	---	---	---	---	---	---
19	30.0	21.0	25.0	---	---	---	---	---	---	---	---	---
20	28.5	22.5	25.5	---	---	---	---	---	---	---	---	---
21	24.0	20.0	22.5	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	11.1	9.1	10.2
2	---	---	---	---	---	---	---	---	---	11.3	9.9	10.7
3	---	---	---	---	---	---	12.3	7.9	9.7	12.7	10.6	11.6
4	---	---	---	---	---	---	11.5	7.6	9.7	13.3	11.2	12.2
5	---	---	---	---	---	---	14.5	8.1	11.0	12.2	9.3	11.0
6	---	---	---	---	---	---	13.1	7.9	10.5	---	---	---
7	---	---	---	---	---	---	14.3	7.0	10.5	13.4	8.2	10.5
8	---	---	---	---	---	---	12.4	7.3	9.5	12.8	9.0	10.3
9	---	---	---	---	---	---	10.4	7.7	8.9	13.3	8.1	10.2
10	---	---	---	---	---	---	11.4	9.4	10.0	13.9	7.1	10.4
11	---	---	---	---	---	---	10.5	9.4	9.9	13.0	5.6	9.2
12	---	---	---	---	---	---	10.4	9.4	9.9	12.1	5.1	9.0
13	---	---	---	---	---	---	10.7	8.9	9.8	13.7	6.1	9.7
14	---	---	---	---	---	---	9.3	8.9	9.0	12.8	7.0	10.0
15	---	---	---	---	---	---	9.6	8.7	9.1	10.7	9.1	10.0
16	---	---	---	---	---	---	10.5	8.7	9.4	10.3	7.9	8.8
17	---	---	---	---	---	---	12.2	8.4	9.9	8.3	4.0	6.3
18	---	---	---	---	---	---	13.7	7.9	10.1	7.1	.0	5.6
19	---	---	---	---	---	---	14.0	8.0	10.4	8.5	6.0	6.9
20	---	---	---	---	---	---	16.1	8.5	11.7	6.5	5.0	5.6
21	---	---	---	---	---	---	17.1	8.1	12.3	7.3	5.3	6.2
22	---	---	---	---	---	---	17.4	8.4	12.2	8.1	5.7	6.9
23	---	---	---	---	---	---	16.9	8.4	12.4	9.2	6.0	7.6
24	---	---	---	---	---	---	15.5	9.1	12.3	9.5	7.5	8.4
25	---	---	---	---	---	---	14.9	8.8	12.0	8.6	7.1	7.9
26	---	---	---	---	---	---	15.2	11.0	12.6	9.5	6.1	7.9
27	---	---	---	---	---	---	13.3	10.3	11.5	10.1	7.1	8.9
28	---	---	---	---	---	---	13.6	7.4	10.4	11.3	7.4	9.5
29	---	---	---	---	---	---	12.0	8.1	9.3	8.8	6.8	7.8
30	---	---	---	---	---	---	11.1	8.2	9.7	14.2	6.2	8.5
31	---	---	---	---	---	---	---	---	---	7.1	4.9	6.3

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.1	3.5	4.4									
2	5.7	2.5	4.7									
3	6.0	4.5	5.1									
4	6.3	3.9	5.1									
5	5.8	5.0	5.4									
6	6.4	4.9	5.5									
7	6.6	5.6	6.0									
8	7.2	6.0	6.4									
9	6.9	6.4	6.7									
10	---	---	---									
11	---	---	---									
12	---	---	---									
13	---	---	---									
14	---	---	---									
15	---	---	---									
16	---	---	---									
17	---	---	---									
18	---	---	---									
19	---	---	---									
20	---	---	---									
21	---	---	---									
22	---	---	---									
23	---	---	---									
24	---	---	---									
25	---	---	---									
26	---	---	---									
27	---	---	---									
28	---	---	---									
29	---	---	---									
30	---	---	---									
31	---	---	---									

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.03	.04	.02	.01	2.2	.13	.03	.28	.00	.00	.00
2	.02	.03	.03	.02	.01	96	.11	.03	.41	.00	.00	.00
3	.02	.07	.10	.02	.01	2.7	.08	.02	.13	.00	.00	.00
4	.03	.46	.34	.02	.08	1.3	.06	.02	.06	.00	.00	.00
5	.03	.91	.03	.01	1.90	.69	.05	.03	.04	.00	.00	.00
6	.02	2.29	.04	.01	5.83	9.5	.04	.06	.02	.00	.00	.00
7	.02	.84	.02	.01	4.69	1.5	.03	.06	.01	.00	.00	.00
8	.02	.36	.02	.01	13.8	.99	.03	.05	.01	.00	.00	.00
9	.02	.22	.01	.01	15.1	.53	.21	.09	.00	.00	.00	.00
10	.03	.38	.02	.01	4.69	1.2	23	.07	.00	.00	.00	.00
11	.06	.32	.07	.01	2.72	2.6	23	.04	.00	.00	.00	.00
12	.09	.16	.70	.01	1.06	2.6	1.7	.04	.00	.00	.00	.00
13	.06	.10	2.09	.01	.17	2.2	6.8	.03	.00	.00	.00	.00
14	.09	.07	.76	.01	.12	2.4	229	.02	5.2	.00	.00	.00
15	.17	.06	.07	.01	.09	3.4	23	.02	4.5	.00	.00	.00
16	.14	.07	.05	.01	.05	7.1	2.9	.02	1.4	.00	.00	.00
17	.12	.06	.04	.01	.04	8.1	.43	.42	.33	.00	.00	.00
18	9.7	.06	.04	.02	.02	11	.14	.46	.09	.00	.00	.00
19	2.2	.06	.04	.02	.02	30	.10	.09	.02	.00	.00	.00
20	.25	.05	.04	.02	.01	20	.08	.03	.01	.00	.00	.00
21	.76	.09	.03	.01	.05	57	.06	.02	.00	.00	.00	.00
22	.49	.20	.03	.01	1.37	10	.06	.02	.00	.00	.00	.00
23	.14	.19	.02	.01	1.06	27	.05	.03	.00	.00	.00	.00
24	.10	.12	.02	.01	.62	4.3	.04	.03	.00	.00	.00	.00
25	.08	.08	.02	.01	.07	1.1	.04	.02	.00	.00	.00	.00
26	.06	.05	.02	.01	.05	1.1	.04	.03	.00	.00	.00	.00
27	.05	.05	.02	.01	.05	1.5	.04	.03	.00	.00	.00	.00
28	.05	.18	.02	.00	.05	1.3	.06	.03	.00	.00	.00	.00
29	.04	.14	.03	.00	---	.44	.05	.04	.00	.00	.00	.00
30	.04	.07	.03	.00	---	.22	.04	.03	.00	.00	.00	.00
31	.03	---	.02	.01	---	.14	---	.21	---	.00	.00	---
TOTAL	14.95	7.77	4.81	0.35	53.74	310.11	311.37	2.12	12.51	0.00	0.00	0.00

WTR YR 1991 TOTAL 717.73

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	2.1	2.7	1.0	.33	26	6.7	1.3	15	.00	.00	.00
2	1.3	2.3	2.1	.96	.50	1710	5.9	1.2	19	.00	.00	.00
3	1.0	4.9	4.59	.89	.83	118	4.7	1.0	6.9	.00	.00	.00
4	2.0	28	12.0	.68	5.4	49	3.7	1.0	3.1	.00	.00	.00
5	1.8	54	2.5	.53	61	22	3.5	1.6	1.8	.00	.00	.00
6	1.4	114	3.1	.47	106	399	2.6	3.4	1.1	.00	.00	.00
7	1.1	46	2.2	.45	150	74	2.1	3.1	.48	.00	.00	.00
8	1.1	17	1.8	.42	268	30	2.4	2.9	.28	.00	.00	.00
9	1.5	8.8	1.5	.53	253	13	11	5.5	.07	.00	.00	.00
10	2.2	15	1.9	.44	112	29	179	4.5	.05	.00	.00	.00
11	3.9	13	3.59	.39	76	59	228	3.0	.00	.00	.00	.00
12	6.3	6.6	21.0	.39	39	56	46	2.6	.00	.00	.00	.00
13	4.1	3.9	48.6	.41	13	44	119	2.2	.00	.00	.00	.00
14	6.3	2.7	22.4	.40	9.9	47	1080	1.8	47	.00	.00	.00
15	12	2.4	6.4	.41	6.8	63	227	1.4	23	.00	.00	.00
16	9.6	2.8	4.2	.39	4.1	124	47	2.0	8.2	.00	.00	.00
17	7.5	2.5	3.4	.39	2.7	136	11	15	2.4	.00	.00	.00
18	165	2.5	3.1	.41	1.7	176	4.5	16	1.1	.00	.00	.00
19	86	2.4	2.9	.44	1.4	344	3.3	6.2	.50	.00	.00	.00
20	18	2.1	2.8	.48	1.1	248	2.6	3.3	.31	.00	.00	.00
21	27	3.6	2.5	.32	3.2	457	2.1	2.7	.02	.00	.00	.00
22	21	8.1	1.8	.27	35.1	124	1.9	2.8	.05	.00	.00	.00
23	9.5	7.6	1.6	.23	28.8	289	1.5	3.2	.01	.00	.00	.00
24	6.8	4.7	1.4	.21	19.3	137	1.4	3.0	.00	.00	.00	.00
25	5.4	3.3	1.2	.20	5.3	42	1.2	2.2	.00	.00	.00	.00
26	3.8	2.2	1.1	.19	4.0	45	1.3	2.4	.00	.00	.00	.00
27	3.2	2.5	1.0	.18	3.6	61	1.5	2.8	.00	.00	.00	.00
28	3.1	8.8	1.0	.17	3.4	58	2.2	2.3	.00	.00	.00	.00
29	2.6	7.5	1.8	.16	---	20	2.1	2.9	.00	.00	.00	.00
30	2.4	3.8	1.4	.19	---	11	1.5	2.3	.00	.00	.00	.00
31	2.2	---	1.1	.24	---	7.0	---	13	---	.00	.00	---
TOTAL	420.2	385.1	168.68	12.84	1215.46	5018.0	2006.7	118.6	130.37	0.00	0.00	0.00

WTR YR 1991 TOTAL 9475.95

04085119 BOWER CREEK, AT HIGHWAY MM, NEAR DE PERE, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 1, 1990. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 5, 6, 9, 28, Dec. 15, 17, 20, 27, 29, Jan. 5, 6, 14, Feb. 18, 19, 23, 24, Mar. 6, 8, 9, and Apr. 9, 10. Recorded precipitation interpreted as combination of rain/snow, and rainfall estimated to be 0.00 for Dec. 28, Mar. 2, 3, 17, 18, 31, and Apr. 12.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.19 in., Aug. 8.

 RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
 DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.00	.00	.00	.00	.61	.00	.00	.30	---	.00	.00
2	.00	.04	.00	.00	.00	.00	.00	.00	.54	---	.53	.00
3	.39	.50	.00	.00	.00	.00	.00	.00	.00	---	.00	.25
4	.00	.12	.00	.00	.00	.00	.00	.00	.00	---	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.53	.00	---	.00	.00
6	.00	.00	.00	.00	.00	.00	.01	.00	.00	---	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.02	.10
8	.08	.00	.00	.00	.00	.00	.30	.33	.00	---	1.19	.04
9	.01	.00	.00	.00	.00	.00	.00	.00	.00	---	.03	.40
10	.36	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.09
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.15
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.23	.00
14	.28	.00	.00	.00	.00	.00	.72	.00	.91	---	.05	.26
15	.00	.00	.00	.00	.00	.00	.10	.00	.20	---	.00	.27
16	.01	.00	.00	.00	.00	.00	.00	.30	---	---	.09	.03
17	.55	.00	.00	.00	.00	.00	.00	.21	.00	---	.18	.44
18	.07	.00	.00	.00	.00	.00	.00	.00	.00	---	.18	.07
19	.01	.00	.00	.00	.00	.00	.01	.00	.00	---	.11	.06
20	.04	.00	.00	.00	.00	.04	.00	.00	.00	---	.00	.00
21	.29	.30	.00	.00	.00	.17	.00	.00	.01	---	.00	.00
22	.00	.00	.00	.00	.00	.03	.00	.07	.12	---	.00	.16
23	.00	.00	.00	.00	.00	.26	.04	.01	.00	.00	.05	.00
24	.01	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.21
26	.00	.06	.00	.00	.00	.02	.00	.09	.00	.00	.00	.00
27	.00	.24	.00	.00	.00	.07	.36	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.01	.09	.00	.23	.00	.00
29	.00	.00	.00	.00	---	.00	.03	.05	.00	.94	.00	.03
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.01	.00
31	.00	---	.00	.00	---	.00	---	.58	---	.00	.00	---
TOTAL	2.26	1.26	0.00	0.00	0.00	1.20	1.58	2.26	---	---	2.67	2.58

## LAKE MICHIGAN BASIN



## 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 downstream from bridge on County Trunk Highway F, 2.3 mi west of Kewaunee, and about 7.0 mi upstream from mouth.

DRAINAGE AREA.--127 mi<sup>2</sup>.

PERIOD OF RECORD.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1963-64. September 1964 to current year. No winter records for years 1965 and 1966.

REVISED RECORDS.--WDR WI-79-1: Drainage area. WDR WI-85-1: 1962(M), 1965(M), 1967-69(M), 1971(M), 1973-74(M), 1976(M), 1978(M), 1980-82(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 579.64 ft above National Geodetic Vertical Datum of 1929 (Wisconsin State Highway Commission benchmark). Apr. 3, 1957, to Sept. 2, 1964, crest-stage gage only at same site and datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor.

AVERAGE DISCHARGE.--25 years, 86.3 ft<sup>3</sup>/s, 9.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,570 ft<sup>3</sup>/s, June 23, 1990, gage height, 15.53 ft in gage well, 16.00 ft from crest-stage gage; maximum gage height, 16.03 ft, Mar. 30, 1960 (backwater from ice); minimum recorded, 4.0 ft<sup>3</sup>/s, Nov. 22, 1977, gage height, 8.06 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	1745	ice jam	*13.53	Apr. 15	0830	*1,770	12.20
Mar. 22	0130	982	11.48				

Minimum discharge, 12.0 ft<sup>3</sup>/s, Sept. 2, 3, gage height, 9.12 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4-10 and Dec. 22 to Mar. 19.)

9.1	12	9.7	70	11.0	598
9.2	17	9.9	107	11.5	1,000
9.3	24	10.2	191	12.0	1,520
9.5	43	10.5	311		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	47	77	36	40	100	156	78	157	22	36	13
2	44	47	70	34	42	600	138	72	109	28	31	13
3	44	63	54	33	45	560	125	69	88	33	35	14
4	44	111	58	32	56	250	117	67	65	34	35	14
5	41	159	54	32	86	200	114	71	52	38	31	14
6	39	257	56	32	150	240	112	99	45	30	25	13
7	37	219	60	31	250	190	107	91	42	25	23	13
8	36	169	62	30	300	120	100	84	39	23	28	13
9	36	138	66	30	290	100	132	96	36	21	33	14
10	45	133	74	30	200	92	242	89	34	21	30	14
11	65	124	84	30	130	110	409	79	32	20	24	14
12	63	109	119	30	94	130	333	72	30	21	21	14
13	57	94	183	31	76	120	296	65	29	23	19	14
14	62	85	171	33	64	110	616	59	67	21	21	15
15	67	81	162	31	54	150	1400	53	94	20	21	16
16	61	79	119	31	48	270	606	51	61	18	19	18
17	60	74	107	31	45	300	308	194	45	22	21	17
18	87	70	103	31	43	360	215	147	38	23	26	17
19	120	68	92	33	43	500	173	111	35	23	33	17
20	104	65	103	32	46	628	147	85	31	20	31	17
21	103	73	136	30	48	781	129	70	29	19	25	16
22	119	83	150	31	66	760	116	65	30	32	22	16
23	100	82	110	33	70	608	109	91	28	44	20	16
24	83	76	74	32	58	650	102	76	26	31	20	16
25	71	68	60	31	50	366	94	63	25	25	19	17
26	63	63	52	34	47	292	89	60	23	21	18	18
27	58	70	48	38	45	330	87	59	22	20	16	17
28	54	99	44	40	44	595	89	62	21	26	15	16
29	51	101	50	38	---	354	84	124	21	76	15	16
30	49	85	43	36	---	213	84	89	21	72	14	15
31	48	---	38	38	---	170	---	71	---	47	13	---
TOTAL	1955	2992	2679	1014	2530	10249	6829	2562	1375	899	740	457
MEAN	63.1	99.7	86.4	32.7	90.4	331	228	82.6	45.8	29.0	23.9	15.2
MAX	120	257	183	40	300	781	1400	194	157	76	36	18
MIN	36	47	38	30	40	92	84	51	21	18	13	13
CFSM	.50	.79	.68	.26	.71	2.60	1.79	.65	.36	.23	.19	.12
IN.	.57	.88	.78	.30	.74	3.00	2.00	.75	.40	.26	.22	.13

CAL YR 1990 TOTAL 46550 MEAN 128 MAX 5950 MIN 11 CFSM 1.00 IN. 13.64  
WTR YR 1991 TOTAL 34281 MEAN 93.9 MAX 1400 MIN 13 CFSM .74 IN. 10.04

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085281 EAST TWIN RIVER AT MISHICOT, WI

LOCATION.--Lat 44°14'16", long 87°38'11", in NW 1/4 NW 1/4 sec.4, T.20 N., R.24 E., Manitowoc County, Hydrologic Unit 04030101, on right bank 500 ft downstream from bridge on State Highway 147, at Mishicot, 0.8 mi upstream from Johnson Creek, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--110 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1972 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 584.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Occasional regulation caused by recreation dam 0.3 mi upstream.

AVERAGE DISCHARGE.--19 years, 78.6 ft<sup>3</sup>/s, 9.70 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,380 ft<sup>3</sup>/s, June 24, 1990, gage height, 13.35 ft; maximum gage height, 13.75 ft, Mar. 31, 1979; minimum, 1.7 ft<sup>3</sup>/s, July 20, 1979, gage height, 3.69 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	2015	ice jam	*8.98	Apr. 16	0500	*590	8.07
Mar. 22	0845	510	7.73				

Minimum discharge, 8.9 ft<sup>3</sup>/s, Sept. 1-3, 7, 11, 12; minimum gage height, 4.14 ft, Sept. 1-3.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 5-8, 21-27, and Dec. 29 to Mar. 21.)

4.1	8.5	6.0	216
4.2	13	7.0	373
4.4	26	8.0	573
5.0	86		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	41	68	41	31	50	139	62	45	15	53	8.9
2	22	41	63	39	32	400	125	57	58	16	34	8.9
3	23	46	57	36	33	350	114	53	46	18	32	10
4	37	67	48	35	37	310	107	51	36	16	32	11
5	39	104	49	37	45	260	104	52	30	16	28	10
6	32	211	45	36	64	220	106	75	26	16	23	9.6
7	26	196	48	35	110	190	105	78	25	14	20	9.4
8	25	166	50	37	150	160	105	71	23	13	33	9.6
9	27	129	58	35	140	140	146	75	21	12	53	9.9
10	35	120	67	35	100	150	315	77	20	12	43	9.9
11	94	111	76	35	80	200	396	68	20	12	29	9.0
12	103	95	100	34	60	180	322	60	18	26	22	9.5
13	89	82	135	33	52	160	243	54	17	23	18	10
14	78	74	118	35	46	150	290	47	36	18	16	11
15	100	72	121	34	40	150	558	41	127	15	15	12
16	89	69	105	33	36	170	552	37	153	13	14	13
17	76	64	95	32	34	190	373	38	100	13	14	12
18	79	60	90	33	33	240	233	42	61	20	15	12
19	101	57	83	34	34	300	171	40	44	24	20	16
20	98	55	86	32	35	360	137	36	33	16	23	11
21	101	67	100	30	35	440	116	34	28	15	19	11
22	103	93	96	29	38	492	96	34	25	20	16	11
23	94	96	86	31	45	480	91	50	25	28	14	11
24	80	82	74	30	38	495	85	52	23	26	13	11
25	68	72	60	29	34	395	78	43	20	18	12	11
26	59	66	54	30	33	311	72	41	18	15	12	11
27	54	70	50	32	32	297	69	44	16	13	11	11
28	50	108	46	31	31	323	69	39	16	28	11	11
29	46	111	50	29	---	277	65	51	16	150	10	11
30	45	87	46	27	---	206	64	58	15	147	9.7	11
31	41	---	41	30	---	159	---	45	---	105	9.6	---
TOTAL	1936	2712	2265	1029	1478	8205	5446	1605	1141	893	674.3	322.7
MEAN	62.5	90.4	73.1	33.2	52.8	265	182	51.8	38.0	28.8	21.8	10.8
MAX	103	211	135	41	150	495	558	78	153	150	53	16
MIN	22	41	41	27	31	50	64	34	15	12	9.6	8.9
CFSM	.57	.82	.66	.30	.48	2.41	1.65	.47	.35	.26	.20	.10
IN.	.65	.92	.77	.35	.50	2.77	1.84	.54	.39	.30	.23	.11

CAL YR 1990 TOTAL 38129 MEAN 104 MAX 2930 MIN 10 CFSM .95 IN. 12.89  
WTR YR 1991 TOTAL 27707.0 MEAN 75.9 MAX 558 MIN 8.9 CFSM .69 IN. 9.37

## STREAMS TRIBUTARY TO LAKE MICHIGAN

135

04085427 MANITOWOC RIVER AT MANITOWOC, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1972 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 610.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for period of ice affect, which is poor.

AVERAGE DISCHARGE.--19 years, 331 ft<sup>3</sup>/s, 8.55 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,280 ft<sup>3</sup>/s, Mar. 31, 1979, gage height, 13.24 ft, from floodmarks; maximum gage height, 13.30 ft, Mar. 25, 1986, from floodmarks; minimum discharge, 6.8 ft<sup>3</sup>/s, July 8, 1988, and Oct. 3-5, 1989; minimum gage height, 3.61 ft, July 8, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	1015	ice jam	*9.60	Apr. 14	2000	1,360	7.69
Mar. 24	1645	*1,970	8.52				

Minimum discharge, 16 ft<sup>3</sup>/s, Sept. 2, 3, gage height, 3.81 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 5 to Mar. 20.)

3.6	5.0	5.0	222
3.8	17	6.0	540
4.0	33	7.0	981
4.2	57	8.0	1,570
4.5	108	9.0	2,370

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	138	211	96	74	250	1300	440	80	38	79	17
2	113	134	206	90	78	900	1210	397	82	38	72	16
3	107	132	157	86	90	940	1110	345	89	40	63	18
4	111	131	83	84	120	1000	1030	291	88	44	51	21
5	133	156	150	84	200	1100	977	271	82	44	45	23
6	129	199	180	86	330	1100	932	275	82	40	39	25
7	109	221	220	90	350	1000	873	288	79	37	32	24
8	100	227	210	90	380	940	798	280	75	35	52	24
9	99	225	200	86	410	940	857	265	78	30	74	24
10	109	237	210	84	400	960	1070	263	78	31	83	28
11	140	254	220	84	320	980	1060	258	76	28	85	25
12	160	248	220	82	270	940	957	248	64	35	76	27
13	164	227	240	84	230	900	951	226	48	61	66	25
14	169	217	250	86	200	900	1140	208	42	56	58	24
15	184	217	230	86	180	900	1270	187	60	64	51	28
16	198	213	220	84	170	960	1290	173	91	63	44	30
17	186	206	230	84	160	1100	1160	158	110	62	39	33
18	189	195	210	84	150	1200	1070	137	112	61	34	45
19	241	182	200	90	150	1300	983	132	110	59	35	36
20	229	177	220	86	150	1500	931	130	101	51	30	42
21	236	172	230	82	150	1670	887	146	86	44	29	36
22	252	183	200	80	160	1810	833	207	70	59	27	29
23	252	198	160	84	160	1900	779	223	60	58	26	26
24	244	198	140	82	150	1950	721	212	57	58	25	24
25	229	173	120	78	150	1870	658	162	57	51	24	29
26	214	167	120	80	150	1750	597	124	55	43	23	29
27	199	164	120	82	140	1730	553	112	53	34	23	29
28	191	203	130	78	140	1740	523	102	52	38	22	31
29	170	230	140	74	---	1640	493	87	49	79	22	26
30	148	194	120	72	---	1500	463	80	44	80	20	21
31	142	---	110	70	---	1380	---	80	---	87	18	---
TOTAL	5261	5818	5657	2588	5612	38750	27476	6507	2210	1548	1367	815
MEAN	170	194	182	83.5	200	1250	916	210	73.7	49.9	44.1	27.2
MAX	252	254	250	96	410	1950	1300	440	112	87	85	45
MIN	99	131	83	70	74	250	463	80	42	28	18	16
CFSM	.32	.37	.35	.16	.38	2.38	1.74	.40	.14	.09	.08	.05
IN.	.37	.41	.40	.18	.40	2.74	1.94	.46	.16	.11	.10	.06

CAL YR 1990 TOTAL 91981 MEAN 252 MAX 2970 MIN 11 CFSM .48 IN. 6.51  
WTR YR 1991 TOTAL 103609 MEAN 284 MAX 1950 MIN 16 CFSM .54 IN. 7.33

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04085427 MANITOWOC RIVER AT MANITOWOC, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1979 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 1990												
21...	0930	--	488	810	8.4	6.5	5.0	11.3	749	94	K18	46
MAR 1991												
15...	0915	900	--	505	7.8	0.0	10	12.0	764	82	K14	51
MAY												
08...	0940	--	523	700	8.4	7.0	12	12.0	765	99	42	K13
AUG												
29...	0910	--	469	650	8.4	23.0	12	6.5	760	76	200	95
DATE		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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
NOV 1990												
21...		410	88	45	21	4.4	376	6	319	62	41	<0.10
MAR 1991												
15...		240	53	26	13	6.6	240	--	197	34	28	0.10
MAY												
08...		370	80	41	16	4.3	354	6	300	44	40	<0.10
AUG												
29...		330	58	44	22	5.0	311	8	268	36	46	0.10
DATE		SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1990												
21...		5.5	507	463	<0.010	1.00	0.070	0.050	1.5	0.060	0.020	0.010
MAR 1991												
15...		8.7	324	294	0.040	1.20	0.420	0.450	1.8	0.160	0.120	0.030
MAY												
08...		3.0	450	413	0.020	1.00	0.030	0.020	1.4	0.140	0.050	0.030
AUG												
29...		8.4	379	382	<0.010	0.120	0.060	0.050	1.4	0.230	0.100	0.080

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085427 MANITOWOC RIVER AT MANITOWOC, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
NOV 1990 21...	0930	--	488	20	<1	33	<0.5	<1.0	2	<3	2
MAR 1991 15...	0915	900	--	30	<1	23	<0.5	<1.0	<1	<3	2
MAY 08...	0940	--	523	20	<1	28	<0.5	<1.0	<1	<3	1
AUG 29...	0910	--	469	20	<1	41	0.9	<1.0	1	<3	1

DATE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 1990 21...	54	<1	7	14	<0.1	<10	3	<1	210	<6	9
MAR 1991 15...	220	<1	<4	45	<0.1	<10	1	<1	94	<6	12
MAY 08...	100	<1	5	22	<0.1	<10	2	<1	180	<6	<3
AUG 29...	15	<1	<4	21	<0.1	20	3	<1	580	<6	4

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)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, DIS- SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990 29...	1510	--	163	760	7.0	--	--	--
NOV 21...	0930	--	488	810	6.5	29	38	77
DEC 12...	1500	--	230	--	0.0	--	--	--
JAN 1991 10...	1600	--	82	970	0.0	--	--	--
FEB 21...	1145	--	140	900	0.0	--	--	--
MAR 15...	0915	900	--	505	0.0	12	29	98
MAR 26...	1247	--	1830	429	6.5	--	--	--
MAY 08...	0940	--	523	700	7.0	65	92	92
JUN 04...	1145	--	91	728	22.0	--	--	--
JUL 25...	1327	--	47	582	23.5	--	--	--
AUG 29...	0910	--	469	650	23.0	E29	--	E98
SEP 11...	1259	--	21	708	21.5	--	--	--

E ESTIMATED.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

434907087573000 OTTER CREEK RAIN GAGE NUMBER 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 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Jan. 9, 1991. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Jan. 12-14, 16, Feb. 17-18, 26, and Mar. 6, 8-9. Recorded precipitation interpreted as collector rain/snowfall, and rainfall estimated to be 0.00 for Mar. 2-3, and 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.03 in., June 14.

RAINFALL ACCUMULATED (INCHES), JANUARY TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	.88	.00	.00	.44	.48	.00	.00
2					.00	.00	.00	.00	.05	.01	.01	.00
3					.00	.00	.00	.00	.00	.01	.00	.94
4					.00	.00	.00	.00	.00	.40	.00	.00
5					.00	.00	.00	.43	.00	.01	.00	.00
6					.00	.00	.00	.00	.00	.00	.00	.00
7					.00	.00	.00	.00	.00	.03	.09	.02
8					.00	.00	.43	.16	.00	.00	1.33	.01
9				.00	.00	.00	1.20	.00	.00	.09	.00	.01
10				.00	.00	.00	.08	.00	.00	.00	.00	.00
11				.00	.00	.00	.00	.00	.00	.00	.00	.04
12				.00	.00	.00	.07	.06	.00	1.09	.00	.22
13				.00	.00	.00	.04	.00	.00	.27	.00	.00
14				.00	.00	.00	.71	.00	2.03	.00	.00	.43
15				.00	.00	.00	.10	.00	.09	.00	.00	.07
16				.00	.00	.00	.00	.00	.00	.00	.16	.20
17				.00	.00	.14	.00	.10	.00	.22	.00	.29
18				.00	.00	.01	.00	.06	.00	.00	.01	.07
19				.00	.00	.00	.00	.01	.00	.00	.08	.00
20				.00	.00	.01	.00	.00	.00	.02	.00	.00
21				.00	.00	.01	.00	.00	.00	.09	.00	.00
22				.00	.00	.14	.00	.07	.22	.29	.00	.16
23				.00	.00	.34	.00	.48	.00	.00	.03	.00
24				.00	.00	.00	.00	.04	.00	.05	.00	.00
25				.00	.00	.00	.00	.14	.00	.01	.00	.12
26				.00	.00	.07	.00	.43	.00	.00	.00	.00
27				.00	.00	.35	.55	.00	.00	.00	.00	.00
28				.00	.00	.00	.01	.00	.00	.13	.00	.00
29				.00	---	.00	.02	.01	.11	1.18	.00	.01
30				.00	---	.00	.00	.16	.00	.06	.00	.00
31				.00	---	.00	---	.91	---	.00	.00	---
TOTAL				---	0.00	1.95	3.21	3.06	2.94	4.44	1.71	2.59

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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434802087573000 OTTER CREEK RAIN GAGE NUMBER 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 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Jan. 9, 1991. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Jan. 14, 16, Feb. 17-19, and Mar. 6, 9. Recorded precipitation interpreted as collector rain/snowfall, and rainfall estimated to be 0.00 for Mar. 2, 4, 28, and Apr. 1.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.20 in., Apr. 9.

RAINFALL ACCUMULATED (INCHES), JANUARY TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					.00	.83	.00	.00	.36	.22	---	.00
2					.00	.00	.00	.00	.18	.01	---	.00
3					.00	.00	.00	.00	.00	.00	---	---
4					.00	.00	.00	.00	.00	.09	---	.00
5					.00	.00	.00	.44	.00	.00	---	.00
6					.00	.00	.00	.00	.00	.00	---	.00
7					.00	.00	.00	.00	.00	.03	---	.02
8					.00	.00	.67	.15	.00	.00	---	.01
9				.00	.00	.00	1.20	.00	.00	.17	.00	.00
10				.00	.00	.00	.14	.00	.00	.00	.00	.00
11				.00	.00	.00	.00	.00	.00	.00	.00	.01
12				.00	.00	.00	.07	.06	.00	1.15	.00	.19
13				.00	.00	.00	.03	.00	.00	.43	.00	.01
14				.00	.00	.00	.72	.00	---	.00	.00	.59
15				.00	.00	.00	.10	.00	---	.00	.01	.07
16				.00	.00	.00	.00	.00	.00	.00	.09	.19
17				.00	.00	.11	.00	.12	.00	.15	.01	.26
18				.00	.00	.01	.00	.04	.00	.00	.00	.08
19				.00	.00	.00	.00	.00	.00	.00	.09	.00
20				.00	.00	.01	.00	.00	.00	.00	.00	.00
21				.00	.00	.00	.00	.00	.00	---	.00	.00
22				.00	.00	.15	.00	.03	.09	---	.00	.12
23				.00	.00	.33	.00	.41	.00	---	.03	.00
24				.00	.00	.00	.00	.03	.00	---	.00	.00
25				.00	.00	.00	.00	.10	.00	---	.00	.10
26				.00	.00	.03	.00	.63	.00	---	.00	.00
27				.00	.00	.40	.51	.00	.00	---	.00	.00
28				.00	.00	.00	.00	.00	.00	---	.00	.00
29				.00	---	.00	.02	.00	.00	---	.00	.00
30				.00	---	.00	.00	.16	.00	---	.00	.00
31				.00	---	.00	---	.68	---	---	.00	---
TOTAL				---	0.00	1.87	3.46	2.85	---	---	---	---

## 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 760 ft from topographic map.

REMARKS.--Estimated daily discharges: May 6, 9, 10, Aug. 5-9, and ice periods listed in rating table below. Records are fair.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 69 ft<sup>3</sup>/s, Apr. 9, gage height, 6.23 ft; maximum gage height, 6.99 ft, Mar. 2 (backwater from ice); minimum discharge, 1.7 ft<sup>3</sup>/s, Oct. 1, 2, 3, 12, and 30.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-14 and Dec. 21 to Mar. 16.)

4.18	1.7	4.80	16
4.30	2.9	5.00	23
4.50	6.4	5.50	42

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	3.0	5.3	4.2	3.0	6.0	8.8	4.9	9.7	2.5	2.7	1.7
2	2.4	3.0	4.6	4.0	5.0	30	7.6	4.4	11	2.9	2.4	1.8
3	2.8	3.0	3.5	4.2	11	20	6.7	4.2	6.8	2.6	2.3	2.6
4	3.2	3.5	3.0	4.4	20	12	6.3	4.0	5.0	2.5	2.0	2.6
5	2.9	9.0	2.8	4.5	27	10	6.1	4.8	4.0	2.7	2.0	2.4
6	2.8	11	5.0	5.0	30	12	5.8	6.0	3.6	2.7	2.0	2.2
7	2.6	8.5	5.6	5.4	25	12	5.5	5.3	3.3	2.6	2.5	2.2
8	2.7	6.5	5.6	6.0	15	7.0	6.9	5.2	3.0	2.6	6.0	2.1
9	3.2	6.7	6.0	5.6	10	6.0	39	5.4	2.8	2.5	4.5	2.1
10	4.7	7.5	6.2	5.0	8.0	6.0	40	4.6	2.8	2.6	3.6	1.9
11	5.9	6.5	7.0	4.7	6.0	6.4	23	4.6	2.7	2.5	3.1	1.9
12	4.9	5.5	11	4.5	4.5	7.0	16	4.4	2.5	4.1	2.7	2.2
13	4.3	4.9	11	5.0	4.0	7.0	14	4.3	2.5	4.6	2.6	2.2
14	4.8	4.7	7.0	4.5	3.5	6.8	33	3.8	11	4.2	2.4	2.2
15	5.1	4.6	6.7	3.8	3.2	7.0	29	3.9	30	3.4	2.3	3.1
16	4.5	4.5	7.0	3.0	2.9	8.0	19	3.8	13	3.0	2.2	2.8
17	4.2	4.1	6.2	2.6	2.7	9.5	12	3.7	7.1	2.8	2.2	2.4
18	7.2	3.9	6.6	4.2	2.6	12	9.6	3.5	5.1	2.8	2.2	2.5
19	5.6	3.8	5.9	2.5	2.6	15	8.0	3.5	4.2	2.7	2.2	2.2
20	4.9	3.6	6.5	1.8	2.6	16	6.8	3.5	3.6	2.6	2.2	2.1
21	5.6	4.0	5.0	2.1	4.5	17	6.1	3.4	3.1	2.5	2.1	2.0
22	5.2	4.2	4.0	1.9	5.4	18	5.7	3.3	3.0	2.8	2.2	2.1
23	4.6	3.9	3.5	1.9	4.5	27	5.4	3.7	2.9	2.5	2.1	2.0
24	4.1	3.5	3.3	1.8	3.7	22	5.2	4.6	2.7	2.4	2.1	1.9
25	3.7	3.4	3.2	1.8	3.3	15	5.7	4.1	2.7	2.3	2.2	1.9
26	3.5	3.2	3.2	2.0	3.1	14	4.6	6.4	2.6	2.2	2.1	1.9
27	3.4	7.8	3.5	2.3	3.0	27	5.9	6.3	2.6	2.1	2.1	1.9
28	3.1	13	5.0	2.8	3.5	24	6.9	5.0	2.5	2.3	2.1	1.9
29	3.0	7.8	6.0	2.5	---	15	6.2	4.4	2.5	4.7	2.1	1.9
30	3.0	5.8	5.2	2.1	---	10	5.5	4.0	2.4	3.6	2.0	1.8
31	3.0	---	4.7	2.2	---	9.2	---	6.8	---	3.1	1.8	---
TOTAL	123.4	164.4	169.1	108.3	219.6	413.9	360.3	139.8	160.7	89.4	77.0	64.5
MEAN	3.98	5.48	5.45	3.49	7.84	13.4	12.0	4.51	5.36	2.88	2.48	2.15
MAX	7.2	13	11	6.0	30	30	40	6.8	30	4.7	6.0	3.1
MIN	2.4	3.0	2.8	1.8	2.6	6.0	4.6	3.3	2.4	2.1	1.8	1.7
CFSM	.42	.58	.57	.37	.83	1.41	1.26	.47	.56	.30	.26	.23
IN.	.48	.64	.66	.42	.86	1.62	1.41	.55	.63	.35	.30	.25

WTR YR 1991 TOTAL 2090.4 MEAN 5.73 MAX 40 MIN 1.7 CFSM .60 IN. 8.19



## STREAMS TRIBUTARY TO LAKE MICHIGAN

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040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1990 to September 1991.

DISSOLVED OXYGEN: October 1990 to September 1991, open-water periods.

SUSPENDED-SOLIDS DISCHARGE: October 1990 to September 1991.

TOTAL-PHOSPHORUS DISCHARGE: October 1990 to September 1991.

INSTRUMENTATION.--Stage-activated water-quality sampler since October 1990. Continuous water-temperature recorder since October 1990. Dissolved-oxygen recorder during open-water periods since October 1990.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Dissolved-oxygen concentrations greater than 20.0 mg/L are out of calibration range of meter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.5°C, June 27, 29; minimum observed, 0.0°C many days during winter period.

DISSOLVED OXYGEN: Maximum observed, 19.1 mg/L, Nov. 2; minimum observed, 3.2 mg/L, June 29.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 27.7 tons, Apr. 10; minimum daily, 0.019 ton, Sept. 30.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 161 lb, Apr. 10; minimum daily, 0.38 lb., Sept. 30.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	ENDING TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
OCT 1990								
*17...	1120	--	--	4.1	1.8	210	160	4
NOV								
05...	1555	--	--	11	1.5	--	--	53
06...	0355	--	--	12	1.8	--	--	30
*06...	1130	--	--	9.5	3.7	13000	3600	13
*25...	1350	--	--	3.3	3.4	150	10	9
DEC								
*10...	1130	--	6.2	--	2.2	1100	310	16
JAN 1991								
*09...	1515	--	5.6	--	--	--	--	14
*29...	1200	--	2.5	--	2.5	1000	<10	16
FEB								
03-03	1310	1510	11	--	4.0	--	--	17
03-03	1710	1910	11	--	8.3	--	--	18
03-03	2110	2310	11	--	7.7	--	--	16
04-04	0110	0310	20	--	9.8	--	--	20
04-04	0510	0710	20	--	10	--	--	17
04-04	0905	1400	20	--	19	--	--	36
04...	1440	--	20	--	>21	--	--	61
04...	1540	--	20	--	>20	--	--	81
04...	1700	--	20	--	>20	--	--	90
04...	2300	--	20	--	19	--	--	42
05...	0500	--	27	--	14	--	--	30
05...	1100	--	27	--	13	--	--	21
05...	1350	--	27	--	18	1700	3400	45
*05...	1351	--	27	--	16	1600	3300	48
05...	1404	--	27	--	18	2100	4200	45
*05...	1405	--	27	--	16	1100	4000	50
05...	1700	--	27	--	18	--	--	48
05...	2300	--	27	--	<1.0	--	--	32
06...	0500	--	30	--	12	--	--	27
06...	1100	--	30	--	10	--	--	25
06...	1700	--	30	--	8.6	--	--	26
06...	2300	--	30	--	7.7	--	--	27
07...	0500	--	25	--	6.1	--	--	21
07...	1100	--	25	--	5.8	--	--	26
*18...	1630	--	2.6	--	3.1	1400	70	68
MAR								
01...	1815	--	6.0	--	23	--	--	356
01...	1930	--	6.0	--	23	--	--	384
01...	2055	--	6.0	--	>24	--	--	460
01...	2230	--	6.0	--	22	--	--	372
02...	0020	--	30	--	18	--	--	288
02...	0140	--	30	--	16	--	--	264
02...	1040	--	30	--	9.8	--	--	162
02...	1410	--	30	--	8.9	--	--	106
*03...	1445	--	20	--	8.3	360	930	228
*21...	1635	--	--	17	3.1	310	10	18
APR								
*07...	1630	--	--	5.3	3.1	20	50	6
*25...	1620	--	--	18	3.1	10	<10	4
MAY								
*22...	1045	--	--	3.2	2.2	--	--	43

\*EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)		
JUN 1991									
*05...	1450	--	4.0	2.2	930	230	14		
14...	1855	--	18	--	--	--	200		
14...	2015	--	25	--	--	--	308		
14...	2050	--	33	--	--	--	496		
14...	2125	--	43	--	--	--	844		
14...	2200	--	51	--	--	--	960		
15...	0720	--	31	--	--	--	114		
15...	1920	--	19	--	--	--	76		
16...	0720	--	14	--	--	--	70		
*17...	1530	--	6.4	1.2	1500	440	23		
JUL									
*10...	1300	--	2.6	1.8	920	1600	6		
*24...	1210	--	2.5	<1.0	500	200	32		
AUG									
*06...	1200	2.0	--	1.8	290	--	14		
*08...	1415	6.0	--	4.9	100000	28000	78		
*21...	1200	--	2.1	1.2	670	680	4		
SEP									
*03...	0954	--	2.0	1.5	2400	1800	6		
*29...	1700	--	1.8	1.2	620	250	4		
DATE		SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1990									
17...	424	126	2	2	0.670	0.030	0.04	0.050	
NOV									
05...	482	154	35	18	1.76	0.220	0.28	0.380	
06...	464	138	22	8	2.08	0.080	0.10	0.250	
06...	466	140	7	6	1.70	0.160	0.21	0.160	
25...	470	136	4	5	1.05	0.040	0.05	0.070	
DEC									
10...	446	126	10	6	1.22	0.060	0.08	0.110	
JAN 1991									
09...	448	118	8	6	1.16	0.130	0.17	0.060	
29...	456	120	11	5	1.20	0.096	0.12	0.050	
FEB									
03...	416	112	11	6	1.14	0.193	0.25	0.090	
03...	422	124	9	9	1.15	0.664	0.86	0.220	
03...	412	118	7	9	1.18	0.683	0.88	0.240	
04...	384	116	11	9	1.18	0.774	1.0	0.280	
04...	364	112	9	8	1.10	0.808	1.0	0.310	
04...	340	114	20	16	1.20	1.41	1.8	0.590	
04...	320	114	39	22	1.24	1.95	2.5	0.850	
04...	322	122	53	28	1.09	2.39	3.1	1.01	
04...	294	106	58	32	0.930	2.12	2.7	0.910	
04...	252	86	26	16	1.22	1.16	1.5	0.720	
05...	280	98	16	14	1.19	0.902	1.2	0.540	
05...	324	110	12	9	1.17	0.827	1.1	0.420	
05...	310	108	31	14	1.27	1.02	1.3	0.540	
05...	324	106	30	18	1.17	0.918	1.2	0.500	
05...	312	112	31	14	1.27	1.03	1.3	0.550	
05...	326	108	32	18	1.18	0.931	1.2	0.510	
05...	300	106	34	14	1.27	0.962	1.2	0.600	
05...	280	94	18	14	1.23	0.711	0.92	0.490	
06...	318	102	14	13	1.26	0.642	0.83	0.410	
06...	340	108	14	11	1.27	0.579	0.75	0.340	
06...	344	108	14	12	1.28	0.567	0.73	0.310	
06...	356	112	15	12	1.35	0.506	0.65	0.290	
07...	358	110	11	10	1.30	0.452	0.58	0.250	
07...	372	114	16	10	1.26	0.414	0.53	0.240	
18...	482	132	51	17	1.11	0.114	0.15	0.050	

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	
MAR 1991										
	01...	602	176	284	72	--	--	--	--	
	01...	602	170	304	80	--	--	--	--	
	01...	652	170	376	84	--	--	--	--	
	01...	614	160	300	72	--	--	--	--	
	02...	512	132	236	52	--	--	--	--	
	02...	498	132	216	48	--	--	--	--	
	02...	418	112	136	26	--	--	--	--	
	02...	396	118	82	24	--	--	--	--	
	03...	518	128	192	36	1.22	0.432	0.56	0.480	
	21...	350	108	8	10	0.972	0.026	0.03	0.100	
APR										
	07...	384	118	2	4	0.714	0.046	0.06	0.090	
	25...	392	114	2	2	0.599	0.033	0.04	0.040	
MAY										
	22...	444	130	--	--	0.606	0.053	0.07	0.090	
JUN										
	05...	446	132	10	4	1.12	0.041	0.05	0.090	
	11...	--	10	--	<2	0.024	<0.005	--	<0.020	
	14...	548	156	168	32	0.729	0.218	0.28	0.580	
	14...	638	178	244	64	2.51	0.397	0.51	0.980	
	14...	808	210	396	100	2.84	0.265	0.34	1.16	
	14...	1140	264	708	136	4.70	0.248	0.32	1.38	
	14...	1280	258	800	160	5.33	0.226	0.29	3.11	
	15...	602	252	88	26	12.1	0.193	0.25	0.490	
	15...	544	200	56	20	5.61	0.098	0.13	0.240	
	16...	530	190	53	17	3.30	0.074	0.09	0.180	
	17...	432	140	14	9	2.10	0.035	0.05	0.090	
	26...	--	<10	--	<2	0.021	<0.005	--	<0.020	
JUL										
	10...	404	138	2	4	0.649	0.018	0.02	0.060	
	24...	412	116	22	10	0.580	0.017	0.02	0.100	
AUG										
	06...	430	148	10	4	0.496	0.021	0.03	0.050	
	08...	488	156	56	22	0.888	0.099	0.13	0.360	
	21...	434	148	2	2	0.575	0.010	0.01	0.050	
SEP										
	03...	412	122	--	<2	0.555	0.023	0.03	0.070	
	29...	392	128	2	2	0.412	0.017	0.02	0.040	
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)
JUN 1991										
14...	2010	24	--	--	0.29	2.2	0.30	1	<1	<0.2
14...	2011	24	18	15	<0.15	1.8	<0.30	1	<1	<0.2

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.5	10.0	12.0	13.5	7.5	10.0	6.0	2.5	4.0	.0	.0	.0
2	16.5	9.0	12.5	15.5	10.5	13.0	3.0	.5	2.0	.0	.0	.0
3	16.0	12.5	14.0	13.0	9.0	11.5	2.0	.0	.5	.0	.0	.0
4	15.5	10.5	12.5	9.0	6.5	7.5	.0	.0	.0	.0	.0	.0
5	18.0	10.5	14.0	6.5	4.0	5.0	.0	.0	.0	.0	.0	.0
6	20.0	14.0	16.5	7.5	4.0	5.5	.0	.0	.0	.0	.0	.0
7	14.0	9.5	12.0	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0
8	9.5	8.5	9.0	5.0	2.5	4.0	.0	.0	.0	.0	.0	.0
9	10.0	8.0	9.0	5.0	3.5	4.5	.0	.0	.0	.0	.0	.0
10	8.5	7.5	8.0	6.5	3.5	4.5	1.5	.0	.5	.0	.0	.0
11	12.5	6.5	9.0	5.0	2.0	3.5	3.5	1.0	2.0	.0	.0	.0
12	13.0	4.5	9.5	5.0	2.0	3.0	3.5	1.5	2.0	.0	.0	.0
13	12.0	7.5	9.5	5.5	1.5	3.0	2.0	.0	1.0	.0	.0	.0
14	11.5	9.5	10.5	8.0	2.5	5.0	2.5	.0	1.0	.0	.0	.0
15	13.0	7.5	10.0	11.5	7.0	9.0	2.5	1.5	2.0	.0	.0	.0
16	13.5	8.5	11.0	10.0	6.0	9.0	2.5	.5	1.5	.0	.0	.0
17	17.0	11.0	14.0	7.5	3.5	5.5	3.0	1.5	2.0	.0	.0	.0
18	14.5	6.5	10.0	7.0	4.5	5.5	3.0	1.5	2.0	.0	.0	.0
19	10.0	5.5	7.5	8.0	5.0	6.0	2.5	.0	1.5	.0	.0	.0
20	11.3	7.7	9.5	7.0	4.0	5.5	4.0	2.0	3.0	.0	.0	.0
21	10.5	8.0	10.0	11.5	6.5	9.0	3.0	2.0	2.5	.0	.0	.0
22	11.0	6.0	8.0	10.0	5.5	7.0	2.0	.0	.5	.0	.0	.0
23	11.5	7.0	9.0	6.0	1.5	4.5	.0	.0	.0	.0	.0	.0
24	10.5	7.0	8.5	4.0	.5	2.5	.0	.0	.0	.0	.0	.0
25	10.0	5.5	7.0	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0
26	9.5	4.0	6.5	6.0	1.5	3.5	.0	.0	.0	.0	.0	.0
27	10.5	6.5	7.5	10.0	6.0	9.0	.0	.0	.0	.0	.0	.0
28	9.5	5.0	6.5	9.0	2.0	5.5	.0	.0	.0	.0	.0	.0
29	9.5	4.0	6.5	3.5	.5	2.0	.0	.0	.0	.0	.0	.0
30	11.5	6.0	8.5	5.0	1.0	2.5	.0	.0	.0	.0	.0	.0
31	11.5	6.5	8.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	20.0	4.0	9.9	15.5	.5	5.8	6.0	.0	.9	.0	.0	.0
FEBRUARY			MARCH			APRIL			MAY			
1	.0	.0	.0	2.0	.0	1.0	9.0	2.0	5.0	13.0	8.5	10.5
2	.0	.0	.0	.5	.0	.1	11.0	1.5	6.0	14.5	8.0	10.5
3	.0	.0	.0	1.5	.0	.0	11.0	2.5	6.5	14.0	6.5	10.0
4	.0	.0	.0	3.0	.0	.5	9.5	5.0	7.5	17.5	8.5	12.0
5	.0	.0	.0	3.0	.0	1.0	16.5	6.0	11.0	10.5	8.5	9.0
6	.0	.0	.0	1.5	.0	1.0	19.5	10.5	14.5	---	---	---
7	.0	.0	.0	1.5	.0	.5	21.5	12.0	16.0	14.0	6.5	9.5
8	3.0	.0	1.0	4.0	.0	1.5	15.5	9.0	12.5	12.0	8.5	10.0
9	4.0	.5	1.5	3.0	1.0	2.0	8.5	3.0	6.0	---	---	---
10	2.0	.0	.5	6.0	.0	2.5	11.0	3.0	6.5	---	---	---
11	.0	.0	.0	5.0	1.0	2.0	8.5	5.0	6.5	23.5	14.0	18.5
12	.0	.0	.0	3.5	.0	1.5	5.5	4.5	5.0	24.5	16.0	19.5
13	.0	.0	.0	4.0	.0	1.5	8.0	4.5	6.0	---	---	20.0
14	.0	.0	.0	6.5	.0	2.0	8.0	5.0	6.5	24.0	16.0	---
15	.0	.0	.0	7.5	.0	3.0	11.0	6.5	8.0	26.0	16.5	20.5
16	.0	.0	.0	5.5	.5	3.0	14.0	5.5	9.0	23.0	17.0	20.0
17	.0	.0	.0	4.0	1.0	2.5	14.5	6.0	10.0	19.5	11.5	15.5
18	.0	.0	.0	6.0	2.0	3.5	13.0	6.0	9.5	12.5	10.0	11.0
19	.0	.0	.0	9.0	1.0	4.5	14.5	7.0	10.0	20.5	10.0	14.5
20	.0	.0	.0	7.5	1.5	4.0	14.0	4.5	9.0	22.5	11.0	16.5
21	.0	.0	.0	10.5	2.5	6.0	15.0	6.0	10.0	21.0	13.5	17.5
22	3.0	.0	1.0	4.5	3.5	4.0	16.5	5.5	10.5	21.5	16.5	19.0
23	.0	.0	.0	4.0	2.5	3.5	12.5	8.5	10.5	24.5	17.5	20.5
24	2.0	.0	.5	4.0	1.5	2.5	17.5	6.5	11.5	24.5	18.0	21.0
25	.0	.0	.0	9.0	1.0	4.5	16.0	8.0	12.0	21.0	17.0	19.0
26	.0	.0	.0	9.0	4.5	6.5	18.0	9.5	13.0	23.5	16.5	19.5
27	.0	.0	.0	11.5	6.5	8.5	14.0	10.5	12.0	26.5	17.0	21.5
28	.5	.0	.0	6.5	2.0	4.0	21.0	11.0	15.5	27.0	18.5	22.5
29	---	---	---	5.5	.5	2.5	15.5	13.5	14.0	28.0	19.5	23.0
30	---	---	---	8.0	.0	3.5	13.5	10.5	12.0	26.5	20.0	22.5
31	---	---	---	8.5	2.0	4.5	---	---	---	21.5	18.0	19.5
MONTH	4.0	.0	.2	11.5	.0	2.8	21.5	1.5	9.7	---	---	---

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	14.0	8.8	11.0
2	---	---	---	---	---	---	---	---	---	15.0	8.7	11.2
3	---	---	---	---	---	---	---	---	---	15.3	8.6	11.4
4	---	---	---	---	---	---	---	---	---	16.2	8.6	11.9
5	---	---	---	---	---	---	---	---	---	15.1	10.2	13.0
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	14.7	8.5	11.4
8	---	---	---	---	---	---	---	---	---	16.0	8.5	11.4
9	---	---	---	---	---	---	---	---	---	18.7	9.4	12.0
10	---	---	---	---	---	---	---	---	---	12.5	5.7	9.8
11	---	---	---	---	---	---	---	---	---	15.8	5.9	10.2
12	---	---	---	---	---	---	---	---	---	15.9	4.9	9.4
13	---	---	---	---	---	---	---	---	---	16.8	5.5	10.6
14	---	---	---	---	---	---	---	---	---	15.5	5.6	10.4
15	---	---	---	---	---	---	---	---	---	17.5	5.1	9.7
16	---	---	---	---	---	---	---	---	---	13.5	5.1	8.5
17	---	---	---	---	---	---	---	---	---	12.8	5.3	8.7
18	---	---	---	---	---	---	---	---	---	13.1	8.1	10.0
19	---	---	---	---	---	---	---	---	---	13.6	7.2	10.2
20	---	---	---	---	---	---	---	---	---	13.0	6.3	9.5
21	---	---	---	---	---	---	---	---	---	12.7	6.2	9.0
22	---	---	---	---	---	---	---	---	---	11.6	5.7	8.3
23	---	---	---	---	---	---	---	---	---	11.5	5.4	7.8
24	---	---	---	---	---	---	---	---	---	10.2	5.4	7.5
25	---	---	---	---	---	---	---	---	---	10.4	6.0	7.7
26	---	---	---	---	---	---	14.2	8.0	10.4	10.1	6.2	7.7
27	---	---	---	---	---	---	12.0	8.1	9.7	9.6	6.1	7.8
28	---	---	---	---	---	---	14.3	8.0	10.6	10.1	6.1	7.7
29	---	---	---	---	---	---	12.6	8.1	9.9	10.2	5.6	7.7
30	---	---	---	---	---	---	13.5	8.6	10.7	9.9	5.6	7.4
31	---	---	---	---	---	---	---	---	---	10.7	6.6	8.2
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE				JULY			AUGUST			SEPTEMBER		
1	10.5	8.0	8.9	9.3	4.9	6.4	10.9	5.7	8.1	11.8	5.7	8.1
2	10.8	8.1	9.3	10.4	4.5	7.1	10.3	6.0	7.6	12.5	5.5	8.3
3	11.9	8.9	10.2	10.8	4.6	7.2	10.7	6.9	8.2	9.1	5.6	6.5
4	11.9	9.4	10.5	11.0	5.0	7.4	11.6	6.8	8.7	10.4	5.9	7.8
5	12.7	7.1	9.4	10.6	4.3	7.2	11.9	6.7	9.0	10.6	6.2	8.0
6	9.8	7.8	8.6	9.6	3.9	6.4	12.0	6.2	8.9	11.1	5.9	7.8
7	10.5	8.3	9.1	9.7	4.2	6.2	11.8	6.2	8.4	10.9	5.0	7.5
8	10.5	8.8	9.5	10.7	4.9	7.3	8.6	6.5	7.7	11.3	5.6	7.4
9	11.0	9.1	10.0	11.5	5.4	7.6	10.8	7.1	8.8	10.9	4.5	7.2
10	11.3	9.7	10.4	12.4	5.3	8.0	11.0	6.9	8.7	10.3	5.0	7.1
11	11.9	5.7	9.7	12.5	5.4	8.4	11.6	6.5	8.8	10.0	5.9	7.6
12	11.8	5.9	8.6	7.8	5.5	6.7	11.5	6.4	8.6	10.7	6.3	7.5
13	12.3	6.1	9.1	10.1	6.8	8.0	12.0	6.1	8.6	11.1	6.4	7.9
14	12.0	6.2	7.9	10.7	6.2	8.3	12.0	5.8	8.4	11.0	6.6	8.1
15	8.9	6.7	7.7	11.1	5.9	8.3	11.2	5.1	7.9	10.4	5.9	7.6
16	11.0	7.5	9.0	11.1	5.2	7.9	10.9	5.3	7.4	11.0	6.0	8.0
17	11.9	6.9	9.3	10.8	5.4	7.3	10.6	5.6	7.6	11.6	7.0	9.0
18	11.9	6.4	9.0	11.1	5.1	7.6	9.9	5.9	7.7	11.8	7.1	9.4
19	11.7	5.9	8.6	9.8	5.3	7.3	10.5	7.1	8.5	12.5	9.4	10.6
20	11.7	5.8	8.4	10.4	5.1	7.4	11.3	6.3	8.5	13.9	9.8	11.2
21	12.4	5.9	8.6	10.1	5.4	7.0	11.5	6.0	8.5	13.9	9.5	11.6
22	12.4	6.8	9.1	10.0	4.6	6.9	11.0	5.3	7.8	13.3	9.5	10.6
23	13.0	6.5	9.5	10.0	5.1	7.3	11.2	6.0	8.1	14.6	10.0	11.8
24	13.3	5.9	9.2	10.7	5.9	7.9	11.6	5.7	8.1	14.5	10.3	11.8
25	14.0	5.7	9.2	10.5	6.2	8.3	11.2	5.0	7.7	14.0	10.6	11.8
26	12.6	4.5	8.5	11.5	6.4	8.8	10.8	4.6	7.1	15.2	11.0	12.6
27	10.8	3.8	6.8	11.8	5.9	8.6	10.9	4.4	7.1	15.6	11.4	13.1
28	10.4	3.5	6.5	9.1	6.2	7.6	11.1	4.5	7.2	15.4	11.2	13.1
29	9.8	3.2	5.9	9.4	6.1	7.8	10.9	3.6	6.8	15.9	9.1	12.6
30	11.0	3.6	7.0	10.4	6.5	8.4	10.7	4.0	6.6	13.4	8.1	10.1
31	---	---	---	10.7	5.8	8.2	10.9	4.9	7.5	---	---	---
MONTH	14.0	3.2	8.8	12.5	3.9	7.6	12.0	3.6	8.0	15.9	4.5	9.4

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (TONS PER DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.03	.16	.16	.13	3.0	.21	.09	1.87	.04	.14	.03
2	.03	.03	.15	.16	.23	14	.17	.09	2.37	.05	.12	.03
3	.03	.03	.12	.16	.51	9.5	.14	.09	.95	.04	.11	.04
4	.03	.04	.10	.17	2.5	1.4	.12	.09	.53	.04	.09	.04
5	.03	.83	.10	.17	2.6	.49	.11	.12	.16	.04	.08	.04
6	.03	.57	.19	.19	2.2	.58	.10	.17	.14	.04	.09	.03
7	.03	.29	.22	.21	1.7	.58	.09	.16	.12	.04	.23	.03
8	.03	.22	.22	.23	1.2	.34	.98	.18	.11	.04	1.1	.03
9	.03	.22	.25	.21	.84	.29	26.4	1.3	.11	.04	.77	.03
10	.05	.24	.27	.19	.73	.29	27.7	.95	.11	.04	.49	.03
11	.06	.21	.30	.18	.60	.31	9.66	.20	.10	.05	.33	.03
12	.05	.17	2.37	.17	.49	.34	4.84	.21	.09	.08	.23	.03
13	.05	.15	2.37	.19	.47	.34	.19	.23	.09	.11	.17	.03
14	.05	.14	1.00	.18	.45	.33	19.2	.19	16	.11	.13	.03
15	.06	.14	.28	.15	.45	.34	15.0	.25	17	.10	.10	.04
16	.05	.13	.29	.12	.44	.39	6.72	.26	2.1	.10	.07	.04
17	.05	.12	.26	.10	.45	.46	2.80	.28	.53	.11	.06	.03
18	.08	.11	.28	.17	.47	.58	.12	.29	.23	.12	.05	.03
19	.06	.10	.24	.10	.48	.72	.10	.32	.12	.13	.04	.03
20	.05	.10	.27	.07	.48	.79	.08	.34	.07	.14	.03	.03
21	.06	.11	.21	.09	.43	.83	.07	.37	.05	.15	.02	.02
22	.06	.11	.16	.08	.61	.83	.07	.38	.05	.19	.02	.03
23	.05	.10	.14	.08	.83	13.1	.06	.39	.05	.19	.02	.02
24	.04	.09	.13	.08	.68	.91	.06	.46	.04	.20	.03	.02
25	.04	.08	.13	.08	.61	.58	.06	.37	.04	.18	.03	.02
26	.04	.23	.13	.08	.57	3.75	.05	.85	.04	.17	.03	.02
27	.04	1.23	.14	.10	.55	13.1	.08	.82	.04	.15	.03	.02
28	.03	3.26	.20	.12	.64	10.5	.10	.36	.04	.16	.03	.02
29	.03	1.23	.24	.11	---	.43	.09	.29	.04	.30	.03	.02
30	.03	.17	.21	.09	---	.29	.09	.25	.04	.21	.03	.02
31	.03	---	.18	.10	---	.24	---	.95	---	.17	.03	---
TOTAL	1.33	10.48	11.31	4.29	22.34	79.63	115.46	11.30	43.23	3.53	4.73	0.86

WTR YR 1991 TOTAL 308.49

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	.82	2.4	1.6	1.2	14	4.4	1.3	17.0	.95	.97	.63
2	.65	.82	2.1	1.5	2.2	81	3.8	1.2	20.8	1.1	.80	.65
3	.74	.82	1.7	1.5	8.4	45	3.3	1.2	9.66	.97	.74	.97
4	.86	.95	1.5	1.6	68	11	3.1	1.1	5.93	.92	.61	.97
5	.78	13	1.4	1.6	78	5.4	3.0	1.4	2.0	.96	.57	.86
6	.75	11	2.6	1.7	57	6.5	2.9	1.8	1.7	.95	.62	.79
7	.71	7.0	3.0	1.8	33	6.5	2.7	1.7	1.6	.89	1.9	.75
8	.72	5.2	3.1	2.0	17	3.8	9.89	1.7	1.5	.86	10	.73
9	.86	5.1	3.5	1.8	9.8	3.2	154	12	1.4	.82	7.6	.71
10	1.3	5.5	3.7	1.6	6.8	3.2	161	8.0	1.4	.85	5.2	.63
11	1.6	4.5	4.1	1.5	4.4	3.5	66.8	1.6	1.3	.83	3.8	.59
12	1.3	3.7	20.7	1.4	2.9	3.8	37.6	1.6	1.2	1.4	2.9	.69
13	1.2	3.2	20.7	1.6	2.2	3.8	5.1	1.6	1.2	1.6	2.3	.66
14	1.3	2.8	10.1	1.4	1.7	3.7	119	1.3	93	1.6	1.9	.67
15	1.4	2.7	3.6	1.2	1.4	3.8	96.6	1.5	122	1.3	1.6	.89
16	1.2	2.5	3.7	.91	1.1	4.3	49.4	1.5	12	1.2	1.3	.81
17	1.1	2.2	3.2	.78	.86	5.1	23.8	1.5	3.9	1.2	1.1	.68
18	1.9	2.0	3.3	1.3	.73	6.5	2.9	1.5	2.4	1.2	.95	.69
19	1.5	1.9	2.9	.74	.70	8.0	2.3	1.6	2.0	1.2	.81	.60
20	1.3	1.7	3.1	.53	.70	8.8	1.9	1.6	1.7	1.2	.70	.55
21	1.5	1.8	2.4	.61	5.02	9.2	1.6	1.6	1.4	1.2	.59	.52
22	1.4	1.8	1.9	.55	6.70	9.7	1.4	1.6	1.3	1.4	.61	.53
23	1.3	1.6	1.6	.54	1.21	86.2	1.3	1.8	1.2	1.3	.59	.50
24	1.1	1.4	1.5	.51	1.0	12	1.2	2.3	1.2	1.3	.62	.46
25	.99	1.3	1.4	.50	.89	8.00	1.3	2.0	1.1	1.2	.65	.45
26	.94	2.92	1.4	.56	.84	30.4	1.03	8.78	1.1	1.1	.66	.44
27	.91	12.0	1.5	.63	.81	86.2	1.36	8.56	1.1	.97	.66	.43
28	.85	27.0	2.1	.76	.94	71.5	1.63	2.41	.98	1.0	.68	.42
29	.82	12.0	2.4	.69	---	7.5	1.5	2.1	.97	2.0	.69	.40
30	.82	2.5	2.1	.64	---	5.3	1.4	2.0	.91	1.4	.69	.38
31	.82	---	1.8	.75	---	4.7	---	9.66	---	1.2	.63	---
TOTAL	33.30	141.73	120.5	34.80	315.50	561.60	767.21	89.51	314.95	36.07	53.44	19.05

WTR YR 1991 TOTAL 2487.66

## STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 1, 1990. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 9, Dec. 12, 15, 17-20, Jan. 5-6, 8-9, 11 and 16, Feb. 14, 18, 23, and Mar. 6, 8. Recorded precipitation interpreted as collector rain/snowfall, and rainfall estimated to be 0.00 for Dec. 29 and Mar. 2, 28, 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.39 in., June 14.

 RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
 DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.00	.00	.74	.00	.00	.31	.30	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.08	.00
3	.41	.09	.00	.00	.00	.00	.00	.00	.00	.00	.01	.79
4	.00	.20	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00
5	.00	.79	.00	.00	.00	.00	.00	.39	.00	.01	.00	.00
6	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.04	.01	.00	.00	.00	.00	.00	.01	.00	.03	.13	.02
8	.35	.00	.00	.00	.00	.00	.59	.14	.00	.00	1.22	.01
9	.02	.00	.00	.00	.00	.00	1.25	.00	.00	.17	.00	.00
10	.52	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
12	.00	.00	.00	.00	.00	.00	.03	.05	.00	1.10	.00	.36
13	.00	.00	.00	.00	.00	.00	.02	.00	.00	.40	.01	.00
14	.30	.00	.00	.00	.00	.00	.58	.00	2.39	.00	.00	.51
15	.00	.00	.00	.00	.00	.00	.07	.00	.08	.00	.00	.08
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.23
17	.28	.00	.00	.00	.00	.07	.00	.13	.00	.13	.00	.21
18	.06	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.06
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	.00
20	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.17	.17	.00	.00	.00	.01	.00	.00	.00	.04	.00	.01
22	.00	.00	.00	.00	.00	.09	.00	.04	.08	.23	.00	.12
23	.00	.00	.00	.00	.00	.34	.01	.40	.00	.00	.02	.00
24	.00	.00	.00	.00	.00	.00	.00	.05	.00	.03	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.09
26	.00	.11	.00	.00	.00	.03	.00	.26	.00	---	.00	.00
27	.00	.48	.01	.00	.00	.60	.25	.00	.00	.00	.00	.00
28	.00	.03	.48	.00	.00	.00	.01	.00	.00	.73	.00	.01
29	.00	.00	.00	.00	---	.00	.03	.00	.06	.88	.00	.01
30	.00	.00	.00	.00	---	.00	.00	.46	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.36	---	.10	.00	---
TOTAL	2.18	1.89	0.49	0.00	0.00	1.88	2.84	2.40	---	---	1.70	2.55



## STREAMS TRIBUTARY TO LAKE MICHIGAN

149

04086000 SHEBOYGAN RIVER AT SHEBOYGAN, WI

LOCATION.--Lat 43°44'25", long 87°45'35", in SE 1/4 NE 1/4 sec.29, T.15 N., R.23 E., Sheboygan County, Hydrologic Unit 04030101, on left bank 400 ft upstream from bridge on State Highway 141, near west city limits of Sheboygan, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--418 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1916 to September 1924 (published as "near Sheboygan"), October 1950 to current year. Monthly discharge only for some periods, published in WSP 1307, 1727.

REVISED RECORDS.--WSP 1307: 1917(M), 1919(M), 1921(M), 1923(M). WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 584.00 ft above National Geodetic Vertical Datum of 1929.

June 1916 to June 1924, nonrecording gage at site 0.7 mi downstream at different datum. November 1950 to June 1951, nonrecording gage at site 0.3 mi downstream at datum 3.15 ft lower.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is poor. Diurnal fluctuation caused by numerous powerplants above station.

AVERAGE DISCHARGE.--49 years (water years 1917-24, 1951-91), 258 ft<sup>3</sup>/s, 8.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft<sup>3</sup>/s, Mar. 22, 1975, gage height, 11.64 ft; minimum observed, about 1 ft<sup>3</sup>/s, Aug. 27, 1922, gage height, 1.48 ft datum then in use, caused by shutdown of powerplants.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	0230	ice jam	*9.26	Apr. 10	0330	1,660	5.98
Mar. 28	0315	*1,810	6.19	Apr. 14	2315	1,720	6.06

Minimum discharge, 29 ft<sup>3</sup>/s, Sept. 1, gage height, 1.63 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 23 to Mar. 16.)

1.6	30	3.0	270
1.8	50	4.0	596
2.0	80	5.0	1,060
2.5	165	6.0	1,680

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	117	234	140	90	250	843	245	217	130	98	31
2	161	144	222	130	90	1200	746	245	269	153	86	30
3	121	149	193	120	94	1000	672	227	251	175	72	40
4	114	156	105	100	110	900	606	196	214	133	71	61
5	134	215	250	94	250	680	550	158	179	119	62	63
6	127	377	248	110	600	560	494	160	161	112	60	51
7	121	323	244	100	540	600	435	169	146	97	57	46
8	117	275	231	94	540	600	414	155	125	83	140	44
9	126	259	226	96	520	560	754	197	129	84	196	43
10	153	280	249	98	450	540	1440	210	124	81	143	43
11	211	291	275	100	450	540	1120	202	123	67	98	42
12	212	267	329	110	350	520	870	196	125	99	78	52
13	189	252	440	110	270	500	735	312	115	121	75	54
14	186	240	400	110	250	520	1100	227	181	132	64	58
15	206	230	352	110	230	540	1510	231	1460	110	61	78
16	202	233	369	110	210	520	1230	183	939	97	55	124
17	193	221	347	110	200	529	960	165	744	89	54	114
18	246	208	375	100	190	552	772	156	539	84	55	87
19	270	201	352	94	190	637	680	143	265	78	53	73
20	234	196	330	92	190	707	597	136	204	86	56	67
21	223	197	425	90	200	788	534	128	185	93	53	58
22	231	203	390	88	240	855	483	124	174	106	51	56
23	222	198	300	88	220	1230	441	126	161	102	48	55
24	218	193	220	90	190	1370	399	149	161	94	48	57
25	212	178	200	90	190	1170	352	157	165	77	44	62
26	203	178	180	82	180	1060	314	144	164	76	45	58
27	201	199	160	84	160	1300	285	153	154	74	44	57
28	197	279	160	90	160	1670	297	143	153	102	42	57
29	184	312	180	98	---	1240	285	127	145	165	41	50
30	180	255	170	98	---	1040	248	117	134	172	40	49
31	172	---	160	90	---	902	---	140	---	133	37	---
TOTAL	5732	6826	8316	3116	7354	25080	20166	5421	8106	3324	2127	1760
MEAN	185	228	268	101	263	809	672	175	270	107	68.6	58.7
MAX	270	377	440	140	600	1670	1510	312	1460	175	196	124
MIN	114	117	105	82	90	250	248	117	115	67	37	30
CFSM	.44	.54	.64	.24	.63	1.94	1.61	.42	.65	.26	.16	.14
IN.	.51	.61	.74	.28	.65	2.23	1.79	.48	.72	.30	.19	.16

CAL YR 1990 TOTAL 90112 MEAN 247 MAX 3010 MIN 42 CFSM .59 IN. 8.02  
WTR YR 1991 TOTAL 97328 MEAN 267 MAX 1670 MIN 30 CFSM .64 IN. 8.66

## 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1930 to September 1970, July 1973 to September 1981, August 1983 to September 1987, October 1990 to September 1991.

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 National Geodetic Vertical Datum of 1929 (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: Nov. 5, 27, 28, and ice period listed in rating table below. Records good except those for estimated daily discharges, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--53 years (water years 1931-70, 1974-81, 1984-87, 1991), 72.2 ft<sup>3</sup>/s, 8.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, about 3,600 ft<sup>3</sup>/s, Mar. 30, 1960, gage height, 12.25 ft, from graph based on gage readings, backwater from ice; minimum observed, 0.20 ft<sup>3</sup>/s, Aug. 9-12, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 3	2200	ice jam	*8.63	Apr. 16	1045	*475	7.25
Mar. 28	2130	*475	7.25	June 16	1015	407	7.03

Minimum discharge, 9.4 ft<sup>3</sup>/s, Sept. 11, gage height, 5.16 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 22 to Mar. 12.)

5.1	6.0	5.7	74
5.2	12	6.0	134
5.3	22	7.0	398
5.5	44	8.0	732

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	25	69	50	27	60	226	101	83	28	19	11
2	17	25	62	45	28	220	180	88	205	46	16	10
3	19	26	52	41	32	320	150	80	220	44	15	11
4	35	29	51	39	40	270	129	77	163	34	15	19
5	38	56	75	38	64	250	121	77	106	29	13	20
6	28	110	79	38	96	200	112	123	73	27	11	15
7	24	101	74	37	90	180	99	107	52	27	11	11
8	23	80	67	37	86	150	98	95	42	42	36	10
9	24	67	66	37	94	130	267	97	35	49	115	10
10	29	67	71	36	96	120	386	87	32	40	74	10
11	56	67	81	37	86	110	372	76	37	33	50	9.6
12	57	60	85	35	74	96	294	66	35	30	38	14
13	43	54	129	36	60	93	224	61	31	30	31	28
14	37	52	114	37	52	88	281	56	54	30	25	21
15	44	50	94	39	40	89	428	50	339	31	22	32
16	46	46	97	39	38	93	465	43	395	26	19	64
17	41	44	95	39	40	92	412	40	337	24	18	75
18	46	42	104	38	44	111	320	41	219	21	18	47
19	55	42	106	41	50	139	228	49	125	21	20	40
20	47	41	94	41	52	150	166	46	82	19	23	36
21	41	42	107	36	60	154	136	48	65	21	22	34
22	40	51	76	34	74	178	115	45	58	48	20	32
23	36	51	66	33	72	233	104	39	56	37	21	34
24	35	47	58	30	62	255	135	36	47	31	24	32
25	34	44	50	27	48	224	124	35	40	28	22	30
26	33	41	42	27	44	237	106	45	35	25	19	29
27	30	43	38	27	42	368	104	44	31	23	16	26
28	28	120	44	28	38	454	165	43	27	21	14	23
29	26	109	70	27	---	455	133	34	23	22	13	22
30	26	81	66	27	---	377	118	37	20	24	13	21
31	25	---	56	27	---	291	---	71	---	22	13	---
TOTAL	1081	1713	2338	1103	1629	6187	6198	1937	3067	933	786	776.6
MEAN	34.9	57.1	75.4	35.6	58.2	200	207	62.5	102	30.1	25.4	25.9
MAX	57	120	129	50	96	455	465	123	395	49	115	75
MIN	17	25	38	27	27	60	98	34	20	19	11	9.6
CFSM	.29	.48	.63	.30	.48	1.66	1.72	.52	.85	.25	.21	.22
IN.	.34	.53	.72	.34	.50	1.92	1.92	.60	.95	.29	.24	.24

WTR YR 1991 TOTAL 27748.6 MEAN 76.0 MAX 465 MIN 9.6 CFSM .63 IN. 8.60

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04086500 CEDAR CREEK NEAR CEDARBURG, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
OCT 1990									
17...	1550	38	55	2	568	--	<2	--	--
18...	0815	38	54	7	564	3	4	--	--
19...	0815	34	52	14	550	9	5	--	--
20...	0815	40	56	5	582	2	3	--	--
21...	0815	33	55	9	588	4	5	--	--
22...	0815	47	55	6	584	2	4	--	--
23...	0815	79	54	4	570	1	3	--	--
24...	1545	106	53	2	558	0	2	--	--
NOV									
01...	1210	26	--	4	532	0	4	9.0	7.4
05...	1545	53	50	14	504	7	7	--	--
06...	0415	90	54	18	530	11	7	--	--
*06...	1230	121	57	22	526	14	8	--	--
06...	1245	110	56	20	530	12	8	--	--
07...	0415	108	62	20	558	12	8	--	--
09...	0415	69	55	12	604	8	4	--	--
10...	0415	64	--	6	598	3	3	--	--
11...	0415	69	56	10	596	6	4	--	--
12...	0415	61	56	6	610	3	3	--	--
13...	0415	56	54	6	586	3	3	--	--
14...	0415	52	52	6	572	3	3	--	--
25...	0430	45	50	4	524	0	4	--	--
27...	1300	58	46	4	494	0	5	--	--
28...	1115	125	46	29	532	17	12	--	--
29...	1129	110	50	18	568	9	9	--	--
DEC									
13...	1245	148	--	41	556	31	10	--	--
18...	1500	108	--	6	538	3	3	--	--
JAN 1991									
*25...	1110	27	56	2	552	--	<2	--	--
FEB									
*28...	1215	38	48	4	562	--	<2	--	--
MAR									
15...	1025	90	39	8	476	4	4	--	--
18...	1230	112	40	6	460	4	2	--	--
*27...	1040	391	44	67	508	52	15	--	--
27...	1812	416	40	62	488	44	18	--	--
*28...	1155	456	35	40	440	29	11	--	--
28...	1200	456	35	50	476	39	11	--	--
28...	1215	456	35	43	452	32	11	--	--
29...	1215	459	37	18	466	12	6	--	--
29...	1630	446	37	18	470	1	17	--	--
30...	1215	378	38	12	448	8	4	--	--
31...	1215	377	37	12	446	9	3	--	--
APR									
01...	1215	226	38	11	444	9	2	--	--
09...	0730	233	38	64	498	50	14	--	--
09...	1345	289	39	49	456	38	11	--	--
09...	1930	345	42	50	454	39	11	--	--
10...	1930	395	39	32	456	22	10	--	--
11...	1930	354	38	16	456	11	5	--	--
12...	1930	263	37	9	450	5	4	--	--
13...	1930	210	38	10	452	6	4	--	--
14...	0915	233	39	13	436	9	4	--	--
14...	1130	284	38	20	434	14	6	--	--
14...	2000	351	37	28	430	21	7	--	--
15...	0715	407	36	43	408	32	11	--	--
16...	0715	465	34	46	438	33	13	--	--
17...	0715	431	35	49	462	36	13	--	--
19...	0715	243	37	21	450	14	7	--	--
23...	1115	100	38	30	460	21	9	--	--
MAY									
06...	1115	127	40	34	494	22	12	--	--
20...	1146	42	44	10	512	6	4	--	--
*20...	1147	42	44	10	496	6	4	--	--

\* MULTIPLE VERTICAL SAMPLES.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04086500 CEDAR CREEK NEAR CEDARBURG, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
JUN 1991								
01...	2359	144	40	600	856	460	140	--
02...	0230	193	38	228	640	172	56	--
03...	0230	218	36	116	524	72	44	--
04...	0230	188	38	78	558	52	26	--
07...	1145	50	43	32	504	19	13	--
*07...	1146	50	43	33	514	22	11	--
12...	0845	34	46	29	544	20	9	--
*12...	0846	34	45	17	528	11	6	15.0
14...	2145	158	35	252	632	208	44	--
14...	2230	180	30	510	844	420	90	--
14...	2359	240	28	450	786	360	90	--
15...	0230	292	26	524	836	444	80	--
15...	2045	356	25	136	484	110	26	--
16...	2045	392	28	63	462	50	13	--
17...	1023	348	31	59	508	46	13	--
*17...	1025	348	31	53	506	43	10	--
19...	0515	141	34	82	494	61	21	--
24...	1100	50	39	29	500	17	12	--
*24...	1102	50	39	19	490	12	7	--
JUL								
09...	1230	50	43	28	420	20	8	--
*09...	1231	50	45	37	460	24	13	--
AUG								
*01...	1100	18	48	6	462	4	2	--
*06...	0905	11	54	8	502	4	4	5.00
08...	1815	47	46	44	444	27	17	--
09...	0145	112	47	110	516	78	32	--
09...	1700	112	45	104	510	70	34	--
11...	1715	44	47	38	526	20	18	--
SEP								
15...	1830	40	57	32	492	16	16	--
16...	0950	51	53	22	472	15	7	--
16...	1000	51	54	39	492	25	14	--
*16...	1015	51	53	34	480	22	12	--
16...	1800	83	51	50	468	33	17	--
30...	0950	22	54	<2	450	--	<2	--
*30...	0956	22	54	4	458	1	3	--

\* MULTIPLE VERTICAL SAMPLES.

## 04086525 CEDAR CREEK, AT COLUMBIA ROAD, IN CEDARBURG, WI

LOCATION.--Lat 43°17'49", long 87°59'09", in SE 1/4 SE 1/4 sec.27, T.10 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, at bridge on Columbia Road, in Cedarburg.

DRAINAGE AREA.--121 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
NOV 1990									
06...	1335	54	12	524	4	8	10	8.4	--
14...	0840	52	5	574	3	2	12	9.8	--
MAR 1991									
18...	1310	40	4	458	2	2	13	11	--
27...	1130	--	36	482	28	8	14	10	--
28...	1300	--	27	438	18	9	15	11	--
29...	1030	--	14	456	--	<2	16	11	--
APR									
10...	0745	--	20	444	16	4	14	12	--
JUN									
12...	0935	48	13	560	9	4	10	9.5	20.0
AUG									
06...	0945	55	21	516	14	7	6.3	5.9	9.00
09...	1130	48	31	426	23	8	7.0	6.5	--
SEP									
16...	1045	56	8	466	5	3	6.3	6.1	10.0
30...	1030	53	4	446	2	2	6.9	6.9	3.00

## 04086528 CEDAR CREEK, AT HIGHLAND ROAD, AT CEDARBURG, WI

LOCATION.--Lat 43°18'01", long 87°58'31", in NE 1/4 SW 1/4 sec.26, T.10 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, at bridge on Highland Road, 0.8 mi northeast of post office in Cedarburg.

DRAINAGE AREA.--123 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
NOV 1990									
06...	1515	53	6	514	3	3	10	8.2	--
14...	1000	52	4	584	2	2	11	9.8	--
MAR 1991									
18...	1445	41	6	458	2	4	13	11	--
27...	1410	--	30	472	25	5	14	9.9	--
28...	1430	--	25	436	16	9	16	11	--
29...	1240	--	14	452	10	4	17	12	--
APR									
10...	1115	--	17	436	13	4	14	11	--
15...	1630	--	25	420	16	9	13	9.3	--
JUN									
12...	1120	49	19	576	13	6	12	10	38.0
AUG									
06...	1200	55	35	528	22	13	7.0	6.5	43.0
09...	1300	--	--	--	--	--	6.6	6.3	--
SEP									
16...	1230	54	12	444	8	4	6.4	6.0	10.0
30...	1215	52	4	436	2	2	6.2	7.3	4.00

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04086530 CEDAR CREEK, DOWNSTREAM FROM WIRE AND NAIL POND, NEAR CEDARBURG, WI

LOCATION.--Lat 43°18'05", long 87°57'60", in SE 1/4 NE 1/4 sec.26, T.10 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, at bridge on private drive, approximately 900 ft downstream from dam at Wire and Nail pond, 1.2 mi northeast of post office in Cedarburg.

DRAINAGE AREA.--124 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
APR 1991									
10...	1700	40	16	432	12	4	15	11	--
15...	1445	--	26	420	16	10	11	8.4	--
JUN									
12...	1330	50	14	568	7	7	11	11	46.0
AUG									
06...	1400	55	19	508	9	10	7.6	6.2	50.0
09...	1445	48	31	422	21	10	6.3	6.0	--
SEP									
16...	1430	53	10	436	6	4	5.8	5.5	9.00
30...	1420	51	3	432	1	2	6.3	5.7	2.00

## STREAMS TRIBUTARY TO LAKE MICHIGAN

155

04086540 CEDAR CREEK, AT GREEN BAY ROAD, AT CEDARBURG, WI

LOCATION.--Lat 43°17'02", long 87°59'17", in NW 1/4 SE 1/4 sec.35, T.10 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, at bridge on Green Bay Road, 1.1 mi southeast of post office in Cedarburg.

DRAINAGE AREA.--126 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON- FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
OCT 1990									
17...	1530	40	68	4	574	2	2	--	--
19...	2000	--	63	9	588	5	4	--	--
20...	2000	--	66	6	572	2	4	--	--
24...	1530	--	74	3	604	0	4	--	--
NOV									
01...	0920	--	--	5	574	1	4	8.9	7.4
05...	0645	--	62	16	552	7	9	--	--
06...	0645	--	55	15	500	8	7	--	--
06...	0924	--	55	22	502	12	10	--	--
*06...	0925	--	56	11	494	6	5	9.9	7.7
06...	1315	--	55	14	498	8	6	--	--
07...	1315	--	64	10	542	6	4	--	--
08...	1315	--	65	6	582	4	2	--	--
09...	1315	--	64	6	606	2	4	--	--
10...	1315	--	62	6	610	4	2	--	--
11...	1315	--	60	5	598	3	2	--	--
12...	1315	--	67	6	612	4	2	--	--
13...	1315	--	67	6	616	3	3	--	--
14...	1315	--	67	6	610	4	2	--	--
*14...	1320	--	75	4	616	2	2	11	9.9
14...	1600	--	51	4	568	2	2	--	--
24...	1315	--	59	4	534	0	4	--	--
27...	1600	--	61	5	536	1	4	--	--
29...	1300	--	55	10	532	3	7	--	--
DEC									
14...	1045	--	--	<2	542	--	<2	--	--
17...	1045	--	--	6	558	--	<2	--	--
18...	1015	--	--	5	548	3	2	--	--
FEB 1991									
*28...	1335	--	65	4	610	--	<2	--	--
MAR									
15...	1230	--	50	17	482	12	5	--	--
*18...	1630	--	48	5	468	1	4	12	9.9
19...	0915	--	45	13	482	8	5	--	--
20...	0915	--	50	8	478	4	4	--	--
21...	0915	--	42	8	460	4	4	--	--
22...	0915	--	40	9	456	7	2	--	--
23...	0001	--	39	13	452	8	5	--	--
24...	0001	--	44	10	466	--	<2	--	--
25...	0001	--	46	9	474	5	4	--	--
26...	0001	--	44	8	480	6	2	--	--
27...	0001	--	43	16	464	9	7	--	--
27...	0815	--	41	20	458	15	5	--	--
27...	1430	--	47	22	466	16	6	--	--
*27...	1630	--	47	82	492	64	18	14	9.6
27...	1700	--	48	56	496	44	12	--	--
28...	1600	--	39	34	442	25	9	--	--
*28...	1630	--	40	32	450	22	10	15	11
*29...	1500	--	40	14	462	10	4	16	12
29...	1700	--	40	20	438	17	3	--	--
30...	1700	--	41	12	446	10	2	--	--
31...	1700	--	41	10	450	8	2	--	--

\* MULTIPLE VERTICAL SAMPLES.

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04086540 CEDAR CREEK, AT GREEN BAY ROAD, AT CEDARBURG, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
APR 1991									
01...	1700	41	9	450	7	2	--	--	--
02...	1700	42	10	450	8	2	--	--	--
03...	1700	43	10	450	--	<2	--	--	--
09...	0515	41	32	458	24	8	--	--	--
09...	1015	43	21	458	16	5	--	--	--
09...	1530	42	23	454	18	5	--	--	--
09...	2145	42	30	448	23	7	--	--	--
10...	1415	46	21	446	16	5	--	--	--
*10...	1430	45	19	442	14	5	15	10	--
*10...	1431	46	18	448	15	3	--	--	--
11...	1430	40	18	456	13	5	--	--	--
12...	1430	40	9	456	5	4	--	--	--
13...	1430	41	6	452	3	3	--	--	--
14...	1415	41	14	442	10	4	--	--	--
14...	2200	42	22	442	15	7	--	--	--
15...	0845	40	33	422	24	9	--	--	--
*15...	1245	40	33	424	22	11	11	8.3	--
16...	0845	36	32	432	23	9	--	--	--
18...	0845	39	24	462	17	7	--	--	--
20...	0845	41	14	458	8	6	--	--	--
23...	1215	47	16	460	9	7	--	--	--
29...	0600	47	26	474	19	7	--	--	--
MAY									
01...	0600	46	21	514	14	7	--	--	--
03...	0600	48	16	510	11	5	--	--	--
06...	1310	48	14	480	10	4	--	--	--
20...	1334	63	19	560	12	7	--	--	--
20...	1335	64	6	556	3	3	--	--	--
31...	1400	57	28	488	17	11	--	--	--
31...	1515	53	25	444	14	11	--	--	--
JUN									
01...	1415	55	18	450	10	8	--	--	--
02...	0115	51	17	438	9	8	--	--	--
02...	0215	47	28	426	16	12	--	--	--
03...	0215	43	45	486	32	13	--	--	--
04...	0215	42	40	502	27	13	--	--	--
05...	0215	44	30	520	19	11	--	--	--
07...	1140	57	11	536	5	6	--	--	--
*07...	1141	57	7	526	0	7	--	--	--
*12...	1530	68	6	590	2	4	12	11	29.0
12...	1531	68	35	602	26	9	--	--	--
14...	2145	57	21	530	14	7	--	--	--
14...	2200	52	19	492	13	6	--	--	--
15...	0115	42	38	462	28	10	--	--	--
15...	0345	39	47	458	36	11	--	--	--
15...	0630	39	68	470	52	16	--	--	--
16...	0630	28	84	456	66	18	--	--	--
17...	1140	32	41	482	32	9	--	--	--
*17...	1141	32	59	496	46	13	--	--	--
19...	1200	39	29	444	18	11	--	--	--
24...	1300	53	33	470	22	11	--	--	--
*24...	1301	52	9	462	5	4	--	--	--
JUL									
07...	1800	68	28	498	18	10	--	--	--
09...	1145	54	17	452	11	6	--	--	--
*09...	1146	54	12	440	8	4	--	--	--
AUG									
01...	1330	70	12	502	8	4	--	--	--
*06...	1545	75	8	554	4	4	6.1	5.8	11.0
08...	0915	70	27	498	15	12	--	--	--
09...	0500	45	19	368	10	9	--	--	--
*09...	1615	54	26	424	17	9	6.2	5.9	--
09...	1630	55	20	434	11	9	--	--	--
SEP									
12...	0700	80	23	508	12	11	--	--	--
16...	0330	69	17	474	8	9	--	--	--
*16...	1615	65	4	452	2	2	5.5	5.3	6.00
16...	1616	66	9	458	3	6	--	--	--
*30...	1615	84	2	500	0	2	6.0	5.4	6.00
30...	1616	83	11	512	5	6	--	--	--

\* MULTIPLE VERTICAL SAMPLES.



## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04086600 MILWAUKEE RIVER NEAR CEDARBURG, WI

LOCATION.--Lat 43°16'49", long 87°56'30", 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 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 653.558 ft above National Geodetic Vertical Datum of 1929 (South-eastern Wisconsin Regional Planning Commission bench mark).

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor.

AVERAGE DISCHARGE.--9 years, 481 ft<sup>3</sup>/s, 10.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,860 ft<sup>3</sup>/s, Mar. 27, 1989, gage height, 12.21 ft; maximum gage height, 12.85 ft, Mar. 1, 1985, backwater from ice; minimum daily, 42 ft<sup>3</sup>/s, July 9, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 4	1145	ice jam	*10.98	June 15	1700	*1,910	8.58

Minimum daily, 83 ft<sup>3</sup>/s, Sept. 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-9, 13-16, and Dec. 22 to Mar. 22.)

5.4	75	7.0	923
5.5	105	8.0	1,520
6.0	350	9.0	2,210

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	166	339	200	200	350	1090	479	358	233	163	84
2	112	159	316	200	210	1200	1020	437	690	292	147	83
3	140	154	250	200	230	1500	872	394	808	323	134	91
4	154	172	170	190	350	1500	755	362	665	305	126	103
5	195	267	200	190	450	1400	697	361	494	263	121	137
6	154	345	250	190	640	1100	638	461	379	232	112	121
7	134	356	270	190	580	1000	569	488	317	251	109	103
8	127	332	280	190	540	800	532	472	268	215	289	96
9	132	329	290	180	540	700	760	479	223	224	482	95
10	179	328	292	180	600	640	1230	463	198	193	432	95
11	209	329	314	170	520	580	1340	431	186	171	313	88
12	249	312	342	170	450	540	1270	386	171	170	260	135
13	234	297	350	180	380	500	1190	346	151	199	218	151
14	235	279	360	180	350	470	1330	319	198	217	185	169
15	265	264	370	190	310	470	1660	295	1570	208	162	207
16	282	252	400	190	280	500	1600	263	1690	182	146	358
17	267	242	429	190	270	540	1410	246	1380	160	144	525
18	255	235	449	200	270	580	1240	237	1090	148	132	366
19	270	226	436	210	280	620	1090	251	929	141	125	303
20	271	216	415	210	280	660	922	245	807	134	145	263
21	270	226	438	190	280	700	799	223	681	177	137	225
22	270	237	420	190	300	900	799	204	558	488	132	210
23	271	241	200	190	330	1170	745	214	469	452	125	189
24	262	235	170	190	300	1230	690	229	390	319	126	179
25	249	224	160	180	290	1200	626	254	328	255	117	169
26	235	210	160	180	280	1230	523	291	291	216	108	154
27	222	243	160	190	270	1510	488	273	253	183	106	143
28	206	361	170	200	270	1640	585	260	222	159	102	131
29	195	400	190	200	---	1560	550	224	194	171	95	124
30	184	365	240	190	---	1380	520	220	168	173	97	118
31	172	---	210	180	---	1210	---	302	---	179	95	---
TOTAL	6520	8002	9040	5880	10050	29380	27540	10109	16126	7033	5185	5215
MEAN	210	267	292	190	359	948	918	326	538	227	167	174
MAX	282	400	449	210	640	1640	1660	488	1690	488	482	525
MIN	112	154	160	170	200	350	488	204	151	134	95	83
CFSM	.35	.44	.48	.31	.59	1.56	1.51	.54	.89	.37	.28	.29
IN.	.40	.49	.55	.36	.62	1.80	1.69	.62	.99	.43	.32	.32

CAL YR 1990 TOTAL 139612 MEAN 382 MAX 3850 MIN 78 CFSM .63 IN. 8.56  
WTR YR 1991 TOTAL 140080 MEAN 384 MAX 1690 MIN 83 CFSM .63 IN. 8.58

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087000 MILWAUKEE RIVER AT MILWAUKEE, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

LOCATION.--Lat 43°06'00", long 87°54'32", in NE 1/4 sec.5, T.7 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, on left bank near northeast limits of Milwaukee in Estabrook Park, 2,000 ft downstream from Port Washington Road bridge and 6.6 mi upstream from mouth.

DRAINAGE AREA.--696 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 564: 1918(M). WSP 924: 1940. WSP 1207: 1936(M). WSP 1337: 1915-17(M), 1918, 1919-21(M), 1922, 1923(M), 1924, 1925-33(M). WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 607.23 ft above National Geodetic Vertical Datum of 1929 (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 discharge: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Occasional regulation caused by recreation dam approximately 1,200 ft upstream.

AVERAGE DISCHARGE.--77 years, 427 ft<sup>3</sup>/s, 8.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft<sup>3</sup>/s, Mar. 20, 1918, Aug. 6, 1924, gage height, 9.00 ft datum then in use, from floodmark for 1918, from graph based on gage reading for 1924, no flow Sept. 8, 1943.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
July 1	1700	*3,260	*4.96	No other peak greater than base discharge.			

Minimum discharge, 1.9 ft<sup>3</sup>/s, May 29, gage height, 1.09 ft, result of regulation.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 15, Dec. 25 to Feb. 5, Feb. 8-16, and Feb. 22 to Mar. 6.)

1.8	81	3.0	756
2.0	156	4.0	1,830
2.5	412	5.0	3,320

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	161	460	412	260	250	370	1200	538	362	561	172	91
2	158	206	382	260	270	1200	1040	500	862	312	181	84
3	293	208	381	250	300	1800	904	468	865	329	157	220
4	230	321	217	250	450	1800	801	435	736	321	137	134
5	218	549	230	250	600	1800	719	497	560	273	133	112
6	209	474	319	250	834	1300	653	480	445	240	128	128
7	184	465	386	240	763	1320	595	563	358	250	126	116
8	196	412	364	240	660	1070	631	556	297	274	667	97
9	271	423	366	240	680	912	878	546	252	237	428	162
10	420	398	377	230	720	830	1370	542	226	222	459	130
11	312	387	400	230	640	749	1450	513	212	194	333	97
12	301	374	471	230	540	671	1390	478	200	437	268	401
13	289	354	530	230	470	651	1290	434	180	210	229	148
14	334	335	466	240	420	592	1810	398	319	220	197	345
15	296	319	500	250	370	586	2370	357	1160	215	178	277
16	304	308	534	250	320	605	2000	327	1780	205	161	242
17	314	291	581	250	323	660	1670	298	1490	187	162	451
18	321	282	601	250	324	732	1420	270	1150	173	148	390
19	298	277	556	270	329	763	1190	271	949	157	135	308
20	305	268	520	270	323	809	992	273	819	147	137	277
21	311	320	519	250	341	861	846	260	711	312	146	244
22	302	284	532	250	360	1010	723	269	610	387	138	235
23	303	283	277	250	390	1400	674	293	497	450	133	209
24	302	281	223	240	360	1380	700	275	429	335	127	195
25	289	272	210	240	340	1320	629	283	364	262	124	196
26	276	265	200	230	330	1680	562	323	320	222	117	178
27	263	472	200	240	320	2130	539	344	288	192	112	166
28	249	505	210	260	300	2200	557	298	245	174	111	154
29	234	501	240	260	---	1860	610	130	214	226	108	141
30	230	447	300	230	---	1610	565	138	189	175	119	135
31	219	---	270	240	---	1400	---	322	---	174	108	---
TOTAL	8392	10741	11774	7630	12327	36071	30778	11679	17089	8073	5879	6063
MEAN	271	358	380	246	440	1164	1026	377	570	260	190	202
MAX	420	549	601	270	834	2200	2370	563	1780	561	667	451
MIN	158	206	200	230	250	370	539	130	180	147	108	84
CFSM	.39	.51	.55	.35	.63	1.67	1.47	.54	.82	.37	.27	.29
IN.	.45	.57	.63	.41	.66	1.93	1.65	.62	.91	.43	.31	.32

CAL YR 1990 TOTAL 172100 MEAN 472 MAX 3910 MIN 109 CFSM .68 IN. 9.20  
WTR YR 1991 TOTAL 166496 MEAN 456 MAX 2370 MIN 84 CFSM .66 IN. 8.90

04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK 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 begin in January 1973.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
NOV 1990 14...	1035	338	785	8.4	3.0	2.3	13.4	747	102	110	K14
MAR 1991 21...	1045	858	665	8.4	7.0	10	13.6	734	117	26	23
JUN 11...	1030	214	705	8.6	24.5	5.7	11.2	736	140	150	63
AUG 28...	1000	102	700	8.4	26.5	5.5	7.7	749	98	36	23
DATE	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
NOV 1990 14...	370	80	41	29	3.4	351	12	308	43	57	0.30
MAR 1991 21...	300	67	32	21	2.8	282	2	235	34	44	<0.10
JUN 11...	340	75	38	27	2.3	315	14	282	22	51	0.20
AUG 28...	290	53	38	41	3.2	268	2	224	35	71	0.30
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1990 14...	6.8	458	451	<0.010	1.30	0.080	0.070	0.80	0.070	0.050	0.040
MAR 1991 21...	7.1	365	353	0.010	1.00	0.040	0.030	0.90	0.090	0.050	0.030
JUN 11...	11	395	398	0.020	0.440	0.030	0.020	1.6	0.090	0.050	0.030
AUG 28...	1.7	376	377	<0.010	<0.050	0.010	<0.010	1.0	0.170	0.050	0.030

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 1990 14...	1035	338	<10	<1	46	<0.5	<1.0	<1	<3	2	29
MAR 1991 21...	1045	858	<10	<1	30	<0.5	<1.0	1	<3	4	34
JUN 11...	1030	214	30	1	42	<0.5	<1.0	<1	<3	2	14
AUG 28...	1000	102	10	2	43	1	<1.0	1	<3	1	10

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 1990 14...	<1	9	11	<0.1	<10	1	<1	300	<6	11
MAR 1991 21...	1	<4	16	<0.1	<10	1	<1	190	<6	8
JUN 11...	1	5	3	<0.1	<10	1	<1	280	<6	12
AUG 28...	<1	6	25	<0.1	<10	2	<1	320	<6	4

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	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)
NOV 1990 14...	1035	338	785	3.0	32	29	70
FEB 1991 21...	0915	339	820	0.5	--	--	--
MAR 21...	1045	858	665	7.0	21	49	80
MAY 16...	0915	322	710	22.5	--	--	--
JUN 11...	1030	214	705	24.5	43	25	98
JUN 27...	1410	292	550	27.0	--	--	--
AUG 28...	0855	108	540	25.0	--	--	--
AUG 28...	1000	102	700	26.5	12	3.3	92

## 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 mi<sup>2</sup>.

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. Datum of gage is 753.50 ft above National Geodetic Vertical Datum of 1929 (University of Wisconsin bench mark).

REMARKS.--Estimated discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Occasional regulation caused by dam in Menomonee Falls, about 1.0 mi upstream.

AVERAGE DISCHARGE.--14 years (1976-77, 1980-91) 29.2 ft<sup>3</sup>/s, 11.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft<sup>3</sup>/s, Sept. 11, 1986, gage height, 6.49 ft; maximum gage height, 6.57 ft, July 13, 1981; minimum discharge, 0.52 ft<sup>3</sup>/s, Aug. 18, 1988, gage height, 2.47 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 380 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
June 2	0005	*451	*4.99	No other peak greater than base discharge.			
Minimum, 2.9 ft <sup>3</sup> /s, Aug. 27, Sept. 2, 3, gage height, 2.68 ft.							

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-7 and Dec. 22 to Mar. 7.)

2.6	2.0	3.4	45
2.8	6.4	3.7	81
2.9	9.6	4.0	131
3.0	14	4.5	264
3.2	28	5.0	456

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	9.6	26	20	9.0	60	59	30	25	19	4.8	3.3
2	7.4	9.6	23	16	9.2	120	47	26	130	19	4.4	2.9
3	17	10	18	15	11	60	43	22	110	12	4.4	7.7
4	19	20	21	14	16	40	39	20	57	9.2	4.3	6.6
5	15	47	24	13	25	35	44	33	32	7.5	3.9	5.4
6	12	60	21	13	49	35	48	40	24	6.5	3.6	5.1
7	9.6	44	22	13	40	30	46	31	19	9.9	3.3	4.6
8	10	33	22	13	35	29	52	30	15	21	57	3.8
9	12	31	21	13	30	28	104	30	13	16	57	3.8
10	31	32	24	12	28	24	108	27	11	11	27	3.8
11	40	29	28	13	26	25	76	24	11	8.3	15	4.1
12	27	26	35	12	23	25	71	21	9.0	14	11	29
13	21	23	47	12	22	24	63	18	8.7	8.6	8.4	16
14	23	24	36	13	20	24	121	16	31	9.2	7.3	19
15	24	21	39	13	18	25	213	14	108	7.6	6.7	41
16	21	20	41	13	17	26	197	13	94	6.4	6.4	29
17	21	17	39	13	18	28	131	12	46	5.5	9.0	17
18	26	16	44	13	25	37	76	14	26	6.3	7.2	12
19	24	16	38	14	35	42	52	15	19	5.4	8.9	8.8
20	20	15	34	15	33	47	34	14	14	4.9	7.2	7.3
21	19	23	43	13	30	48	28	13	11	36	6.6	6.5
22	17	23	41	13	26	55	27	18	15	18	5.9	7.5
23	15	19	30	12	21	65	41	27	12	9.9	5.2	6.7
24	14	18	25	11	20	65	61	19	10	6.8	4.1	6.1
25	12	17	21	11	18	57	43	19	8.6	5.5	3.7	6.5
26	11	14	17	10	17	107	37	45	7.3	4.9	3.6	6.0
27	11	31	15	9.4	17	212	46	52	6.5	4.5	3.2	5.3
28	10	56	14	9.6	25	250	56	29	5.6	4.9	3.1	4.9
29	10	42	23	9.4	---	176	40	21	5.2	7.5	3.1	4.9
30	10	29	36	9.2	---	114	36	21	4.6	6.3	5.7	4.7
31	9.9	---	26	9.0	---	74	---	25	---	6.0	3.5	---
TOTAL	526.4	775.2	894	389.6	663.2	1987	2039	739	888.5	317.6	304.5	289.3
MEAN	17.0	25.8	28.8	12.6	23.7	64.1	68.0	23.8	29.6	10.2	9.82	9.64
MAX	40	60	47	20	49	250	213	52	130	36	57	41
MIN	7.4	9.6	14	9.0	9.0	24	27	12	4.6	4.5	3.1	2.9
CFSM	.49	.74	.83	.36	.68	1.85	1.96	.69	.85	.30	.28	.28
IN.	.56	.83	.96	.42	.71	2.13	2.19	.79	.95	.34	.33	.31
CAL YR 1990	TOTAL 9404.7	MEAN 25.8	MAX 283	MIN 3.6	CFSM .74	IN. 10.08						
WTR YR 1991	TOTAL 9813.3	MEAN 26.9	MAX 250	MIN 2.9	CFSM .77	IN. 10.52						

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087088 UNDERWOOD CREEK AT WAUWATOSA, WI

LOCATION.--Lat 43°03'17", long 88°02'46", in SW 1/4 NW 1/4 sec.20, T.7 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, at U.S. Highway 45, on right bank, just downstream of the Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, on Milwaukee County Park Commission property, at Wauwatosa, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--18.2 mi<sup>2</sup>.

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.

GAGE.--Water-stage recorder, crest-stage gage, and steel plate weir. Elevation of gage is 690 ft, from topographic map.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good, except those for ice-affected periods, which are fair, and discharges greater than 600 ft<sup>3</sup>/s, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years (1976-79, 1981-91), 13.9 ft<sup>3</sup>/s, 10.37 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft<sup>3</sup>/s, July 13, 1981, gage height, 5.55 ft; maximum gage height, 6.58 ft, Feb. 29, 1984, backwater from ice; no flow on all or part of many days during 1977 winter period.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft<sup>3</sup>/s, Dec. 28, gage height, 4.90 ft; minimum daily discharge, 2.7 ft<sup>3</sup>/s, Sept. 8.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 23-27, Dec. 31 to Jan. 14, Jan. 21 to Feb. 4, Feb. 11-17, and 25.)

2.6	2.1	3.1	28
2.7	4.5	3.4	64
2.8	7.8	3.7	142
2.9	12	4.0	268

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	4.3	8.1	8.0	4.0	53	23	11	8.6	36	4.4	2.8
2	3.5	3.8	7.0	7.0	12	87	18	12	38	10	4.4	3.1
3	32	6.8	9.2	6.6	30	23	17	11	10	6.0	4.5	25
4	9.2	28	10	6.4	50	14	17	9.8	8.3	6.0	4.7	3.8
5	5.2	63	9.4	6.2	38	12	16	29	8.0	5.6	4.3	3.1
6	4.3	21	8.7	5.8	26	12	14	17	7.7	5.4	4.3	3.3
7	3.7	11	8.5	5.6	21	9.6	13	12	6.9	21	4.3	2.9
8	9.3	8.2	8.5	5.4	21	8.9	23	11	6.8	8.3	68	2.7
9	20	13	13	5.2	17	11	40	10	6.5	6.0	13	13
10	39	9.1	15	5.0	12	8.1	29	8.7	6.4	5.4	7.3	11
11	13	7.5	16	5.0	9.0	8.1	19	8.4	6.5	5.4	5.8	4.9
12	8.0	6.7	27	5.0	7.6	8.0	25	8.3	6.1	67	4.6	68
13	6.0	6.3	24	5.2	6.6	7.3	28	8.0	5.9	13	4.2	8.8
14	20	6.3	15	6.0	6.2	7.2	122	7.6	39	7.3	3.8	37
15	8.1	6.0	24	7.7	6.0	7.0	180	7.5	41	6.3	3.5	21
16	5.8	5.4	17	11	6.0	7.0	73	11	10	6.1	3.4	7.3
17	12	5.0	28	6.9	12	18	38	8.2	7.4	6.0	6.3	5.1
18	9.1	4.9	25	6.4	18	19	27	8.6	6.8	10	3.4	4.5
19	5.4	4.8	17	9.6	13	12	23	9.9	6.0	6.5	3.2	3.7
20	5.0	4.8	15	7.5	11	11	19	8.2	6.0	6.0	3.3	3.8
21	6.0	18	17	7.0	14	12	16	8.0	5.7	26	3.4	3.2
22	4.9	7.9	14	6.2	12	25	15	46	10	9.0	3.7	4.2
23	4.8	6.1	12	5.4	7.9	43	23	37	5.7	6.1	3.1	3.7
24	5.0	5.3	10	5.0	6.9	22	24	14	5.2	4.9	3.0	4.1
25	4.2	5.0	8.0	4.8	6.4	17	17	12	5.4	4.5	3.3	4.5
26	4.2	5.7	6.6	4.5	6.0	118	14	13	5.6	4.7	3.4	3.8
27	4.2	50	12	4.2	6.1	170	14	9.0	5.8	4.2	3.1	3.5
28	3.9	26	31	4.0	5.9	97	14	7.9	5.4	4.6	3.3	3.4
29	3.9	13	58	3.9	---	46	15	7.6	5.2	7.6	3.4	3.3
30	4.0	9.7	12	3.8	---	29	13	8.1	5.0	4.8	4.2	3.2
31	3.9	---	10	3.7	---	28	---	13	---	4.3	3.1	---
TOTAL	271.4	372.6	496.0	184.0	391.6	950.2	929	392.8	300.9	324.0	197.7	271.7
MEAN	8.75	12.4	16.0	5.94	14.0	30.7	31.0	12.7	10.0	10.5	6.38	9.06
MAX	39	63	58	11	50	170	180	46	41	67	68	68
MIN	3.5	3.8	6.6	3.7	4.0	7.0	13	7.5	5.0	4.2	3.0	2.7
CFSM	.48	.68	.88	.33	.77	1.68	1.70	.70	.55	.57	.35	.50
IN.	.55	.76	1.01	.38	.80	1.94	1.90	.80	.62	.66	.40	.56

CAL YR 1990 TOTAL 6418.1 MEAN 17.6 MAX 348 MIN 3.2 CFMS .97 IN. 13.12  
WTR YR 1991 TOTAL 5081.9 MEAN 13.9 MAX 180 MIN 2.7 CFMS .77 IN. 10.39

04087120 MENOMONEE RIVER AT WAUWATOSA, WI

LOCATION.--Lat 43°02'44", long 87°59'59", in NE 1/4 NW 1/4 sec.27, T.7 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, on left bank near upstream side of 70th Street bridge in Wauwatosa, 800 ft downstream from Honey Creek, and at mile 6.2.

DRAINAGE AREA.--123 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 630.86 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1974, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Low flow affected by three sewage treatment plants upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 98.2 ft<sup>3</sup>/s, 10.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft<sup>3</sup>/s, Apr. 21, 1973, gage height, 13.92 ft from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 2.8 ft<sup>3</sup>/s, Jan. 18, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
July 12	0915	*2,060	*5.46	No other peak greater than base discharge.			

Minimum daily discharge, 13 ft<sup>3</sup>/s, Sept. 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 5, 6, 18-21, 25, Apr. 2-6, 19-22, 25-30, May 6, 26, 27, June 4, 16, 17, and Aug. 9; stage-discharge relation affected by ice Dec. 3-7, Dec. 23 to Feb. 7, and Feb. 11 to Mar. 2.)

0.2	12	1.5	166
0.3	15	2.0	260
0.5	24	2.5	402
0.7	38	3.0	630
1.0	80	4.0	1,140

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	29	90	70	40	150	181	96	64	260	22	14
2	22	27	76	60	80	600	146	87	367	154	20	13
3	158	36	60	56	150	316	128	79	205	64	28	176
4	104	180	74	54	230	232	120	70	136	44	19	69
5	46	382	82	52	250	138	115	187	86	34	18	23
6	34	224	78	50	240	122	109	134	64	28	19	19
7	28	152	74	48	210	103	99	103	47	126	18	17
8	53	117	78	46	203	85	208	92	37	70	474	16
9	122	132	105	45	202	87	400	90	32	48	173	97
10	277	111	134	44	159	72	349	81	29	36	92	57
11	164	93	145	42	96	70	223	72	29	29	51	22
12	101	85	198	43	84	70	203	64	27	346	36	382
13	71	73	233	45	66	66	198	60	25	75	29	75
14	140	65	172	50	52	65	740	55	138	41	25	271
15	92	61	204	54	37	64	1090	50	398	33	23	190
16	65	55	180	48	36	65	588	59	179	28	21	96
17	77	49	203	44	50	104	349	59	120	25	34	58
18	101	44	223	38	100	136	240	54	77	48	32	44
19	61	42	175	58	90	113	178	68	57	27	21	32
20	51	42	150	60	78	114	139	48	47	24	23	27
21	56	122	172	50	100	120	120	45	39	240	20	23
22	44	71	171	48	110	222	109	153	82	106	20	35
23	39	55	100	43	80	352	154	151	46	77	18	25
24	37	47	90	41	60	208	239	70	34	34	17	23
25	34	43	70	39	50	162	155	61	31	26	16	27
26	31	43	60	37	50	602	126	109	29	23	16	24
27	29	265	70	36	47	851	129	118	27	21	16	21
28	27	275	100	35	37	750	137	79	25	22	16	19
29	29	152	300	34	---	442	127	56	23	69	17	20
30	28	111	100	33	---	292	113	51	22	28	25	18
31	28	---	80	32	---	230	---	76	---	24	21	---
TOTAL	2172	3183	4047	1435	2987	7003	7212	2577	2522	2210	1380	1933
MEAN	70.1	106	131	46.3	107	226	240	83.1	84.1	71.3	44.5	64.4
MAX	277	382	300	70	250	851	1090	187	398	346	474	382
MIN	22	27	60	32	36	64	99	45	22	21	16	13
CFSM	.57	.86	1.06	.38	.87	1.84	1.95	.68	.68	.58	.36	.52
IN.	.66	.96	1.22	.43	.90	2.12	2.18	.78	.76	.67	.42	.58

CAL YR 1990 TOTAL 43527 MEAN 119 MAX 2150 MIN 16 CFSM .97 IN. 13.16  
WTR YR 1991 TOTAL 38661 MEAN 106 MAX 1090 MIN 13 CFSM .86 IN. 11.69

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087120 MENOMONEE RIVER AT WAUWATOSA, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 to September 1991.

REMARKS.--Instantaneous samples are grab samples and composite samples, collected by an automatic sampler, are point samples. Chemical analyses by Wisconsin State Laboratory of Hygiene and U.S. Geological Survey National Water Quality Laboratory.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					MAY 1991				
25...	1445	34	900	14.0	23...	1340	77	882	21.5
DEC					JUN				
05...	1245	90	1590	1.5	25...	1614	30	1010	24.0
JAN 1991					JUL				
15...	1310	49	2930	1.5	24...	1535	34	894	25.0
FEB					AUG				
27...	1217	60	1130	0.5	12...	1516	35	925	23.0
APR					SEP				
08...	1440	138	1460	14.5	18...	1315	43	848	17.5

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
JUN 1991									
20...	1315	45	2.2	120	160	--	92	42	16
24...	0850	35	1.8	--	--	340	77	36	--
26...	0907	28	1.8	--	--	380	85	41	--
JUL									
01...	1200	21	1.8	--	--	--	80	42	--
03...	0915	62	2.5	--	--	290	65	30	--
08...	0857	67	3.4	--	--	200	46	20	--
10...	1025	35	1.5	--	--	320	70	35	--
15...	0950	33	<1.0	--	--	340	76	36	--
18...	1040	24	1.5	--	--	380	85	40	--
22...	1040	90	2.5	--	--	--	51	21	--
24...	0930	35	1.5	--	--	--	71	34	--
29...	1000	88	2.8	--	--	--	56	25	--
31...	1000	23	1.8	--	--	--	66	32	--
AUG									
05...	1020	18	2.1	--	--	--	69	37	--
08...	1000	660	4.0	--	--	--	29	13	--
12...	1000	35	1.8	--	--	--	72	34	--
14...	0915	25	1.5	--	--	--	80	37	--
19...	0920	20	2.1	--	--	--	74	37	--
21...	1310	20	2.5	--	--	--	70	36	--
26...	1220	15	<1.0	--	--	--	70	38	--
28...	1155	17	2.4	--	--	--	69	37	--
SEP									
05...	1209	23	1.5	--	--	--	52	23	--
09...	1015	14	2.0	--	--	--	67	36	--
12...	0850	616	2.9	--	--	--	21	8.0	--



## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04087120 MENOMONEE RIVER AT WAUWATOSA, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L) AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L) AS CU) (01042)	LEAD, TOTAL RECOV- ERABLE (UG/L) AS PB) (01051)	ZINC, TOTAL RECOV- ERABLE (UG/L) AS ZN) (01092)	
JUN 1991										
20...		670	0.110	0.047	<1	<1	6	3	<10	
24...		642	0.060	0.027	<1	--	5	1	--	
26...		638	0.040	0.022	<1	--	4	1	<10	
JUL										
01...		772	0.040	0.008	<1	--	4	1	10	
03...		580	0.110	0.037	<1	3	7	7	30	
08...		402	0.110	0.018	<1	13	24	42	140	
10...		562	0.080	0.027	<1	<1	4	4	<10	
15...		614	0.060	0.031	<1	5	5	46	20	
18...		692	0.080	0.039	<1	<1	5	13	10	
22...		436	0.100	0.023	<1	7	8	8	30	
24...		536	0.080	0.037	<1	4	4	9	20	
29...		502	0.100	0.015	<1	2	8	12	30	
31...		560	0.040	0.009	<1	<1	5	4	40	
AUG										
05...		622	0.030	0.004	<1	3	4	--	<10	
08...		360	0.250	0.029	<1	10	18	--	90	
12...		630	0.060	0.034	<1	<1	4	3	10	
14...		644	0.040	0.010	<1	<1	3	3	20	
19...		698	0.040	0.007	<1	<1	3	2	20	
21...		592	0.030	<0.002	<1	<1	3	1	10	
26...		646	0.040	0.010	<1	<1	3	2	10	
28...		596	0.040	0.008	--	3	--	--	20	
SEP										
05...		446	0.060	0.023	<1	<1	5	2	10	
09...		618	0.030	0.008	<1	1	4	1	20	
12...		214	0.170	0.060	<1	4	11	16	60	
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	HARD- NESS TOTAL (MG/L) AS CACO3) (00900)	CALCIUM TOTAL RECOV- ERABLE (MG/L) AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L) AS MG) (00927)	SODIUM, TOTAL RECOV- ERABLE (MG/L) AS NA) (00929)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)
SEP 1991										
11...	0845	19	2.1	360	71	44	4.9	6	418	114
DATE	TIME	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)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	BARIUM, TOTAL RECOV- ERABLE (UG/L) AS BA) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L) AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L) AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) AS MN) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L) AS ZN) (01092)
SEP 1991										
11...		4	0.090	0.090	0.740	80	<20	520	280	<10
DATE	TIME	ENDING TIME	RUNOFF VOLUME, MILLIONS OF CUBIC FEET (99905)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	CALCIUM TOTAL RECOV- ERABLE (MG/L) AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L) AS MG) (00927)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	
JUN 1991										
14-15	2340	0550	23.5	--	--	--	48	21	324	
22-22	1256	1958	5.48	--	--	--	80	36	76	
JUL										
18-18	1740	2055	2.01	15	23000	19000	61	28	150	
21-21	0545	1915	18.3	9.7	--	--	47	20	176	
29-29	0545	1200	2.40	6.1	--	--	59	28	22	
AUG										
08-08	0630	1420	24.2	9.5	16000	3200	48	18	284	
SEP										
03-04	1035	0655	17.8	--	--	--	49	19	228	
09-10	1855	0500	9.70	13	>40000	61000	--	--	188	

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087120 MENOMONEE RIVER AT WAUWATOSA, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
JUN 1991									
14-15	522	--	0.430	--	<1	15	35	45	150
22-22	582	--	0.180	--	<1	--	18	10	--
JUL									
18-18	538	--	0.260	0.056	<1	9	27	34	130
21-21	440	--	0.270	0.033	<1	10	20	26	80
29-29	480	--	0.090	0.023	<1	2	8	8	20
AUG									
08-08	460	--	0.370	0.029	<1	15	27	41	120
SEP									
03-04	478	--	0.400	--	1	12	28	50	160
09-10	442	0.516	0.340	--	<1	11	23	37	130

DATE	TIME	ENDING TIME	RUNOFF VOLUME, MILLIONS OF CUBIC FEET (99905)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
JUL 1991											
01-01	1610	1837	10.6	22	--	--	91	36	720	892	0.810
07-07	1630	2300	8.83	16	800000	17000	55	25	268	526	0.350
12-12	0755	1320	19.8	--	--	--	54	22	392	562	0.510

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CARBO- FURAN WATER WHOLE TOT. REC (UG/L) (82615)	CHLOR- DYRIFOS TOTAL RECOVER (UG/L) (38932)	CYAN- AZINE TOTAL (UG/L) (81757)
JUL 1991											
01-01	0.016	2	--	51	80	260	<0.60	0.20	<17.0	<1.0	<0.90
07-07	0.010	<1	2	5	5	50	<0.70	0.23	<8.3	<1.0	<0.60
12-12	--	1	19	32	77	160	<0.50	0.13	<2.0	<1.0	<0.30

DATE	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	DI- AZINON, TOTAL (UG/L) (39570)	DICAMBA (MED- IBEN) (BAN- VEL D) TOTAL (UG/L) (82052)	DIMETH- OATE WATER WHOLE TOTAL (UG/L) (39009)	MALA- THION, TOTAL (UG/L) (39530)	PROME- TONE TOTAL (UG/L) (39056)	2,4-D, TOTAL (UG/L) (39730)	SEVIN, TOTAL (UG/L) (39750)	SIMA- ZINE TOTAL (UG/L) (39055)
JUL 1991										
01-01	<0	<1	<1.0	<0.60	<1.2	<1.0	0.2	<1.1	<6.0	0.31
07-07	<0	<1	<1.0	<0.80	<3.0	<1.0	0.4	<1.2	<3.5	0.20
12-12	<0	<1	<1.0	<0.80	<1.0	<1.4	0.1	<0.60	<1.5	5.9

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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04087120 MENOMONEE RIVER AT WAUWATOSA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	ENDING TIME	RUNOFF VOLUME, MILLIONS OF CUBIC FEET (99905)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
SEP 1991												
12-12	0020	1205	24.7	6.0	<10	<10	25	6.8	2.0	174	332	0.295
14-14	0150	2345	23.0	4.5	--	--	30	7.2	3.0	146	372	0.456
DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CADMIUM TOTAL RECOVER -ABLE (UG/L) AS CD) (01113)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOVER -ABLE (UG/L) AS CR) (01118)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVER -ABLE (UG/L) AS CU) (01119)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOVER -ABLE (UG/L) AS ZN) (01114)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOVER -ABLE (UG/L) AS ZN) (01094)
SEP 1991												
12-12	0.260	0.032	0	0.5	4	<3	16	<3	<3	31	68	100
14-14	0.230	0.038	0	<0.2	6	<3	13	4	<3	19	100	80

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087120 MENOMONEE RIVER AT WAUWATOSA, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--April to September 1991 (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger. Prior to June 13, 1991, precipitation measured with a volumetric rain gage and a potentiometer.

REMARKS.--Tipping bucket rain gage established on June 13, 1991. Unpublished precipitation data, prior to October 1990, available in District files.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.61 in., Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.00	.06	---	.00	.00
2	---	---	---	---	---	---	---	.00	.75	---	.00	.00
3	---	---	---	---	---	---	---	.00	.00	---	.00	.96
4	---	---	---	---	---	---	---	.00	.00	---	.00	.00
5	---	---	---	---	---	---	---	.49	.00	---	.00	.00
6	---	---	---	---	---	---	---	.00	.00	---	.00	.00
7	---	---	---	---	---	---	---	.00	.00	---	.00	.00
8	---	---	---	---	---	---	---	.04	.00	---	1.61	.00
9	---	---	---	---	---	---	---	.00	.00	---	.00	.43
10	---	---	---	---	---	---	---	.00	.00	---	.00	.00
11	---	---	---	---	---	---	.00	.01	.00	---	.00	.32
12	---	---	---	---	---	---	.31	.02	.00	---	.00	.97
13	---	---	---	---	---	---	.14	.00	.29	---	.00	.00
14	---	---	---	---	---	---	.83	.00	1.14	---	.00	.71
15	---	---	---	---	---	---	.61	.00	.35	---	.00	.18
16	---	---	---	---	---	---	.00	.07	.00	.00	.00	.02
17	---	---	---	---	---	---	.00	.01	.00	.00	.14	.00
18	---	---	---	---	---	---	.02	.08	.00	.19	.00	.04
19	---	---	---	---	---	---	.00	.01	.00	.00	.01	.00
20	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	.00	.00	.00	.56	.00	.00
22	---	---	---	---	---	---	.00	.72	.05	.06	.00	.07
23	---	---	---	---	---	---	.21	.82	.00	.00	.00	.00
24	---	---	---	---	---	---	.00	.03	.00	.00	.00	.03
25	---	---	---	---	---	---	.02	.24	.00	.00	.00	.07
26	---	---	---	---	---	---	.00	.04	.00	.00	.00	.00
27	---	---	---	---	---	---	.18	.01	.00	.00	.00	.00
28	---	---	---	---	---	---	.00	.00	.00	.15	.00	.00
29	---	---	---	---	---	---	.11	.00	.00	.13	.10	.00
30	---	---	---	---	---	---	.00	.08	.00	.00	.04	.00
31	---	---	---	---	---	---	---	.22	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.89	2.64	---	1.90	3.80

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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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.--20.2 mi<sup>2</sup>.

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.

GAGE.--Water-stage recorder and steel plate weir. Elevation of gage is 590 ft from river-profile map.

REMARKS.--Estimated daily discharge: Jan. 21 to Feb. 27, Mar. 3, 4, 7, July 9-24, Aug. 8-11, and ice period listed in rating table below. Records good except those for estimated periods, which are poor, and those for discharges greater than 500 ft<sup>3</sup>/s, which are fair.

AVERAGE DISCHARGE.--9 years, 25.8 ft<sup>3</sup>/s, 17.34 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s, Aug. 6, 1986, from rating curve extended above 600 ft<sup>3</sup>/s on basis of step-backwater analysis at peak gage height, gage height, 14.41 ft from inside gage, 16.01 ft, from floodmarks; minimum discharge, 1.3 ft<sup>3</sup>/s, Jan. 26 and 27, 1986, gage height, 5.80 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,420 ft<sup>3</sup>/s, July 7, gage height, 11.90 ft; minimum daily, 4.8 ft<sup>3</sup>/s, Sept. 29.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 24 to Jan. 13.)

6.0	3.7	6.4	18	7.0	83
6.1	5.8	6.5	25	7.5	179
6.2	8.7	6.6	33	8.0	315
6.3	12	6.8	55		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	6.0	8.7	10	6.0	103	15	8.6	8.5	115	7.6	5.5
2	8.2	5.9	7.5	9.6	11	109	13	8.0	58	15	8.7	6.3
3	83	16	30	8.6	70	9.6	11	7.8	10	10	8.5	212
4	11	77	32	8.0	110	9.0	12	8.0	8.3	15	6.0	14
5	7.4	178	18	8.6	50	8.0	11	70	7.6	6.9	6.5	8.7
6	7.0	23	14	8.2	35	9.2	9.7	15	7.5	6.0	7.2	7.5
7	5.8	13	11	8.0	28	8.0	9.1	9.4	7.5	245	8.5	6.6
8	26	10	13	8.0	25	6.6	139	10	7.1	25	250	6.2
9	47	26	30	7.6	16	10	106	11	7.1	9.0	20	218
10	103	11	35	7.4	11	5.9	37	8.3	7.5	11	10	37
11	16	8.4	35	7.4	9.0	6.5	18	7.8	8.1	10	8.6	12
12	11	8.0	52	7.4	8.0	6.4	18	7.9	7.7	100	7.1	281
13	8.2	7.7	26	7.6	7.2	6.1	16	8.5	9.1	15	10	14
14	89	7.5	14	10	6.8	6.1	251	8.8	80	9.6	9.0	110
15	15	7.4	48	12	6.2	6.1	210	8.6	98	9.0	9.5	51
16	9.8	6.8	19	31	6.0	5.5	34	30	9.0	11	9.3	19
17	29	5.9	60	9.6	18	37	22	21	8.3	13	17	9.1
18	22	5.6	31	7.2	40	30	17	21	8.8	30	7.6	8.3
19	8.4	6.9	16	21	20	11	15	9.9	8.8	25	14	6.7
20	7.3	6.8	15	16	15	10	12	7.2	8.6	9.0	7.1	6.3
21	7.7	36	15	11	25	9.9	11	8.0	8.3	150	6.9	5.8
22	6.8	9.1	13	9.0	22	32	11	138	35	20	7.6	8.9
23	7.0	6.9	11	7.8	10	129	44	41	7.1	10	7.9	5.9
24	6.8	6.3	10	7.4	8.0	17	24	20	7.3	8.4	7.2	6.0
25	6.6	5.9	9.4	7.0	7.0	13	12	43	7.8	7.5	6.8	8.5
26	6.5	8.8	9.0	6.8	5.8	245	11	54	8.6	7.3	8.7	5.8
27	5.5	180	8.6	6.4	5.6	253	16	12	8.2	7.1	8.6	5.5
28	5.2	53	80	6.2	5.6	61	9.2	11	7.3	8.7	8.7	5.0
29	5.5	14	16	6.0	---	26	13	10	5.8	34	8.4	4.8
30	6.3	11	11	5.6	---	17	13	22	5.2	7.8	9.4	5.2
31	6.3	---	10	5.8	---	25	---	13	---	7.2	7.5	---
TOTAL	591.1	767.9	708.2	292.2	587.2	1230.9	1140.0	658.8	476.1	957.5	519.9	1100.6
MEAN	19.1	25.6	22.8	9.43	21.0	39.7	38.0	21.3	15.9	30.9	16.8	36.7
MAX	103	180	80	31	110	253	251	138	98	245	250	281
MIN	5.2	5.6	7.5	5.6	5.6	5.5	9.1	7.2	5.2	6.0	6.0	4.8
CFSM	.94	1.27	1.13	.47	1.04	1.97	1.88	1.05	.79	1.53	.83	1.82
IN.	1.09	1.41	1.30	.54	1.08	2.27	2.10	1.21	.88	1.76	.96	2.03

CAL YR 1990 TOTAL 10520.4 MEAN 28.8 MAX 788 MIN 3.0 CFSM 1.43 IN. 19.37  
WTR YR 1991 TOTAL 9030.4 MEAN 24.7 MAX 281 MIN 4.8 CFSM 1.22 IN. 16.63

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087204 OAK CREEK AT SOUTH MILWAUKEE, WI

LOCATION.--Lat 42°55'30", long 87°52'12", in 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except for ice-affected periods, which are fair. Low flows may occasionally be affected by construction and activity at gravel pit upstream.

AVERAGE DISCHARGE.--28 years, 22.7 ft<sup>3</sup>/s, 12.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,140 ft<sup>3</sup>/s, Aug. 6, 1986, gage height, 9.88 ft; no flow Jan. 8-13, 15-18, 27-31, Feb. 6-8, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 27	1545	*451	*7.02	Apr. 15	1130	439	6.95
Apr. 9	0345	351	6.36	July 7	1630	402	6.73
Apr. 14	1615	426	6.88				

Minimum daily discharge, 0.93 ft<sup>3</sup>/s, Aug. 30.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 21-23, Jan. 5, Jan. 22 to Feb. 4, and Feb. 14-16.)

2.21	0.8	4.0	117
2.3	1.9	5.0	208
2.4	3.8	6.0	308
2.6	14	7.0	448
3.0	39		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.7	26	17	4.5	39	38	13	12	12	2.7	2.6
2	3.1	3.6	19	13	6.0	226	28	13	27	15	2.5	1.3
3	7.6	4.5	31	11	18	52	24	13	13	12	2.4	11
4	15	35	59	10	100	24	20	13	9.7	9.1	2.3	23
5	6.2	151	45	9.6	125	17	19	26	7.7	3.8	2.0	4.6
6	3.2	98	35	9.0	103	17	16	35	6.2	2.9	1.6	2.1
7	2.5	37	28	8.2	67	15	15	16	5.5	61	1.5	1.6
8	4.2	23	23	8.1	58	15	53	13	4.6	73	117	1.4
9	17	22	28	7.8	50	15	279	13	3.9	14	53	5.1
10	55	22	54	6.8	29	13	120	13	3.8	8.7	12	13
11	40	17	73	7.0	16	13	54	13	3.8	6.5	6.6	6.0
12	14	16	107	7.0	14	13	35	13	3.8	16	4.2	145
13	8.9	14	119	7.0	13	12	29	12	3.8	13	3.4	41
14	24	13	49	7.2	9.6	12	248	12	16	5.4	3.0	34
15	34	12	63	8.1	8.0	11	358	12	38	3.5	2.6	45
16	14	11	74	16	6.4	11	155	15	13	2.9	2.3	19
17	14	9.9	66	15	6.7	17	64	15	7.7	2.6	2.1	11
18	26	9.2	116	12	26	64	38	13	5.1	5.8	1.8	6.7
19	14	8.5	55	12	41	33	28	14	4.0	25	1.6	4.8
20	9.9	8.0	39	16	18	26	22	12	3.8	5.2	1.9	3.9
21	7.8	14	39	14	21	24	19	10	3.8	68	2.2	3.2
22	6.4	16	33	11	27	31	17	30	9.2	24	1.5	5.8
23	5.5	12	18	8.0	14	128	24	35	10	9.2	1.2	4.8
24	5.5	9.7	16	7.0	13	67	45	13	5.4	5.8	1.2	3.2
25	5.2	8.5	13	6.6	12	40	22	21	3.7	3.8	1.2	3.2
26	4.6	7.6	11	6.2	10	227	18	48	3.7	3.3	1.5	3.0
27	4.6	72	9.8	5.8	8.0	352	17	15	3.2	2.8	1.4	2.7
28	4.6	240	16	5.6	7.0	285	15	12	2.7	2.6	1.2	2.4
29	4.2	67	164	5.4	---	119	14	9.8	2.6	30	1.2	2.2
30	3.7	36	42	5.0	---	62	15	13	2.4	13	.93	1.9
31	3.7	---	24	4.6	---	46	---	19	---	4.6	5.5	---
TOTAL	371.7	1001.2	1494.8	287.0	831.2	2026	1849	524.8	239.1	464.5	245.53	414.5
MEAN	12.0	33.4	48.2	9.26	29.7	65.4	61.6	16.9	7.97	15.0	7.92	13.8
MAX	55	240	164	17	125	352	358	48	38	73	117	145
MIN	2.5	3.6	9.8	4.6	4.5	11	14	9.8	2.4	2.6	.93	1.3
CFSM	.48	1.33	1.93	.37	1.19	2.61	2.47	.68	.32	.60	.32	.55
IN.	.55	1.49	2.22	.43	1.24	3.01	2.75	.78	.36	.69	.37	.62

CAL YR 1990 TOTAL 13565.2 MEAN 37.2 MAX 645 MIN 2.1 CFSM 1.49 IN. 20.19  
WTR YR 1991 TOTAL 9749.33 MEAN 26.7 MAX 358 MIN .93 CFSM 1.07 IN. 14.51

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharge: Ice periods listed in rating table below. Records good except for ice-affected periods, which are poor. Flow affected by urbanization in the drainage basin. Gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years, 44.1 ft<sup>3</sup>/s, 12.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,700 ft<sup>3</sup>/s, Apr. 21, 1973, gage height, 9.31 ft; minimum, 0.38 ft<sup>3</sup>/s, Aug. 10, 1971, gage height, 1.45 ft.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of Mar. 30, 1960, reached a stage of 9.57 ft, discharge, 5,130 ft<sup>3</sup>/s, from rating curve extended above 2,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 28	0045	*587	*7.39	Apr. 15	1000	584	7.38

Minimum daily discharge, 4.0 ft<sup>3</sup>/s, June 28.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-5, 7, 22-28, Dec. 31 to Feb. 21, and Feb. 25-27.)

1.7	3.9	2.5	48	6.0	286
1.8	6.0	3.0	80	7.0	480
1.9	9.0	4.0	117	8.0	786
2.0	13	5.0	173		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	8.2	40	70	10	35	78	33	11	4.3	5.6	7.8
2	5.8	9.3	31	52	11	348	60	31	20	50	5.3	7.5
3	7.0	8.5	33	40	30	184	50	28	14	11	6.2	20
4	55	50	52	28	90	91	43	26	11	6.6	5.5	61
5	17	156	50	23	180	42	41	37	9.9	6.5	5.0	13
6	8.7	191	38	20	250	41	37	77	9.1	6.0	4.5	8.7
7	6.1	80	34	19	170	36	33	41	8.5	20	4.8	6.6
8	6.4	49	31	17	160	29	56	32	7.3	112	81	6.8
9	20	43	31	16	140	27	277	30	6.9	20	121	5.2
10	64	49	49	15	100	25	193	27	5.9	9.5	25	57
11	90	38	66	15	64	24	106	25	5.8	8.3	13	18
12	37	30	90	16	46	24	76	24	5.7	27	11	243
13	20	23	126	16	36	23	64	24	5.6	39	9.1	261
14	27	21	79	17	30	22	256	21	7.6	9.0	7.9	77
15	85	18	72	18	26	20	552	19	63	6.7	7.8	113
16	40	16	91	19	25	19	472	19	29	5.8	7.4	59
17	26	14	83	19	24	21	142	30	9.2	5.7	9.3	31
18	38	13	137	18	30	71	90	25	6.9	7.6	8.6	22
19	31	13	93	18	80	54	72	29	5.7	7.8	7.5	18
20	18	12	73	19	70	44	54	20	5.9	5.9	8.7	14
21	13	19	78	18	76	45	45	15	5.6	49	7.2	12
22	13	35	54	17	82	53	40	17	12	52	6.6	12
23	12	24	45	16	46	180	41	26	10	12	6.0	11
24	11	18	37	14	26	130	78	62	5.6	7.5	5.7	8.9
25	10	14	31	13	22	80	51	39	4.8	6.7	5.7	8.6
26	11	13	27	12	20	249	39	55	4.6	6.8	5.9	9.4
27	12	42	24	12	18	509	36	40	4.3	6.8	5.7	8.4
28	11	223	23	11	17	503	37	23	4.0	6.3	5.9	7.8
29	11	94	219	11	---	197	32	16	4.1	17	5.8	7.1
30	8.2	53	204	10	---	109	33	13	4.5	11	5.1	7.0
31	8.6	---	88	10	---	83	---	13	---	6.1	5.6	---
TOTAL	728.5	1377.0	2129	619	1879	3318	3184	917	307.5	549.9	419.4	1141.8
MEAN	23.5	45.9	68.7	20.0	67.1	107	106	29.6	10.2	17.7	13.5	38.1
MAX	90	223	219	70	250	509	552	77	63	112	121	261
MIN	5.7	8.2	23	10	10	19	32	13	4.0	4.3	4.5	5.2
CFSM	.48	.93	1.40	.41	1.36	2.18	2.16	.60	.21	.36	.27	.77
IN.	.55	1.04	1.61	.47	1.42	2.51	2.41	.69	.23	.42	.32	.86

CAL YR 1990	TOTAL 19523.8	MEAN 53.5	MAX 774	MIN 2.8	CFSM 1.09	IN. 14.76
WTR YR 1991	TOTAL 16570.1	MEAN 45.4	MAX 552	MIN 4.0	CFSM .92	IN. 12.53

## STREAMS TRIBUTARY TO LAKE MICHIGAN

04087233 ROOT RIVER CANAL NEAR FRANKLIN, WI

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 mi<sup>2</sup>.

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, from topographic map.

REMARKS.--Estimated daily discharge: Ice periods listed in rating table below. Records are good except for ice-affected periods, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years, 48.4 ft<sup>3</sup>/s, 11.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft<sup>3</sup>/s Mar. 4, 1974, gage height, 9.88 ft; minimum daily, 0.40 ft<sup>3</sup>/s Dec. 19, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Nov. 28	1415	541	8.69	Apr. 15	2130	758	9.42
Mar. 28	0630	*1,050	*10.04				

Minimum daily discharge, 1.3 ft<sup>3</sup>/s, Aug. 1.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 21-28, Jan. 4 to Feb. 7, Feb. 11, 12, 15-17, and 25-27.)

1.78	1.3	3.0	46	7.0	306
1.8	1.5	4.0	99	8.0	422
1.9	3.1	5.0	158	9.0	620
2.0	5.4	6.0	223	10.0	1,030
2.4	19				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	17	108	47	8.8	39	157	37	68	2.9	1.3	8.0
2	5.5	17	80	35	8.8	251	124	32	43	3.3	1.4	8.0
3	5.8	17	75	29	15	126	101	28	30	3.3	2.0	8.4
4	9.5	32	78	24	80	70	84	26	24	2.7	1.7	11
5	6.9	235	69	22	170	52	75	34	20	2.7	1.4	11
6	7.5	303	60	20	300	55	65	68	17	2.6	1.5	9.1
7	12	165	51	19	200	41	56	47	14	2.7	1.8	7.5
8	12	105	45	18	169	33	56	36	13	2.6	6.0	8.4
9	19	81	44	17	141	32	200	33	11	2.1	9.6	9.1
10	44	70	65	17	103	28	192	29	10	2.0	3.1	11
11	72	55	97	16	56	28	120	27	9.8	2.0	2.2	11
12	36	45	167	16	45	28	91	26	9.5	2.0	1.7	89
13	25	38	244	16	37	26	76	24	9.2	2.3	1.7	48
14	30	35	132	17	30	25	295	23	9.4	2.0	1.7	29
15	97	32	110	18	23	24	654	20	14	1.7	2.0	45
16	52	29	139	19	22	24	620	19	12	1.7	2.2	25
17	37	26	121	20	21	27	270	21	8.6	1.6	2.4	15
18	93	24	197	19	32	57	167	19	7.5	2.0	2.7	9.6
19	62	23	132	18	77	56	126	19	6.7	1.8	2.8	6.9
20	42	22	99	19	52	54	96	18	6.0	1.7	2.7	5.2
21	32	25	100	18	60	57	80	16	5.6	2.2	2.8	4.4
22	27	26	82	17	69	65	68	17	7.1	3.9	2.7	4.5
23	24	24	54	16	40	166	61	20	8.1	2.3	2.6	4.4
24	21	21	40	15	30	148	110	18	5.8	1.9	3.1	3.7
25	18	20	30	14	23	100	85	17	5.3	1.8	4.1	3.8
26	17	19	26	12	20	261	68	47	4.8	1.6	4.7	4.0
27	17	74	25	11	19	616	60	32	4.1	1.5	6.0	3.9
28	17	505	25	10	19	1020	55	24	3.2	1.5	6.7	3.7
29	16	334	192	9.6	---	668	49	19	3.0	1.9	7.6	3.6
30	17	156	124	9.2	---	276	44	24	2.8	1.7	8.8	3.7
31	17	---	67	9.0	---	189	---	109	---	1.5	9.8	---
TOTAL	895.9	2575	2878	566.8	1870.6	4642	4305	929	392.5	67.5	110.8	414.9
MEAN	28.9	85.8	92.8	18.3	66.8	150	143	30.0	13.1	2.18	3.57	13.8
MAX	97	505	244	47	300	1020	654	109	68	3.9	9.8	89
MIN	4.7	17	25	9.0	8.8	24	44	16	2.8	1.5	1.3	3.6
CFSM	.51	1.51	1.63	.32	1.17	2.63	2.52	.53	.23	.04	.06	.24
IN.	.58	1.68	1.88	.37	1.22	3.03	2.81	.61	.26	.04	.07	.27

CAL YR 1990	TOTAL 28788.7	MEAN 78.9	MAX 1010	MIN 4.4	CFSM 1.38	IN. 18.79
WTR YR 1991	TOTAL 19648.0	MEAN 53.8	MAX 1020	MIN 1.3	CFSM .94	IN. 12.82



## STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 mi<sup>2</sup>, of which 1.24 mi<sup>2</sup> 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, from topographic map. Prior to Feb. 5, 1964, nonrecording gage on bridge 30 ft upstream.

REMARKS.--Estimated daily discharge: Ice-affected periods listed in rating table below. Records good except those for periods of ice affect, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--28 years, 154 ft<sup>3</sup>/s, 11.07 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,500 ft<sup>3</sup>/s, Mar. 5, 1974, gage height, 8.54 ft; minimum daily, no flow, July 9-15, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft<sup>3</sup>/s, and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 28	1345	*2,000	*5.68	Apr. 16	1000	1,750	5.42

Minimum daily, 3.6 ft<sup>3</sup>/s, Sept. 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 28-31 and Apr. 15-18; stage-discharge relation affected by ice Dec. 23-27, Jan. 3, 4, 22-24, Jan. 29 to Feb. 1, Feb. 11, 12, 15-18, 25, and 26.)

2.1	2.5	3.0	105
2.2	6.0	3.2	155
2.3	10	3.5	260
2.4	16	4.0	500
2.6	34	5.0	1,200
2.8	64	6.0	2,010

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	40	408	184	27	81	553	121	192	8.3	11	4.2
2	16	38	237	115	27	379	417	110	130	9.1	9.8	3.6
3	17	37	206	90	30	520	331	101	103	21	8.6	4.0
4	17	46	216	72	119	504	278	91	78	21	7.2	5.1
5	42	271	200	68	330	275	244	93	62	15	9.5	29
6	36	514	209	62	552	190	224	153	51	12	9.0	27
7	22	600	172	58	681	162	190	186	43	10	6.9	18
8	17	475	152	54	576	131	173	136	38	15	11	14
9	20	273	139	52	509	115	411	115	34	82	79	11
10	48	216	157	50	428	103	722	107	30	31	102	11
11	135	193	230	50	250	95	702	93	27	20	34	16
12	157	158	323	47	150	91	454	86	25	17	23	184
13	93	135	468	48	139	86	306	80	23	22	17	288
14	73	120	506	51	111	80	620	74	23	44	15	297
15	117	113	392	51	90	76	1270	70	33	21	12	207
16	181	103	358	56	70	73	1700	66	71	17	9.6	189
17	118	93	365	60	68	76	1620	64	51	14	9.1	109
18	104	84	417	62	72	129	1000	70	28	13	8.3	66
19	135	80	467	57	137	202	540	68	22	13	8.8	46
20	115	75	382	61	186	180	327	69	18	15	8.8	36
21	87	74	293	65	178	172	243	61	17	14	8.2	30
22	73	83	288	56	210	178	198	64	16	45	8.5	26
23	60	95	180	50	196	270	175	89	17	54	7.7	24
24	53	82	100	45	136	452	213	75	22	23	7.0	23
25	48	74	90	41	90	448	259	103	17	16	6.3	20
26	43	66	86	36	74	481	200	195	15	11	5.8	18
27	40	98	82	33	72	1220	167	162	14	9.7	5.4	16
28	38	540	77	31	73	1930	155	118	13	9.3	4.6	15
29	37	695	193	30	---	1950	146	83	11	9.8	3.9	14
30	37	698	287	29	---	1520	133	82	9.2	9.7	4.5	13
31	41	---	288	28	---	895	---	149	---	13	5.3	---
TOTAL	2039	6169	7968	1792	5581	13064	13971	3134	1233.2	634.9	466.8	1763.9
MEAN	65.8	206	257	57.8	199	421	466	101	41.1	20.5	15.1	58.8
MAX	181	698	506	184	681	1950	1700	195	192	82	102	297
MIN	16	37	77	28	27	73	133	61	9.2	8.3	3.9	3.6
CFSM	.35	1.09	1.36	.31	1.05	2.23	2.46	.53	.22	.11	.08	.31
IN.	.40	1.21	1.57	.35	1.10	2.57	2.75	.62	.24	.12	.09	.35

CAL YR 1990	TOTAL	82233	MEAN	225	MAX	2340	MIN	11	CFSM	1.19	IN.	16.19
WTR YR 1991	TOTAL	57816.8	MEAN	158	MAX	1950	MIN	3.6	CFSM	.84	IN.	11.38

## STREAMS TRIBUTARY TO LAKE MICHIGAN

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 mi<sup>2</sup>.

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 mean sea level (Southeastern Wisconsin Regional Planning Commission).

REMARKS.--Estimated daily discharge: Ice periods listed in rating table below. Records good except those for periods of ice effect, which are fair. Low flows considerably affected by effluent discharge in upper portion of basin, and by occasional regulation of small recreation dam 1.1 mi upstream.

AVERAGE DISCHARGE.--20 years, 36.4 ft<sup>3</sup>/s, 12.84 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft<sup>3</sup>/s, Mar. 4, 1976, gage height, 8.15 ft; minimum daily, 0.35 ft<sup>3</sup>/s, Sept. 28, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Feb. 4	1930	774	6.33	Apr. 15	1230	700	6.06
Mar. 27	1945	*801	*6.43	May 31	1930	636	5.82

Minimum daily, 5.9 ft<sup>3</sup>/s, Sept. 29.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 22 to Jan. 12, Jan. 18, Jan. 21 to Feb. 4, Feb. 11-19, 24, 25, and Mar. 4.)

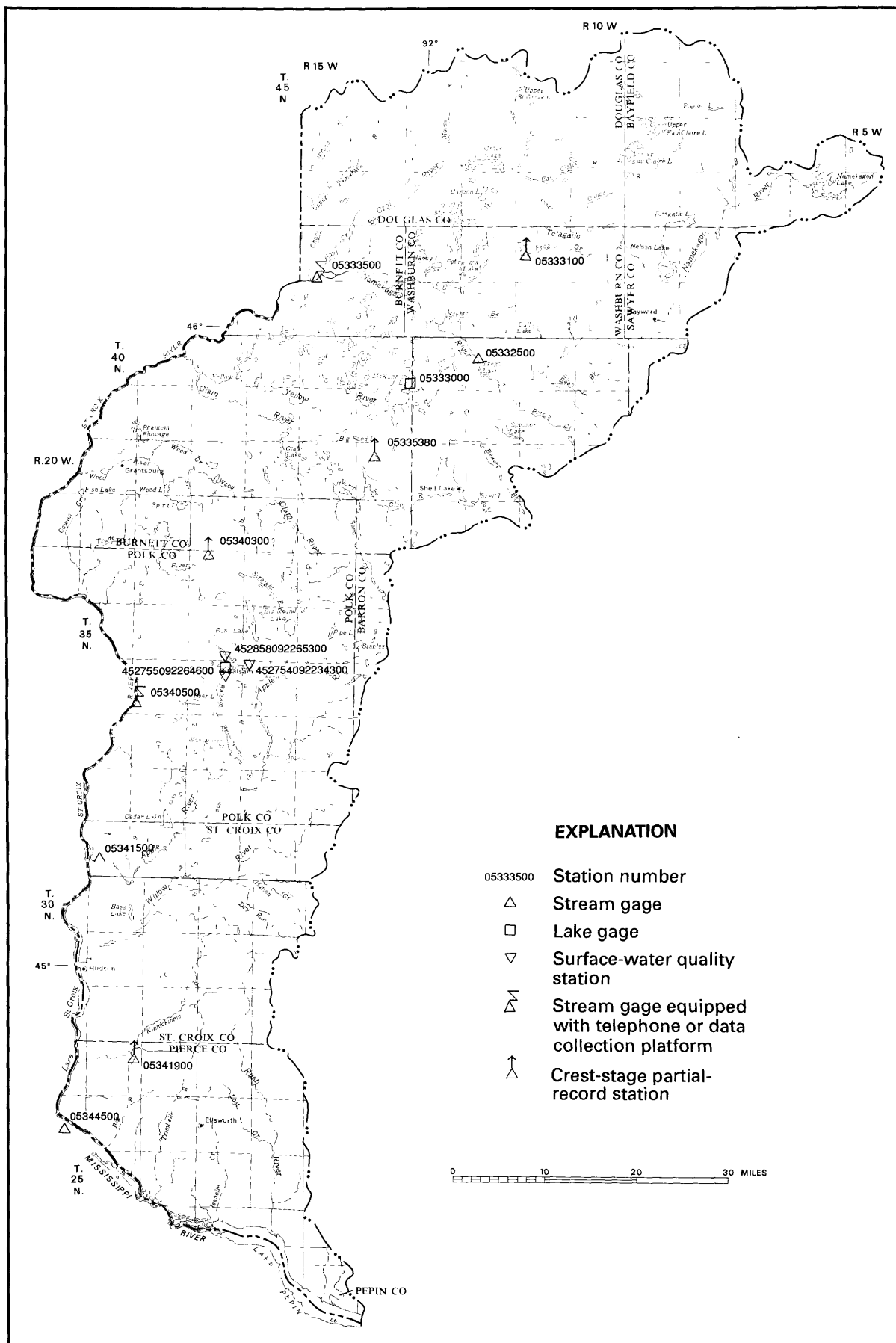
1.7	4.1	2.5	50
1.8	7.0	3.0	100
2.0	15	4.0	241
2.2	26	6.0	684

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	14	36	35	10	38	76	27	161	10	9.6	7.9
2	8.3	13	29	29	12	120	61	24	78	12	9.7	7.9
3	9.3	12	50	25	70	47	52	21	54	10	9.4	9.7
4	13	27	75	22	300	33	44	19	38	7.7	8.8	12
5	10	260	59	19	201	29	40	35	31	6.7	8.7	10
6	9.0	187	48	17	132	31	35	59	27	6.7	9.0	9.7
7	15	97	40	16	89	24	32	38	24	7.5	9.5	9.0
8	11	66	35	15	73	20	34	31	21	9.6	54	8.6
9	30	54	39	14	65	20	81	28	18	8.6	20	9.0
10	104	44	68	13	49	18	64	28	18	8.6	8.7	10
11	94	36	85	13	34	19	46	26	15	7.6	6.9	9.7
12	37	31	91	14	28	20	40	25	19	12	9.2	171
13	30	28	80	14	24	19	37	24	15	7.9	10	46
14	45	27	54	14	21	19	241	22	21	8.3	11	34
15	77	25	62	14	18	18	459	21	28	8.0	11	22
16	43	24	72	32	16	17	216	22	16	9.1	10	14
17	35	20	62	26	16	23	124	20	14	9.9	9.5	11
18	49	20	81	20	30	49	85	18	14	9.9	7.2	11
19	34	20	59	18	45	42	65	17	13	9.2	9.0	9.2
20	27	19	48	27	35	40	51	17	13	7.6	10	8.5
21	23	24	42	23	37	41	42	16	12	18	9.7	7.0
22	21	19	37	22	39	41	37	16	15	9.7	9.9	7.7
23	20	17	28	18	26	45	45	16	12	9.2	9.8	7.0
24	19	16	25	15	20	40	67	16	12	7.8	8.6	7.1
25	17	15	23	14	18	35	48	24	13	8.0	8.3	6.8
26	12	15	20	13	18	141	41	113	13	7.9	9.2	7.7
27	13	44	19	12	17	528	38	50	13	8.0	10	6.7
28	14	131	19	12	16	421	34	37	11	7.7	10	6.0
29	12	60	150	11	---	186	32	31	9.6	9.2	9.9	5.9
30	13	44	56	10	---	126	31	54	8.8	10	14	7.1
31	14	---	45	10	---	97	---	268	---	9.5	15	---
TOTAL	867.3	1409	1637	557	1459	2347	2298	1163	757.4	281.9	355.6	499.2
MEAN	28.0	47.0	52.8	18.0	52.1	75.7	76.6	37.5	25.2	9.09	11.5	16.6
MAX	104	260	150	35	300	528	459	268	161	18	54	171
MIN	8.3	12	19	10	10	17	31	16	8.8	6.7	6.9	5.9
CFSM	.73	1.22	1.37	.47	1.35	1.97	1.99	.97	.66	.24	.30	.43
IN.	.84	1.36	1.58	.54	1.41	2.27	2.22	1.12	.73	.27	.34	.48

CAL YR 1990 TOTAL 19823.2 MEAN 54.3 MAX 869 MIN 8.3 CFSM 1.41 IN. 19.15  
WTR YR 1991 TOTAL 13631.4 MEAN 37.3 MAX 528 MIN 5.9 CFSM .97 IN. 13.17

UPPER MISSISSIPPI RIVER BASIN RECORDS



Base from U.S. Geological Survey  
State base map, 1968

## 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 powerplant of Northern States Power Co., 4.0 mi downstream from Potato Creek, and 4.4 mi northwest of Trego.

DRAINAGE AREA.--488 mi<sup>2</sup>.

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. April 1914 to September 1927, nonrecording gage at railroad bridge in Trego, 5 mi upstream at different datum.

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.

AVERAGE DISCHARGE.--47 years (water years 1928-70, 1988-91), 466 ft<sup>3</sup>/s, 12.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 5,200 ft<sup>3</sup>/s, Sept. 2, 1941; minimum daily, 113 ft<sup>3</sup>/s, Aug. 17, Sept. 7, 1930.

EXTREMES FOR CURRENT YEAR. Maximum daily discharge, 1,790 ft<sup>3</sup>/s, Sept. 18; minimum daily, 243 ft<sup>3</sup>/s, Jan. 8, 9, 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	356	472	323	323	330	323	589	1350	904	904	594	385
2	382	437	323	323	330	323	521	803	904	803	456	385
3	382	437	323	323	330	323	521	803	803	904	456	517
4	556	437	288	356	330	323	521	594	803	699	456	385
5	556	514	323	356	330	323	521	1000	594	904	561	385
6	382	472	382	356	330	288	521	1000	525	904	561	385
7	382	416	382	288	330	288	521	1190	488	904	561	561
8	382	416	382	243	330	323	521	1370	488	595	561	904
9	382	416	382	243	330	323	594	1020	488	842	561	1190
10	382	416	382	251	330	323	594	1020	488	842	561	1510
11	382	416	382	243	330	323	803	1020	488	842	561	1350
12	382	416	382	256	330	356	803	1020	488	540	403	1350
13	382	400	382	256	330	356	803	594	403	594	403	800
14	382	400	251	472	323	356	803	594	594	594	403	800
15	382	383	251	382	323	356	803	594	1000	594	385	800
16	382	391	382	323	323	356	803	525	1000	561	385	1010
17	512	391	382	288	323	356	801	594	1420	517	524	1190
18	612	391	382	288	288	356	803	525	594	594	524	1790
19	612	391	382	288	323	382	594	525	594	594	444	909
20	612	391	382	288	323	382	594	525	594	803	444	612
21	989	391	356	288	323	571	594	484	594	803	444	899
22	1020	391	251	323	323	571	521	416	594	594	403	612
23	660	391	251	323	323	798	521	416	594	488	403	589
24	617	359	382	273	323	1000	521	416	594	561	403	604
25	556	359	316	273	323	798	521	484	594	488	403	604
26	556	356	316	295	323	594	521	594	594	488	403	488
27	556	356	251	295	323	899	521	904	594	488	382	594
28	556	356	323	295	323	589	521	594	561	488	290	488
29	512	323	387	295	---	899	521	1000	594	594	385	594
30	472	323	382	295	---	899	521	803	594	594	385	488
31	472	---	323	295	---	589	---	803	---	594	385	---
TOTAL	15748	12008	10586	9396	9100	14946	18317	23580	19567	20714	14090	23178
MEAN	508	400	341	303	325	482	611	761	652	668	455	773
MAX	1020	514	387	472	330	1000	803	1370	1420	904	594	1790
MIN	356	323	251	243	288	288	521	416	403	488	290	385
CFSM	1.04	.82	.70	.62	.67	.99	1.25	1.56	1.34	1.37	.93	1.58
IN.	1.20	.92	.81	.72	.69	1.14	1.40	1.80	1.49	1.58	1.07	1.77

CAL YR 1990 TOTAL 141582 MEAN 388 MAX 1320 MIN 236 CFSM .79 IN. 10.79  
WTR YR 1991 TOTAL 191230 MEAN 524 MAX 1790 MIN 243 CFSM 1.07 IN. 14.58

## ST. CROIX RIVER BASIN

05333000 MCKENZIE LAKE NEAR SPOONER, WI

LOCATION.--Lat 45°55'58", long 92°02'17", in SE 1/4 sec.24, T.40 N., R.14 W., Burnett County, Hydrologic Unit 07030002, at outlet of McKenzie Lake, 10.2 mi northwest of Spooner.

DRAINAGE AREA.--32.3 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1936 to September 1976, April 1985 to September 1989, April to August 1991. Data 1936 to 1976 unpublished in district files.

GAGE.--Staff gage read by Carl Johnson. Elevation of lake is 990 ft, from topographic map.

EXTREMES FOR PERIOD OF RECORD (EXCLUDING 1985 WATER YEAR).--Maximum gage height observed, 1.36 ft May 30, 1937; minimum observed, -0.52 ft Sept. 16, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 0.82 ft, June 3; minimum observed, 0.44 ft, Apr. 18.

REVISED RECORDS.--The gage datum for water year 1985 was given incorrectly at 990 ft from topographic map; gage datum is unknown.

GAGE HEIGHT, FEET, APRIL TO AUGUST 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	.82	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	.78	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	.64	---
8	---	---	---	---	---	---	---	.56	.68	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	.64	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	.68	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	.64	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	.44	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	.71	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	.79	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	.70	---	---

05333500 ST. CROIX RIVER NEAR DANBURY, WI

LOCATION.--Lat 46°04'28", long 92°14'50", in SW 1/4 sec.33, T.42 N., R.15 W., Burnett County, Hydrologic Unit 07030001, St. Croix National Scenic Waterway, on left bank at downstream side of bridge on State Highway 35, 3.5 mi downstream from Namekagon River, 10 mi northeast of Danbury, and at mile 129.2.

DRAINAGE AREA.--1,580 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1438: 1915(M), 1919-20, 1923-24(M), 1927(M), 1931(M), 1934, 1935-37(M). WSP 1628: 1918. WDR WI-85-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.21 ft above National Geodetic Vertical Datum of 1929. 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.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1915-81, 1985-91), 1,306 ft<sup>3</sup>/s, 11.22 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft<sup>3</sup>/s, May 6, 1950, gage height, 8.22 ft; minimum observed, 393 ft<sup>3</sup>/s, Aug. 6, 13, 1934, gage height, -0.20 ft, site then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 28	0200	3,630	3.65	Sept. 10	0800	3,390	3.75
May 7	0800	*4,550	*4.46				

Minimum daily discharge, 680 ft<sup>3</sup>/s, Jan. 11, 12.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used May 27 to June 5, June 15-17, 21-26, June 30 to Aug. 24, and Sept. 7-23; stage-discharge relation affected by ice Nov. 30 to Mar. 24.)

0.4	620	4.0	4,050
1.0	1,020	5.0	5,330
2.0	1,900		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	994	1330	860	820	740	820	2220	2850	2580	2040	1880	874
2	992	1310	840	780	820	940	2090	2870	2410	2270	1820	879
3	1080	1250	820	760	860	780	2020	2550	2230	2250	1780	883
4	1150	1230	820	740	880	820	1760	2680	2180	2290	1670	952
5	1220	1220	800	700	940	860	1740	2910	1950	2140	1490	951
6	1260	1170	800	780	920	820	1750	3940	1700	2040	1310	903
7	1190	1040	820	700	880	800	1770	4490	1510	1900	1220	1420
8	1110	1080	840	740	940	780	1960	4250	1430	1870	1260	2200
9	1010	1140	880	760	960	880	2230	3870	1350	1830	1210	3170
10	1050	1040	920	700	900	920	2460	3360	1420	1830	1150	3350
11	969	934	880	680	840	900	2530	2980	1410	1780	1090	3070
12	1100	1010	840	680	780	880	2480	2550	1360	1690	1020	2930
13	1070	1100	800	700	900	920	2410	2260	1350	1740	996	2700
14	1020	1010	760	780	820	980	2200	1930	1560	1620	963	2260
15	995	945	780	840	860	920	2250	1710	1930	1510	881	2100
16	1070	932	840	780	740	880	2200	1700	2020	1510	882	2030
17	1370	998	880	700	740	1000	2190	1940	1900	1450	1040	1990
18	1880	1090	860	720	760	940	2180	1930	1820	1550	1060	2130
19	2090	1040	860	740	760	1000	2190	1820	1790	1850	1090	2120
20	2130	918	840	760	780	1300	2040	1690	1800	1830	1060	1960
21	2190	950	780	740	900	2500	1900	1600	2260	1820	1060	1850
22	2220	1000	700	720	840	3000	1650	1520	2630	1690	940	1770
23	2150	1020	760	900	880	3300	1610	1490	2340	1640	901	1650
24	2000	996	820	820	800	3000	1580	1660	2120	1520	897	1550
25	1890	983	880	740	800	2890	1580	1740	1940	1420	1010	1610
26	1770	903	900	720	800	3250	1620	1940	1810	1350	979	1620
27	1580	935	920	720	800	3500	1630	2470	1680	1310	907	1550
28	1440	981	840	720	920	3390	1570	2420	1630	1510	881	1440
29	1400	935	860	740	---	2980	1670	2610	1730	2050	839	1280
30	1410	860	900	720	---	2810	2420	2640	1840	2120	874	1400
31	1360	---	860	720	---	2630	---	2560	---	2030	869	---
TOTAL	44160	31350	25960	23120	23560	51390	59900	76930	55680	55450	35029	54592
MEAN	1425	1045	837	746	841	1658	1997	2482	1856	1789	1130	1820
MAX	2220	1330	920	900	960	3500	2530	4490	2630	2290	1880	3350
MIN	969	860	700	680	740	780	1570	1490	1350	1310	839	874
CFSM	.90	.66	.53	.47	.53	1.05	1.26	1.57	1.17	1.13	.72	1.15
IN.	1.04	.74	.61	.54	.55	1.21	1.41	1.81	1.31	1.31	.82	1.29

CAL YR 1990 TOTAL 429585 MEAN 1177 MAX 6000 MIN 579 CFSM .74 IN. 10.11  
WTR YR 1991 TOTAL 537121 MEAN 1472 MAX 4490 MIN 680 CFSM .93 IN. 12.65

## ST. CROIX RIVER BASIN

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

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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: June 13-24, based on powerplant data provided by Northern States Power Company. Records good. Diurnal fluctuation caused by St. Croix Falls Powerplant 1,500 ft upstream. Data-collection platform at station.

AVERAGE DISCHARGE.--89 years, 4,312 ft<sup>3</sup>/s, 9.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 54,900 ft<sup>3</sup>/s, May 8, 1950, gage height, 25.19 ft; minimum daily, 75 ft<sup>3</sup>/s, July 17, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,300 ft<sup>3</sup>/s, May 9, gage height, 11.97 ft; minimum daily, 1,420 ft<sup>3</sup>/s, Dec. 4.

## RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

2.5	1,400	6.0	10,700
3.0	2,350	8.0	15,700
4.0	4,950	12.0	25,400

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2590	4520	2640	1800	2120	1820	11900	7950	12800	7030	6220	2040
2	2310	4090	2060	2380	1610	2040	10400	9920	14000	9130	5950	1710
3	2830	4130	2070	1820	1670	2000	9210	10700	16200	10500	5980	3460
4	2710	3950	1420	2010	1930	2030	8690	10600	15700	10900	5480	2880
5	3560	3640	1820	1810	1810	1870	8400	11000	12600	10600	4610	2480
6	4000	4050	2340	1790	1570	2000	8430	15800	11000	10600	4130	2700
7	3780	3190	2710	1870	2180	1880	8460	19900	9680	10100	4390	2570
8	3560	3310	2730	1660	1790	2080	8650	24000	8380	9220	3660	4180
9	3130	2960	2760	1970	2130	1720	9090	24800	7480	8270	3600	9100
10	3460	3300	2230	1790	1870	1780	9240	23400	7040	7620	3340	11700
11	2940	3130	2840	2080	2090	2220	9230	20900	6740	7070	3200	13600
12	3200	2790	2450	1850	2070	1910	9110	18000	6360	6790	3010	13600
13	2500	2820	2570	1630	1910	2210	9220	15600	5450	7710	3160	11500
14	3010	3390	2160	1990	1650	2080	10100	13700	5980	8220	2710	10500
15	2810	3080	2340	1860	2050	2200	11000	11600	5860	7800	2710	9280
16	2840	2900	1920	1960	2010	2580	11700	10400	7050	7370	2740	7570
17	3480	2830	2250	2250	1800	2290	12500	9210	7050	6710	2720	7620
18	3550	2900	2240	1910	1880	2330	12400	8780	7090	6410	2360	7650
19	5240	2890	2110	2020	1800	2900	11900	9630	6940	5610	2770	7360
20	7410	2910	1890	2340	1850	3190	11300	7720	6540	5820	2630	7480
21	7460	2890	1940	1770	1810	4230	10500	6530	6470	5620	2870	6870
22	7920	2600	1510	2210	2010	6200	9730	5240	7830	5460	2500	6590
23	8460	2840	1680	2080	1890	7870	8850	5340	10500	5320	2100	6300
24	8240	2960	1540	2050	1940	12100	8260	5780	11500	5000	2310	5580
25	7520	2700	1440	1980	1950	13900	7770	6530	9920	4400	2110	5540
26	7150	2230	2030	1740	1830	14800	7360	7590	8210	3970	2680	4940
27	6550	2820	1810	1710	1850	16200	6820	9250	7300	3780	2410	5090
28	5840	2270	2030	1940	2010	18000	6640	11200	6960	3800	2270	4560
29	5470	1760	2350	1700	---	17800	6330	11600	5610	3870	2210	4120
30	4860	1820	2070	1900	---	15800	6320	11800	6020	5250	2080	3820
31	4710	---	1820	1950	---	13600	---	12600	---	6010	2040	---
TOTAL	143090	91670	65770	59820	53080	183630	279510	377070	260260	215960	100950	192390
MEAN	4616	3056	2122	1930	1896	5924	9317	12160	8675	6966	3256	6413
MAX	8460	4520	2840	2380	2180	18000	12500	24800	16200	10900	6220	13600
MIN	2310	1760	1420	1630	1570	1720	6320	5240	5450	3780	2040	1710
CFSM	.74	.49	.34	.31	.30	.95	1.49	1.95	1.39	1.12	.52	1.03
IN.	.85	.55	.39	.36	.32	1.09	1.67	2.25	1.55	1.29	.60	1.15

CAL YR 1990 TOTAL 1368710 MEAN 3750 MAX 15700 MIN 1200 CFSM .60 IN. 8.16  
WTR YR 1991 TOTAL 2023200 MEAN 5543 MAX 24800 MIN 1420 CFSM .89 IN. 12.06



452858092265300 BALSAM LAKE, OFF LITTLE NARROWS, NEAR BALSAM LAKE, WI

LOCATION.--Lat 45°28'58", long 92°26'53", in NE 1/4 NE 1/4 sec.34, T.35 N., R.17 W., Polk County, Hydrologic Unit 07030005, 2.1 mi north of Balsam Lake.

PERIOD OF RECORD.--May to September 1991.

REMARKS.--Lake sampled about 0.25 mi northwest of Little Narrows. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, MAY 01 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	May 01	June 11	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	8.03	8.23	7.69	7.73
Specific conductance (μS/cm)	203	171	181	202
pH (units)	7.80	8.20	8.46	8.40
Water temperature (°C)	10.3	24.5	24.8	22.3
Secchi-depth (meters)	2.1	1.8	1.8	2.0
Dissolved oxygen	10.8	8.7	9.7	8.9
Phosphorus, total (as P)	0.025	0.043	0.026	0.021
Chlorophyll a, phytoplankton (μg/L)	12.0	22.0	11.0	6.0

452754092234300 BALSAM LAKE, OFF ROCK ISLAND, NEAR BALSAM LAKE, WI

LOCATION.--Lat 45°27'54", long 92°23'43", in NW 1/4 NE 1/4 sec.6, T.34 N., R.16 W., Polk County, Hydrologic Unit 07030005, 3 mi northeast of Balsam Lake.

PERIOD OF RECORD.--May to September 1991.

REMARKS.--Lake sampled in eastern bay about 0.25 mi northeast of Rock Island. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, MAY 01 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	May 01	June 11	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	8.03	8.23	7.69	7.73
Specific conductance (μS/cm)	174	164	165	170
pH (units)	8.04	8.30	8.67	8.93
Water temperature (°C)	10.65	23.40	24.60	22.40
Secchi-depth (meters)	3.0	6.1	2.1	1.3
Dissolved oxygen	11.0	8.3	8.7	8.6
Phosphorus, total (as P)	0.010	0.011	0.018	0.032
Chlorophyll a, phytoplankton (μg/L)	2.0	2.0	13.0	22.0

## ST. CROIX RIVER BASIN

452755092264600 BALSAM LAKE, OFF CEDAR ISLAND, AT BALSAM LAKE, WI

LOCATION.--Lat 45°27'55", long 92°26'46", in NW 1/4 SW 1/4 sec.2, T.34 N., R.17 W., Polk County, Hydrologic Unit 07030005, 1 mi north of Balsam Lake.

DRAINAGE AREA.--52.7 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--December 1987 to current year. December 1987 to November 1989 (fragmentary), data unpublished in district files.

GAGE.--Staff read by Bob Zuehlke. Staff on wingwall of culvert between Balsam Lake and Mill Pond on CTH "I". From December 1987 to May 1991, gage at different location on lake. Elevation of lake is 1,133 ft, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 8.41 ft, Sept. 18, 1991; minimum observed, 6.74 ft, Aug. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 8.41 ft, Sept. 18; minimum observed, 7.63 ft, Sept. 4.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	8.03	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	7.63
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	8.07	---	---	---	---	---	7.85	---
7	---	---	---	---	---	---	---	8.31	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	8.23	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	8.27
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	7.79	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	7.69	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	8.41
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	7.73	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	7.73	---	---
26	---	---	---	---	---	---	---	---	---	---	---	8.03
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	7.71	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	7.73	---	---

452755092264600 BALSAM LAKE, OFF CEDAR ISLAND, AT BALSAM LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled about 0.25 mi north of Cedar Island at a lake depth of about 34 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 06 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 06		May 01		June 11		July 16		Aug. 21	
Depth of sample (ft)	2.0	30.0	1.5	32.0	1.5	30.0	1.5	30.0	1.5	30.0
Lake stage (ft)		8.07		8.03		8.23		7.69		7.73
Specific conductance ( $\mu\text{S}/\text{cm}$ )	197	206	181	179	168	184	163	194	170	228
pH (units)	8.27	7.60	8.05	7.90	8.39	7.42	8.75	7.71	8.98	7.63
Water temperature ( $^{\circ}\text{C}$ )	0.93	4.02	9.49	9.66	22.80	11.30	24.20	12.20	22.60	13.20
Color (Pt-Co. scale)			5.0	10.0						
Turbidity (NTU)			0.8	0.6						
Secchi-depth (meters)				3.9		5.2		3.4		3.0
Dissolved oxygen	12.45	5.21	11.30	10.80	9.20	1.80	9.20	0.10	9.30	0.10
Hardness, as $\text{CaCO}_3$			86	86						
Calcium, dissolved (Ca)			21	21						
Magnesium, dissolved (Mg)			8.0	8.0						
Sodium, dissolved (Na)			4.0	4.0						
Potassium, dissolved (K)			1.57	1.37						
Alkalinity, as $\text{CaCO}_3$			80	80						
Sulfate, dissolved ( $\text{SO}_4$ )			<5.0	<5.0						
Fluoride, dissolved (F)			0.06	0.07						
Chloride, dissolved (Cl)			8.0	8.0						
Silica, dissolved ( $\text{SiO}_2$ )			9.2	9.2						
Solids, dissolved, at $180^{\circ}\text{C}$			114	112						
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)			0.075	0.088						
Nitrogen, ammonia, dissolved (as N)			0.022	0.019						
Nitrogen, amm. + org., total (as N)			0.40	0.40						
Phosphorus, total (as P)			0.019	0.024	0.017	0.038	0.012	0.081	0.019	0.140
Phosphorus, ortho, dissolved (as P)			0.006	0.005						
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$			<50	<50						
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$			<40	<40						
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )			5.0		3.0		6.0		16.0	

2-6-91

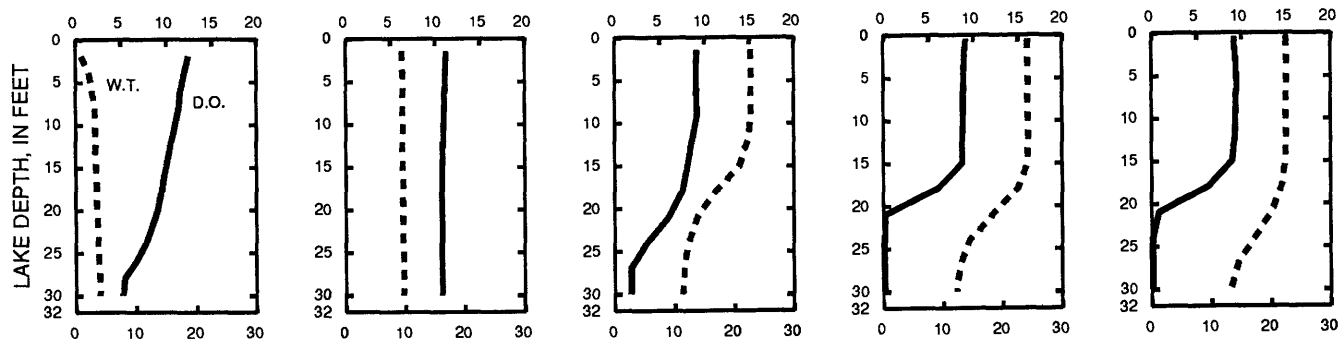
5-1-91

6-11-91

7-16-91

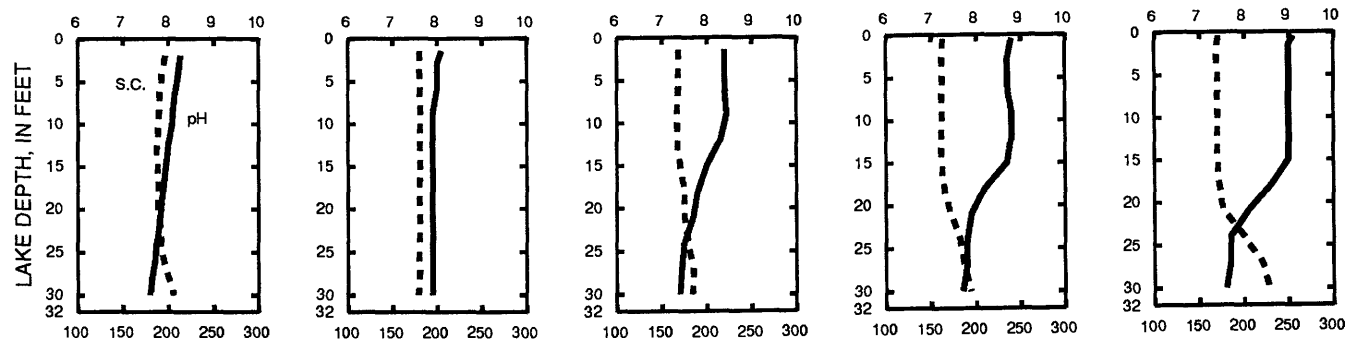
8-21-91

## 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

## ST. CROIX RIVER BASIN

05341500 APPLE RIVER NEAR SOMERSET, WI

LOCATION.--Lat 45°09'27", long 92°42'59", in sec.21, T.31 N., R.19 W., St. Croix County, Hydrologic Unit 07030005, at powerplant of Northern States Power Co., 3.5 mi downstream from Somerset.

DRAINAGE AREA.--579 mi<sup>2</sup>.

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.

AVERAGE DISCHARGE.--74 years (water years 1902-70, 1987-91), 305 ft<sup>3</sup>/s, 7.15 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,510 ft<sup>3</sup>/s, Apr. 13, 1965; minimum daily, 7 ft<sup>3</sup>/s, Aug. 21, 1927, Sept. 30, 1929, July 19, 1932, Aug. 2, 3, 1933.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,210 ft<sup>3</sup>/s, Sept. 12; minimum daily, 108 ft<sup>3</sup>/s, Dec. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	337	358	195	179	275	605	451	891	395	321	217
2	152	330	289	199	197	272	590	399	855	421	320	212
3	202	306	302	191	197	231	485	446	746	392	410	225
4	163	307	293	191	214	231	430	528	878	407	376	229
5	169	299	227	193	208	257	579	522	1000	389	351	216
6	198	309	330	202	207	270	501	619	1130	374	350	210
7	196	334	352	198	217	247	477	777	929	351	376	243
8	199	317	316	180	239	289	534	956	789	279	373	255
9	177	285	314	208	274	268	440	949	559	342	322	499
10	194	282	293	191	212	265	515	866	483	359	356	761
11	230	293	288	189	186	310	480	783	582	375	325	1150
12	235	337	277	193	184	248	512	732	575	367	366	1210
13	260	283	264	196	293	203	514	618	524	342	350	1160
14	289	310	168	200	190	313	548	606	366	315	278	1140
15	289	335	193	196	183	314	530	588	716	319	281	1060
16	259	353	255	194	153	304	560	520	743	323	284	1100
17	258	300	265	200	272	297	588	436	685	207	276	989
18	259	301	241	199	278	307	594	540	656	165	279	1030
19	330	301	210	194	215	282	565	546	616	362	260	1030
20	363	296	188	197	212	338	499	540	594	431	237	945
21	355	301	128	166	238	447	530	513	600	428	312	809
22	268	302	112	157	227	638	536	349	630	384	342	766
23	268	302	108	202	208	789	437	367	611	328	336	629
24	269	298	129	144	152	955	498	366	578	294	319	645
25	343	308	179	160	213	1090	489	417	528	216	315	604
26	353	308	196	183	262	855	378	416	474	197	305	623
27	355	299	210	200	281	823	387	399	319	200	228	641
28	354	306	191	200	244	813	450	399	387	216	220	507
29	356	255	248	187	---	737	483	577	391	211	211	557
30	373	246	205	174	---	693	533	619	457	238	200	473
31	472	---	187	182	---	738	---	962	---	247	216	---
TOTAL	8340	9140	7316	5861	6135	14099	15267	17806	19292	9874	9495	20135
MEAN	269	305	236	189	219	455	509	574	643	319	306	671
MAX	472	353	358	208	293	1090	605	962	1130	431	410	1210
MIN	152	246	108	144	152	203	378	349	319	165	200	210
CFSM	.46	.53	.41	.33	.38	.79	.88	.99	1.11	.55	.53	1.16
IN.	.54	.59	.47	.38	.39	.91	.98	1.14	1.24	.63	.61	1.29
CAL YR 1990	TOTAL 122693	MEAN 336	MAX 1370	MIN 108	CFSM .58	IN. 7.88						
WTR YR 1991	TOTAL 142760	MEAN 391	MAX 1210	MIN 108	CFSM .68	IN. 9.17						

## 05344500 MISSISSIPPI RIVER AT PRESCOTT, WI

LOCATION.--Lat 44°44'45", long 92°48'00", in sec.9, T.26 N., R.20 W., Pierce County, Hydrologic Unit 07040001, on left bank at Prescott, 200 ft downstream from St. Croix River, 300 ft south of Chicago, Burlington & Quincy Railroad bridge, 800 ft south of bridge on U.S. Highway 10, and at mile 811.4 upstream from Ohio River.

DRAINAGE AREA.--44,800 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 1508: 1941. WRD MN-74: 1973.

GAGE.--Water-stage recorder. Datum of gage is 649.50 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 2, 1932, nonrecording gage at railroad bridge 300 ft upstream at following datums: June 3, 1928, to Sept. 30, 1929, 19.27 ft higher; Oct. 1, 1929, to Sept. 30, 1930, 17.68 ft higher; Oct. 1, 1930, to Aug. 1, 1932, 19.28 ft higher. Aug. 2, 1932, to Oct. 30, 1938, water-stage recorder at present site at datum 19.28 ft higher; Nov. 1, 1938, to Sept. 7, 1971, water-stage recorder at present site at datum 50.00 ft lower.

REMARKS.--Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

AVERAGE DISCHARGE.--63 years, 17,182 ft<sup>3</sup>/s, 5.21 in/yr; median of yearly mean discharges, 16,000 ft<sup>3</sup>/s, 4.85 in/yr.

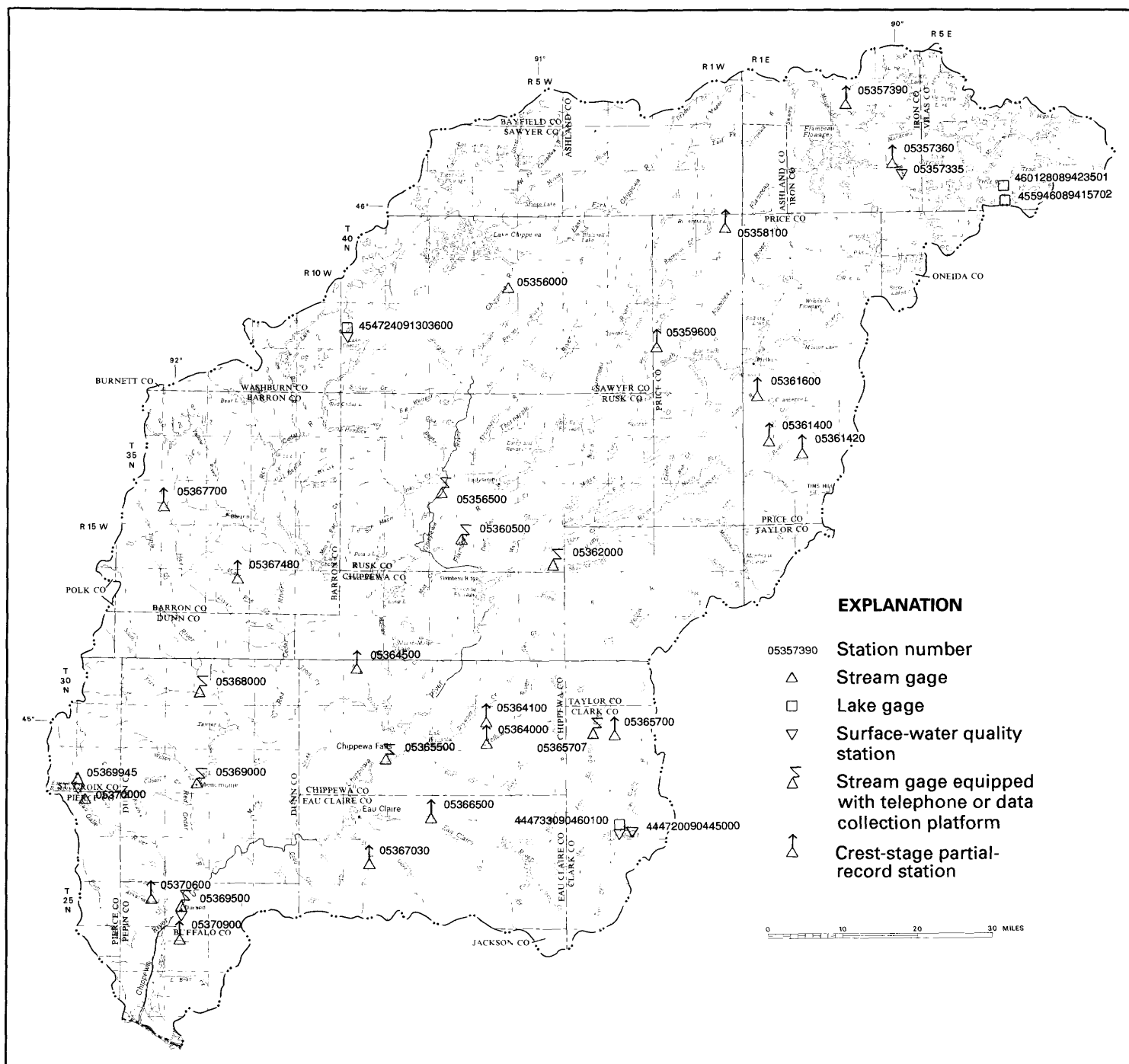
EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 228,000 ft<sup>3</sup>/s, Apr. 18, 1965, gage height, 43.11 ft; minimum daily, 1,380 ft<sup>3</sup>/s, July 13, 1940; minimum gage height, 15.08 ft, Aug. 29, 1934, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 74,300 ft<sup>3</sup>/s, May 12; maximum gage height, 33.27 ft, May 11; minimum daily discharge, 4,320 ft<sup>3</sup>/s, Dec. 23; minimum gage height, 24.53 ft, Dec. 25, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6740	13700	6170	6030	5570	5800	41000	29700	46300	44200	24100	12800
2	7500	13600	6880	6030	5940	5490	39500	32200	47400	43800	23700	12200
3	6650	12700	6420	6600	5800	5910	37100	36300	50700	47800	23700	10900
4	7190	12500	6710	5900	5740	5890	34800	38100	53200	49800	24700	12700
5	7430	12500	5790	6190	6920	5930	32800	39700	54200	51300	25100	12000
6	9220	11900	6510	5840	5800	5760	31200	41800	51000	51200	23400	11800
7	9310	11900	7000	6080	5830	5920	30600	50000	49900	50400	22300	11900
8	8970	10700	7420	6060	5790	5740	29300	58400	49600	47800	22100	11300
9	9280	11300	7830	5720	5360	5990	28200	67300	52300	45500	20900	12900
10	8380	10600	7880	6060	5720	5790	27600	70900	55200	42900	21900	19900
11	9500	10900	7400	5850	5460	5850	27000	73700	58700	40700	23500	26600
12	9070	10600	7490	5690	5680	6380	26500	74300	60800	38300	24900	29500
13	9350	9750	7480	5920	5700	5800	26100	73200	59800	35500	25700	31700
14	8330	9850	7250	5730	6070	6510	25900	71000	57800	36300	27200	33500
15	8940	9940	6780	6090	5540	6420	27900	67400	56800	35700	27000	34800
16	8560	9720	6210	6090	5620	6700	31300	62500	53800	35900	26600	36300
17	8410	9860	6460	6000	5820	7200	37100	57300	52700	35400	26600	39600
18	9040	9360	6870	6400	7420	6840	42100	52500	50800	34700	25100	42100
19	9260	9730	6830	5930	7390	7490	44900	49200	48700	34200	23000	42700
20	11700	9310	6180	5890	6370	8250	46100	47100	45700	33200	21900	42600
21	13900	9590	5840	6560	6500	9140	47300	42600	43500	33600	20300	41700
22	14400	9130	5500	5410	6720	11000	47700	39500	42800	32000	19700	38700
23	15000	8960	4320	6040	6240	15200	47400	37400	44500	30500	18400	35900
24	16300	8890	4350	6130	5690	19000	45700	36900	46600	28300	17800	34200
25	17200	9110	5710	5860	5690	26900	43100	36500	47600	26800	17700	32000
26	16600	9020	5800	5760	6060	33800	39700	37000	46200	26400	17200	29900
27	16600	8180	6480	5670	6150	36200	36300	37400	44700	25800	17100	28400
28	16000	8820	6140	5860	5880	39800	33100	38500	45000	25400	16100	27800
29	14900	7450	6100	6130	---	43100	31900	40500	45500	24100	15400	25000
30	14600	7100	7010	5490	---	43900	30900	41100	44000	23900	14500	23600
31	13800	---	6310	5520	---	42800	---	43500	---	24500	13600	---
TOTAL	342130	306670	201120	184530	168470	446500	1070100	1523500	1505800	1135900	671200	805000
MEAN	11040	10220	6488	5953	6017	14400	35670	49150	50190	36640	21650	26830
MAX	17200	13700	7880	6600	7420	43900	47700	74300	60800	51300	27200	42700
MIN	6650	7100	4320	5410	5360	5490	25900	29700	42800	23900	13600	10900
CFSM	.25	.23	.14	.13	.13	.32	.80	1.10	1.12	.82	.48	.60
IN.	.28	.25	.17	.15	.14	.37	.89	1.27	1.25	.94	.56	.67

CAL YR 1990 TOTAL 5152370 MEAN 14120 MAX 42900 MIN 4320 CFSM .32 IN. 4.28  
WTR YR 1991 TOTAL 8360920 MEAN 22910 MAX 74300 MIN 4320 CFSM .51 IN. 6.94



## CHIPPEWA RIVER BASIN

## CHIPPEWA RIVER BASIN

187

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 northwest of Winter.

DRAINAGE AREA.--790 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1912 to current year. 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 National Geodetic Vertical Datum of 1929 (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. Flow regulated by Moose Lake and Lake Chippewa.

AVERAGE DISCHARGE.--79 years, 716 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,520 ft<sup>3</sup>/s, Sept. 4, 5, 1941, gage height, 11.05 ft; minimum, 14 ft<sup>3</sup>/s, Apr. 17-20, 1925, gage height, 3.25 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,210 ft<sup>3</sup>/s, Apr. 15, gage height, 6.92 ft; minimum discharge, 183 ft<sup>3</sup>/s, May 18, June 24, gage height 4.16 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

4.0	135	6.0	1,310
4.5	311	7.0	2,300
5.0	570		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	1170	501	503	489	478	262	1060	1290	1140	1090	528
2	1090	1170	501	501	488	477	256	1120	1750	1130	1090	524
3	867	1170	500	501	485	478	380	1120	1720	1130	1090	499
4	867	1160	500	502	484	478	482	1120	1600	1130	1090	362
5	850	1160	501	500	484	478	503	1130	1730	1130	1090	236
6	510	1160	500	500	484	478	521	1360	1730	1120	1090	234
7	509	1160	493	500	484	478	522	1510	1520	1090	1080	267
8	842	1160	506	501	483	478	862	1500	1390	1070	1070	249
9	869	1160	504	500	483	478	1020	1500	1390	1070	1070	252
10	843	1150	501	500	483	477	1460	1500	1240	1060	1060	283
11	707	1150	501	489	482	518	1420	1500	1140	1020	1060	388
12	793	1140	504	495	481	597	1690	1490	1130	961	1060	431
13	505	1100	502	497	478	534	1620	1500	1100	546	1050	425
14	509	853	502	495	478	474	2010	1340	1120	531	1140	478
15	824	845	502	495	479	474	2180	1170	417	839	1100	965
16	772	844	502	495	479	474	2180	1120	373	884	848	1250
17	874	518	500	495	478	474	1860	1130	786	883	538	1240
18	903	517	500	495	479	349	1550	1000	851	1140	529	1240
19	854	828	500	493	478	259	1280	981	854	1140	871	1230
20	550	508	500	490	478	263	1180	1090	820	1140	894	1220
21	558	511	500	490	474	286	1180	995	935	1090	887	1220
22	918	509	500	493	462	268	1180	1100	1130	1100	880	1220
23	1170	510	500	489	485	360	1250	1040	1120	1100	869	1200
24	1170	507	500	489	483	304	1190	1100	956	1100	530	1180
25	1180	506	500	491	483	290	1200	1040	1130	1100	528	1190
26	1180	505	501	490	483	296	1190	1080	1140	1100	875	1200
27	1180	507	499	489	480	339	1200	1140	1130	1100	872	1160
28	1170	508	494	489	479	320	1200	1160	1030	1120	880	1140
29	1170	506	489	489	---	301	1190	1220	1020	1110	528	1130
30	1170	505	489	489	---	303	1190	1160	1130	1100	521	1140
31	1170	---	499	489	---	258	---	1180	---	1100	525	---
TOTAL	27714	24997	15491	15334	13466	12519	35208	37456	34672	32274	27805	24081
MEAN	894	833	500	495	481	404	1174	1208	1156	1041	897	803
MAX	1180	1170	506	503	489	597	2180	1510	1750	1140	1140	1250
MIN	505	505	489	489	462	258	256	981	373	531	521	234

CAL YR 1990 TOTAL 212400 MEAN 582 MAX 4080 MIN 101  
WTR YR 1991 TOTAL 301017 MEAN 825 MAX 2180 MIN 234

## CHIPPEWA RIVER BASIN

454724091303600 BIG SISSABAGAMA LAKE NEAR STONE LAKE, WI

LOCATION.--Lat 45°47'24", long 91°30'36", in NW 1/4 SE 1/4 sec.6, T.38 N., R.9 W., Sawyer County, Hydrologic Unit 07050001, near Stone Lake.

DRAINAGE AREA.--9.47 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

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

GAGE.--Staff gage read near lake outlet by Richard Roehrich. Elevation of lake is 1,320 ft, from topographic map.

EXTREMES FOR PERIOD OF RECORD: Maximum gage-height observed, 6.09 ft, May 7 and Sept. 15, 1991; minimum observed, 4.78 ft, Sept. 15, 16, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 6.09 ft, May 7 and Sept. 15; minimum observed, 5.62 ft, Sept. 1, 2, and 4.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.75	5.77	---	---	---	---	---	5.96	5.99	5.91	5.75	5.62
2	5.71	5.77	---	---	---	---	---	5.95	5.99	5.88	5.77	5.62
3	5.77	5.75	5.69	---	---	---	---	5.95	5.96	5.88	5.77	5.64
4	5.81	5.75	---	---	---	---	---	5.96	5.93	5.88	5.76	5.62
5	5.83	5.75	---	---	5.68	---	---	5.99	5.92	5.88	5.75	5.65
6	5.81	5.73	---	---	---	---	---	6.08	5.90	5.89	5.72	5.64
7	5.77	5.73	---	---	---	---	---	6.09	5.88	5.86	5.71	5.81
8	5.77	5.73	---	---	---	---	---	6.06	5.85	5.85	5.71	5.89
9	5.77	5.73	---	---	---	---	---	6.05	5.84	5.84	5.70	5.96
10	5.73	5.71	---	---	---	---	---	6.04	5.86	5.82	5.68	5.96
11	5.69	5.69	---	---	---	---	---	6.02	5.84	5.81	5.67	5.94
12	5.69	5.69	---	---	---	---	---	6.01	5.83	5.79	5.67	5.94
13	5.71	5.69	---	---	---	---	---	5.98	5.79	5.88	5.65	5.92
14	5.71	5.69	---	---	---	---	---	5.96	5.96	5.87	5.65	6.07
15	5.69	5.69	---	---	---	---	---	5.94	5.97	5.85	5.64	6.09
16	5.71	5.67	---	---	---	---	---	5.93	5.94	5.82	5.72	6.06
17	5.79	5.67	---	---	---	---	---	5.89	5.93	5.82	5.77	6.05
18	5.85	5.67	---	---	---	---	---	5.87	5.94	5.84	---	6.00
19	5.85	5.67	---	---	---	---	---	5.86	5.92	5.89	---	5.99
20	5.83	5.67	---	---	---	---	---	5.84	5.93	5.89	5.74	5.94
21	5.83	5.69	---	---	---	---	---	5.83	6.05	5.88	---	5.91
22	5.87	5.69	---	---	---	---	---	5.82	6.04	5.86	5.72	5.86
23	5.85	5.67	---	---	---	---	5.99	5.82	6.02	5.84	5.70	5.82
24	5.83	5.67	---	---	---	---	5.97	5.83	5.99	5.82	5.69	5.79
25	5.81	5.67	---	---	---	---	5.97	5.84	5.98	5.79	5.70	5.80
26	5.81	5.67	---	---	---	---	5.96	5.86	5.96	5.78	5.68	5.79
27	5.81	5.67	---	---	---	---	5.96	5.86	5.94	5.77	5.68	5.75
28	5.79	5.69	---	---	---	---	5.92	5.89	5.93	5.79	5.67	5.72
29	5.77	5.69	---	---	---	---	5.94	5.95	5.92	5.77	5.65	5.69
30	5.77	5.69	---	---	---	---	5.96	5.93	5.91	5.77	5.66	5.69
31	5.77	---	---	---	---	---	---	5.96	---	5.76	5.64	---
MAX	5.87	5.77	---	---	---	---	---	6.09	6.05	5.91	---	6.09
MIN	5.69	5.67	---	---	---	---	---	5.82	5.79	5.76	---	5.62



454724091303600 BIG SISSABAGAMA LAKE NEAR STONE LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

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

REMARKS.--Lake sampled near center at a lake depth of about 48 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene. Additional water-quality data for Big Sissabagama Lake on page 550.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 23		June 10		July 15		Aug. 20	
Depth of sample (ft)	1.5	46.0	1.5	48.0	1.5	45.0	1.5	48.0	1.5	48.5
Lake stage (ft)	5.68		5.99		5.86		5.85		5.74	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	84	117	75	74	71	79	69	100	70	128
pH (units)	8.39	7.25	8.40	8.10	8.58	7.09	8.65	7.18	8.70	7.40
Water temperature ( $^{\circ}\text{C}$ )	1.00	4.99	7.70	5.80	22.70	9.60	23.30	10.10	22.10	10.00
Color (Pt-Co. scale)	---	---	15	15	---	---	---	---	---	---
Turbidity (NTU)	---	---	1.6	1.9	---	---	---	---	---	---
Secchi-depth (meters)	---	---	3.0	---	2.7	---	2.4	---	2.4	---
Dissolved oxygen	13.90	0.20	12.30	10.70	8.86	0.94	9.00	0.10	8.90	0.20
Hardness, as $\text{CaCO}_3$	---	---	35	35	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	9.1	8.9	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	3.0	3.0	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	0.75	0.76	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	35	37	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	<0.05	<0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	<1.0	<1.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	5.3	5.7	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	150	66	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.024	0.043	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.017	0.038	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.60	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.035	0.024	0.020	0.087	0.013	0.094	0.016	0.280
Phosphorus, ortho, dissolved (as P)	---	---	0.006	0.006	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	110	130	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	52	96	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	14.0	---	5.0	---	7.0	---	6.0	---

2-5-91

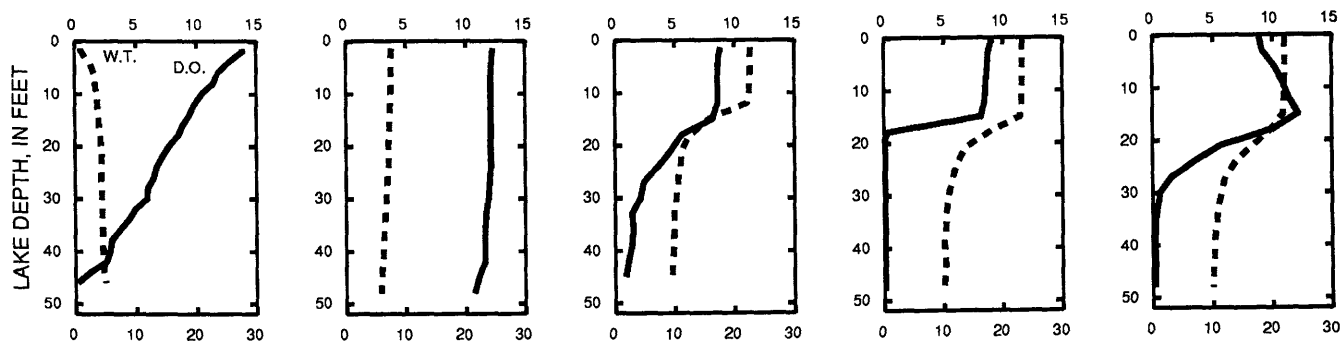
4-23-91

6-10-91

7-15-91

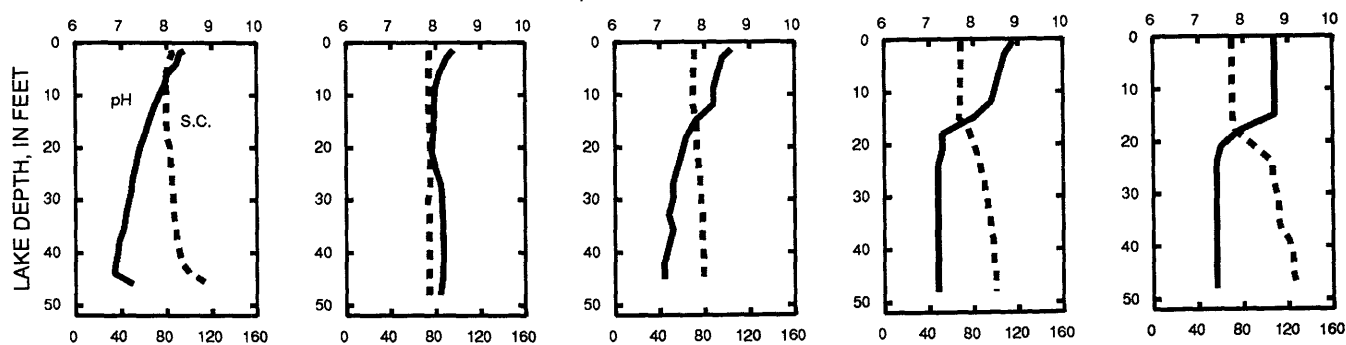
8-20-91

## 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

## CHIPPEWA RIVER BASIN

05356500 CHIPPEWA RIVER NEAR BRUCE, WI

LOCATION.--Lat 45°27'08", long 91°15'39", in SE 1/4 sec.5, T.34 N., R.7 W., Rusk County, Hydrologic Unit 07050001, on right bank 1.0 mi east of Bruce and 1.0 mi downstream from Thornapple River.

DRAINAGE AREA.--1,650 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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 period listed in rating table below. Records good except those for ice-affected period, which is fair. Flow from 48 percent of the drainage area regulated by Moose Lake and Lake Chippewa. Gage-height telemeter at station.

AVERAGE DISCHARGE.--77 years, 1,466 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,800 ft<sup>3</sup>/s, Sept. 1, 1941, gage height, 20.46 ft, from floodmarks, from rating curve extended above 20,000 ft<sup>3</sup>/s; minimum, 155 ft<sup>3</sup>/s, June 10, 1932, gage height, 0.9 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 10,000 ft<sup>3</sup>/s (estimated, backwater from ice), Mar. 24, gage height, 12.47 ft (ice jam); maximum discharge during open-water period, 7,400 ft<sup>3</sup>/s, Mar. 26, gage height, 8.61 ft; minimum, 466 ft<sup>3</sup>/s, Sept. 6, gage height, 1.62 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Apr. 3-6, May 22-25, June 11-15, 28, June 30 to July 7, July 19-22, Aug. 2-3, Sept. 13, and 23-30; stage-discharge relation affected by ice Nov. 23 to Mar. 25.)

1.5	420	6.0	4,300
2.0	761	8.0	6,620
4.0	2,380	10.0	9,270
		12.0	12,200

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	1790	800	720	760	780	2630	3040	4930	1780	1490	732
2	1750	1770	760	700	780	780	1990	2790	6140	1790	1600	746
3	1620	1750	760	700	800	780	1720	2600	5460	1760	1710	825
4	1960	1760	760	700	820	800	1830	2540	4300	1770	1590	792
5	1990	1750	760	700	820	800	1860	2550	3400	1730	1520	618
6	1760	1770	840	700	820	800	1890	4630	3000	1720	1480	474
7	1290	1710	940	700	820	820	2080	6170	2710	1650	1460	836
8	1230	1690	920	700	820	840	2390	5130	2230	1580	1470	2140
9	1440	1670	860	700	800	840	4180	4030	2110	1510	1450	3720
10	1410	1670	840	700	780	880	4840	3450	2090	1480	1430	5090
11	1370	1660	820	720	780	900	4660	3010	1810	1510	1390	3700
12	1180	1630	780	720	780	940	3690	2810	1690	1370	1330	2410
13	1320	1590	760	720	760	1000	3850	2650	1650	1520	1290	1800
14	1060	1440	760	740	740	940	4410	2480	1620	1320	1310	1940
15	1160	1350	820	740	720	920	5330	2140	1620	1230	1370	4020
16	1430	1310	820	740	720	920	5060	1930	1150	1570	1280	4380
17	1850	1270	820	720	700	940	4690	2250	943	1390	1240	3600
18	3640	917	820	740	700	960	3780	2170	1370	1520	1070	3040
19	3860	881	820	780	700	940	2910	1880	1430	1660	966	2620
20	3390	1210	820	800	720	860	2520	1630	1450	1670	1240	2340
21	2860	907	800	780	740	1700	2270	1760	3250	1660	1230	2130
22	2940	893	780	760	800	3300	2170	1620	6140	1610	1210	1940
23	2930	900	760	740	780	4400	2330	1650	4330	1550	1190	1850
24	2790	860	740	740	780	10000	2320	1670	2960	1500	1160	1780
25	2630	820	720	760	780	9600	2140	1640	2160	1490	805	1750
26	2420	800	720	760	780	6500	2110	2050	2050	1470	804	1740
27	2290	820	740	760	780	6060	2220	2570	1910	1470	1140	1730
28	2190	800	760	760	760	7110	2150	2540	1820	1470	1110	1670
29	2040	820	760	760	---	6390	2050	3810	1630	1520	1080	1570
30	1890	840	740	760	---	4680	2660	4410	1670	1540	758	1600
31	1800	---	740	750	---	3450	---	4280	---	1530	736	---
TOTAL	63110	39048	24540	22770	21540	80630	88730	87880	79023	48340	38909	63583
MEAN	2036	1302	792	735	769	2601	2958	2835	2634	1559	1255	2119
MAX	3860	1790	940	800	820	10000	5330	6170	6140	1790	1710	5090
MIN	1060	800	720	700	700	780	1720	1620	943	1230	736	474

CAL YR 1990 TOTAL 478318 MEAN 1310 MAX 12000 MIN 300  
WTR YR 1991 TOTAL 658103 MEAN 1803 MAX 10000 MIN 474

## CHIPPEWA RIVER BASIN

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455946089415702 LITTLE ROCK LAKE NEAR WOODRUFF, WI

LOCATION.--Lat 45°59'46", long 89°41'57", in NW 1/4 NW 1/4 sec.36, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07070001, 7 mi north of Woodruff, 800 ft west of U.S. Highway 51, and 200 ft southeast of boat landing.

DRAINAGE AREA.--0.22 mi<sup>2</sup>. Area of lake, 0.07 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Lake does not have surface inlet or outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed gage height, 28.10 ft, Apr. 7-9, 1986; minimum observed gage height, 25.06 ft, Aug. 8, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum observed gage height, 26.52 ft, July 29-30; minimum observed gage height, 25.47 ft, Oct. 13.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.53	25.70	25.66	25.64	25.63	25.64	25.91	26.19	26.41	26.38	26.49	26.19
2	25.52	25.70	25.66	25.64	25.63	25.65	25.90	26.19	26.41	26.39	26.48	26.18
3	25.53	25.69	25.65	25.63	25.63	25.65	25.90	26.18	26.41	26.39	26.48	26.19
4	25.54	25.69	25.65	25.62	25.63	25.64	25.90	26.18	26.38	26.40	26.47	26.19
5	25.54	25.69	25.65	25.62	25.63	25.64	25.91	26.19	26.36	26.40	26.45	26.19
6	25.53	25.68	25.65	25.63	25.64	25.67	25.92	26.23	26.34	26.40	26.44	26.20
7	25.53	25.67	25.65	25.63	25.63	25.68	25.92	26.24	26.33	26.38	26.43	26.25
8	25.51	25.66	25.65	25.63	25.63	25.68	25.99	26.24	26.32	26.38	26.41	26.26
9	25.49	25.66	25.65	25.63	25.63	25.68	26.07	26.24	26.31	26.37	26.40	26.30
10	25.48	25.65	25.65	25.63	25.62	25.68	26.08	26.23	26.30	26.35	26.38	26.33
11	25.48	25.64	25.65	25.63	25.61	25.68	26.08	26.23	26.29	26.35	26.37	26.32
12	25.48	25.63	25.65	25.63	25.61	25.67	26.08	26.23	26.30	26.43	26.36	26.32
13	25.47	25.63	25.64	25.63	25.61	25.67	26.08	26.22	26.29	26.44	26.34	26.32
14	25.50	25.63	25.63	25.63	25.61	25.66	26.09	26.21	26.30	26.43	26.34	26.34
15	25.51	25.63	25.64	25.63	25.62	25.65	26.10	26.20	26.34	26.41	26.32	26.35
16	25.51	25.63	25.64	25.63	25.62	25.65	26.12	26.29	26.34	26.39	26.32	26.35
17	25.64	25.62	25.65	25.63	25.61	25.65	26.12	26.28	26.33	26.49	26.40	26.34
18	25.72	25.62	25.65	25.63	25.61	25.65	26.12	26.26	26.32	26.50	26.38	26.33
19	25.72	25.62	25.65	25.63	25.62	25.65	26.11	26.25	26.30	26.49	26.36	26.32
20	25.72	25.61	25.65	25.62	25.62	25.65	26.10	26.24	26.30	26.48	26.34	26.31
21	25.75	25.64	25.65	25.62	25.62	25.69	26.10	26.23	26.39	26.49	26.33	26.30
22	25.75	25.65	25.65	25.62	25.62	25.72	26.09	26.23	26.40	26.49	26.32	26.28
23	25.75	25.65	25.65	25.62	25.62	25.79	26.13	26.22	26.38	26.46	26.30	26.27
24	25.75	25.64	25.65	25.62	25.64	25.81	26.15	26.22	26.36	26.44	26.30	26.26
25	25.74	25.63	25.65	25.62	25.64	25.81	26.15	26.22	26.35	26.44	26.29	26.28
26	25.73	25.63	25.65	25.62	25.64	25.83	26.15	26.29	26.34	26.42	26.29	26.28
27	25.73	25.64	25.65	25.62	25.64	25.87	26.15	26.33	26.33	26.40	26.28	26.28
28	25.73	25.67	25.64	25.62	25.64	25.93	26.15	26.36	26.35	26.47	26.27	26.27
29	25.72	25.67	25.64	25.63	---	25.92	26.16	26.40	26.41	26.52	26.26	26.26
30	25.72	25.66	25.64	25.63	---	25.90	26.20	26.40	26.41	26.52	26.25	26.26
31	25.71	---	25.64	25.63	---	25.90	---	26.41	---	26.51	26.22	---
MEAN	25.61	25.65	25.65	25.63	25.62	25.72	26.06	26.25	26.35	26.43	26.36	26.28
MAX	25.75	25.70	25.66	25.64	25.64	25.93	26.20	26.41	26.41	26.52	26.49	26.35
MIN	25.47	25.61	25.63	25.62	25.61	25.64	25.90	26.18	26.29	26.35	26.22	26.18

## CHIPPEWA RIVER BASIN

460128089423501 MAX LAKE NEAR WOODRUFF, WI

LOCATION.--Lat 46°01'28", long 89°42'35", in NW 1/4 NE 1/4 sec.23, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07070001, 8.5 mi north of Woodruff, 1,500 ft west of U.S. Highway 51.

DRAINAGE AREA.--Unknown. Area of lake, 0.036 mi<sup>2</sup>.

PERIOD OF RECORD.--Intermittent data since March 1988; intermittent segments of daily data since July 1990.

GAGE.--Staff gage and water-stage recorder. Datum of gages is about 1,613 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Lake does not have surface inlet or outlet.

## EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1990: Maximum observed gage height, 4.87 ft, Sept. 15, 22-23; minimum observed gage height, 3.97 ft, Nov. 16.

WATER YEAR 1991: Maximum observed gage height, 6.17 ft, July 4; minimum observed gage height, 4.80 ft Oct. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	4.22	4.35	4.40	4.22	4.51
2	---	---	---	---	4.01	---	---	4.22	---	4.39	4.20	4.50
3	---	---	---	4.00	---	---	---	---	---	4.37	4.20	4.49
4	4.02	---	---	---	---	---	---	---	---	4.35	4.19	4.50
5	---	---	---	---	---	---	---	---	---	4.34	4.17	4.50
6	---	---	---	---	---	---	---	---	4.40	4.31	4.16	4.70
7	---	---	---	---	---	---	---	---	4.37	4.30	4.14	4.76
8	---	---	---	---	---	---	---	4.18	---	4.39	4.12	4.75
9	---	---	---	---	---	---	---	4.18	---	4.39	4.11	4.74
10	---	---	---	---	---	---	---	4.28	---	4.39	4.14	4.75
11	---	---	---	---	---	---	---	---	---	4.37	4.13	4.74
12	---	---	---	---	---	---	---	---	---	4.33	4.12	4.74
13	---	---	---	---	---	---	4.16	---	---	4.30	4.11	4.78
14	---	---	---	---	---	---	---	4.26	4.43	4.30	4.10	4.84
15	---	---	---	---	---	---	---	4.26	---	4.30	4.15	4.87
16	---	3.97	---	---	---	---	---	---	---	4.29	4.15	4.85
17	---	---	---	---	---	---	---	4.39	---	4.30	4.14	4.82
18	---	---	---	---	---	---	---	---	4.43	4.29	4.13	4.84
19	---	---	---	---	---	---	4.11	---	---	4.31	4.54	4.86
20	---	---	---	---	---	---	4.12	---	---	4.30	4.51	4.85
21	---	3.99	---	---	---	---	---	4.40	---	4.29	4.52	4.86
22	---	---	---	---	---	---	---	---	---	4.28	4.51	4.87
23	---	---	---	---	---	4.17	4.12	---	---	4.28	4.49	4.87
24	---	---	---	---	---	---	---	4.41	---	4.25	4.47	4.86
25	---	---	---	---	---	---	---	---	---	4.24	4.46	4.84
26	---	---	---	---	---	---	---	---	4.39	4.23	4.48	4.84
27	---	---	---	---	---	---	4.15	---	4.38	4.22	4.53	4.84
28	---	---	---	---	---	---	---	---	4.37	4.23	4.53	4.83
29	---	---	---	---	---	4.13	---	4.41	---	4.23	4.52	4.82
30	---	---	---	---	---	---	---	4.40	---	4.25	4.52	4.82
31	---	---	---	---	---	---	---	---	---	4.23	4.51	---
MEAN	---	---	---	---	---	---	---	---	---	4.30	4.30	4.76
MAX	---	---	---	---	---	---	---	---	---	4.40	4.54	4.87
MIN	---	---	---	---	---	---	---	---	---	4.22	4.10	4.49

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

## CHIPPEWA RIVER BASIN

05357335 BEAR RIVER NEAR MANITOWISH WATERS, WI

LOCATION.--Lat 46°02'06", 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 Road bridge, 2.3 mi upstream from Little Beaver Creek, 7.7 mi southwest of Manitowish Waters, and 5.3 mi upstream from mouth.

DRAINAGE AREA.--81.3 mi<sup>2</sup>.

PERIOD OF RECORD.--May to September 1991.

REMARKS.--All samples are equal-width increment (EWI) samples.

## WATER-QUALITY DATA, MAY TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)
MAY 1991									
30...	1115	197	76	21.5	0.010	0.010	<0.050	<0.050	0.040
JUN									
03...	1130	160	85	23.0	<0.010	<0.010	<0.050	<0.050	0.020
10...	0900	112	88	23.0	<0.010	<0.010	<0.050	<0.050	0.040
18...	1400	131	95	24.0	<0.010	<0.010	<0.050	<0.050	0.040
27...	0830	115	90	24.0	<0.010	<0.010	<0.050	<0.050	0.020
28...	0915	118	--	--	--	--	--	--	--
JUL									
11...	1230	98	87	24.0	<0.010	<0.010	<0.050	<0.050	<0.010
17...	1610	101	98	25.5	0.020	<0.010	<0.050	<0.050	0.010
AUG									
19...	1200	81	97	20.0	<0.010	<0.010	<0.050	<0.050	0.030
SEP									
03...	1130	68	106	20.0	<0.010	<0.010	<0.050	<0.050	0.030
04...	1430	65	95	19.0	<0.010	<0.010	<0.050	<0.050	<0.010
18...	0905	106	61	14.5	0.010	<0.010	<0.050	<0.050	0.050

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTH TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTH DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAY 1991								
30...	0.030	0.66	0.70	<0.010	0.020	<0.010	<0.010	12
JUN								
03...	0.020	0.68	0.70	0.050	<0.010	<0.010	<0.010	12
10...	0.030	0.56	0.60	0.030	0.020	0.010	<0.010	4
18...	0.040	0.66	0.70	0.010	0.020	<0.010	<0.010	2
27...	0.020	0.68	0.70	0.020	0.020	<0.010	<0.010	5
28...	--	--	--	--	--	--	--	9
JUL								
11...	0.020	--	0.80	<0.010	<0.010	<0.010	<0.010	--
17...	0.040	0.69	0.70	0.010	<0.010	<0.010	<0.010	3
AUG								
19...	0.020	0.87	0.90	<0.010	0.020	<0.010	<0.010	5
SEP								
03...	0.040	0.47	0.50	0.020	0.010	<0.010	<0.010	5
04...	0.140	--	0.60	0.020	0.020	<0.010	<0.010	--
18...	0.040	0.45	0.50	0.010	0.020	0.010	<0.010	3

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Apr. 1-25 and ice period listed in rating table below. Records good except those for estimated daily discharges, which are fair. Flow regulated by several powerplants above station and by Rest Lake and Flambeau Flowage Reservoirs. Gage-height telemeter at station.

AVERAGE DISCHARGE.--40 years, 1,806 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft<sup>3</sup>/s, Apr. 2, 1986, gage height, 10.45 ft; maximum gage height, 10.90 ft, May 1, 1954; minimum, about 100 ft<sup>3</sup>/s, Aug. 7, 9, 1957, gage height, 2.06 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,150 ft<sup>3</sup>/s, Mar. 28, gage height, 7.62 ft; maximum gage height, 8.20 ft, Mar. 23 (ice jam); minimum daily, 540 ft<sup>3</sup>/s, Mar. 18.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Aug. 28, 30, and Sept. 1; stage-discharge relation affected by ice Dec. 20 to Mar. 24.)

2.6	526	5.0	3,400
3.0	833	6.0	5,270
4.0	1,920	8.0	10,200

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1560	2610	1730	1000	720	700	4200	3370	5100	1840	2540	1090
2	1750	2540	1230	1000	640	700	3400	3540	5550	1670	2290	1230
3	1950	2450	1380	960	780	720	2800	3720	5550	1790	2370	1410
4	2210	2380	1340	960	780	740	2800	3320	4260	2310	2190	1080
5	2850	2350	1010	980	820	740	3100	3370	3750	2270	1910	1430
6	2360	2230	1330	940	840	740	3200	3620	2730	2160	1780	1300
7	2570	2310	1390	960	840	760	3300	4760	2720	2000	1680	1910
8	1910	2190	1340	1000	800	780	3500	4380	2340	1700	1750	2740
9	1890	1960	1340	980	780	720	6600	4110	2150	1610	1540	5310
10	1610	1720	1390	980	800	700	6800	3920	2140	1570	1580	5800
11	1710	1390	1370	1000	780	720	5200	3000	1930	2080	1620	4580
12	1590	1480	1360	960	760	780	4400	2950	1790	1850	1680	3760
13	1530	1460	1220	920	700	760	6000	2810	1670	2130	1670	2830
14	1800	1390	1020	900	720	720	5400	2460	1690	2760	1510	2910
15	2060	1410	718	860	720	740	6000	2260	1750	2350	1390	2890
16	2170	1440	1120	880	700	740	5400	2390	1810	1810	1570	2810
17	2740	1400	1370	880	680	700	5400	2310	1470	2040	2190	2670
18	5250	1280	1330	880	620	540	5200	3030	1760	3090	2420	2520
19	5850	1440	1100	880	740	640	4800	2780	1700	3760	1980	2310
20	5690	1190	940	900	760	900	4400	2210	1760	3370	1790	2120
21	5240	1460	1000	860	740	1200	3800	1880	2020	2700	1670	2020
22	5110	1610	1100	840	720	2000	3300	1980	3030	2910	1600	1630
23	4760	1720	920	820	700	3400	2900	1780	3280	2230	1520	1690
24	4460	1550	780	800	740	4000	3000	1880	2750	2130	1620	1610
25	4110	1520	880	720	720	4940	3000	1700	2350	2320	1390	1610
26	3970	1440	1100	740	700	4570	3080	1650	1600	2220	1300	1390
27	3290	1540	1300	740	720	6700	3250	1810	1510	1940	1540	1620
28	2960	1680	1000	740	720	8060	2890	2550	1440	1880	1190	1160
29	2790	1420	1100	800	---	7370	2980	3300	1830	2180	1600	1290
30	2750	1430	1200	780	---	5540	2980	4950	1850	2900	1220	1080
31	2760	---	1000	800	---	4900	---	4970	---	2660	1200	---
TOTAL	93250	51990	36408	27460	20740	67220	123080	92760	75280	70230	53300	67800
MEAN	3008	1733	1174	886	741	2168	4103	2992	2509	2265	1719	2260
MAX	5850	2610	1730	1000	840	8060	6800	4970	5550	3760	2540	5800
MIN	1530	1190	718	720	620	540	2800	1650	1440	1570	1190	1080

CAL YR 1990 TOTAL 548042 MEAN 1501 MAX 6930 MIN 380  
WTR YR 1991 TOTAL 779518 MEAN 2136 MAX 8060 MIN 540

## CHIPPEWA RIVER BASIN

05362000 JUMP RIVER AT SHELDON, WI

LOCATION.--Lat 45°18'29", long 90°57'23", in sec.26, T.33 N., R.5 W., Rusk County, Hydrologic Unit 07050004, on right bank just downstream from highway bridge in Sheldon, 1,500 ft upstream from Shoulder Creek and 11 mi upstream from mouth.

DRAINAGE AREA.--576 mi<sup>2</sup>.

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. Datum of gage is 1,092.75 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 9, 1939, and Sept. 1, 1941, to Apr. 1, 1953, 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 discharge: Ice periods listed in rating table below. Records good except for ice-affected periods, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--76 years, 516 ft<sup>3</sup>/s, 12.17 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 46,000 ft<sup>3</sup>/s, Aug. 31, 1941, gage height, 18.8 ft from floodmark, from rating curve extended above 13,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of peak flow; minimum observed, 11 ft<sup>3</sup>/s, Dec. 18, 1943, gage height, 3.99 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 23	----	ice jam	*10.86	Apr. 10	0800	3,810	8.27
Mar. 24	2400	*6,390	9.81	May 30	0500	4,330	8.64

Minimum discharge, 65 ft<sup>3</sup>/s, Sept. 2, 3, gage height 3.16 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 12, 13, and Nov. 24 to Mar. 23.)

3.0	45	4.5	475	8.0	3,460
3.2	72	5.0	727	9.0	4,850
3.5	142	6.0	1,410	10.0	6,780
4.0	291	7.0	2,290		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	377	260	96	88	88	1850	1340	3720	243	296	70
2	367	358	190	92	92	86	1500	1460	3430	230	277	66
3	415	348	170	88	98	84	1310	1230	3130	225	416	67
4	1060	340	160	90	100	88	1230	1010	2460	225	564	71
5	1250	336	160	94	110	94	1240	924	1650	225	456	75
6	1020	324	160	92	110	92	1230	1500	1080	225	352	76
7	769	307	170	88	100	90	1220	1940	744	225	284	107
8	576	286	170	92	110	92	1470	1720	569	225	245	381
9	467	276	160	90	110	98	3190	1400	468	176	229	682
10	409	268	160	88	100	94	3690	1130	411	149	222	1350
11	365	261	160	88	98	110	3220	918	364	135	190	1240
12	344	250	160	90	96	120	2570	752	311	128	163	900
13	312	250	150	90	100	110	2050	642	276	632	145	717
14	336	247	130	90	96	110	2110	537	259	728	125	608
15	444	239	130	90	90	110	2440	433	334	453	110	654
16	463	234	130	90	92	120	2220	449	421	321	104	666
17	471	234	140	92	94	160	1870	946	366	256	107	593
18	969	234	140	92	94	260	1530	1230	293	556	246	492
19	1360	234	130	100	94	410	1240	990	241	850	301	424
20	1360	231	130	98	96	680	1010	748	246	723	240	369
21	1530	232	120	94	92	1300	864	577	1140	642	194	323
22	1780	303	110	92	88	2200	741	471	1260	572	164	288
23	1540	377	88	88	84	3900	683	419	866	472	143	268
24	1230	350	92	84	82	5820	670	392	567	371	131	270
25	974	300	98	80	78	5090	626	376	414	304	121	252
26	783	250	86	84	78	5020	532	461	328	268	119	239
27	660	310	92	90	80	5050	475	1120	272	238	111	239
28	549	320	98	92	82	5480	450	1310	246	218	100	229
29	500	330	110	88	---	4550	433	3230	236	235	91	202
30	437	310	98	82	---	3450	600	4190	220	358	83	187
31	391	---	90	84	---	2500	---	3830	---	354	76	---
TOTAL	23444	8716	4242	2788	2632	47456	44264	37675	26322	10962	6405	12105
MEAN	756	291	137	89.9	94.0	1531	1475	1215	877	354	207	403
MAX	1780	377	260	100	110	5820	3690	4190	3720	850	564	1350
MIN	312	231	86	80	78	84	433	376	220	128	76	66
CFSM	1.31	.50	.24	.16	.16	2.66	2.56	2.11	1.52	.61	.36	.70
IN.	1.51	.56	.27	.18	.17	3.06	2.86	2.43	1.70	.71	.41	.78

CAL YR 1990 TOTAL 213992 MEAN 586 MAX 5100 MIN 45 CFSM 1.02 IN. 13.82  
WTR YR 1991 TOTAL 227011 MEAN 622 MAX 5820 MIN 66 CFSM 1.08 IN. 14.66



## CHIPPEWA RIVER BASIN

197

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 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1888 to September 1983, October 1986 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929. 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. 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.

AVERAGE DISCHARGE.--100 years (1889-1983, 1987-91), 5,072 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 ft<sup>3</sup>/s, Sept. 1, 1941, gage height, 24.8 ft; minimum 22 ft<sup>3</sup>/s, Apr. 2, 1934, gage height, 0.63 ft; minimum daily, 40 ft<sup>3</sup>/s, Feb. 4, 1917.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--A stage of 26.94 ft occurred Sept. 10, 1884, site and datum in use June 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32,600 ft<sup>3</sup>/s, Mar. 24, 25, gage height, 13.90 ft; minimum daily, 269 ft<sup>3</sup>/s, Mar. 3.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Apr. 17 to May 6.)

1.3	254	6.0	6,400
1.5	325	8.0	11,200
2.0	585	10.0	17,200
3.0	1,440	12.0	24,600
4.0	2,800	14.0	33,000

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4380	6240	3090	1130	1920	2130	9930	8610	20800	5280	4710	662
2	4540	5540	1890	2410	1220	1200	12400	8940	25900	4870	5020	848
3	5140	5290	3120	3610	1130	269	10900	8930	24800	4090	3750	4380
4	6760	4060	2240	2100	2050	4060	7990	8910	18500	5560	4450	3700
5	7660	5480	2580	1380	2800	4190	9400	8900	13600	5400	5340	2300
6	5930	5450	2650	1060	2240	4660	8160	10500	10500	4550	4200	3010
7	5040	5010	4080	2250	2070	4020	8540	15600	8190	4080	4710	1660
8	6550	5080	2520	2570	2860	4070	9960	17900	8190	3760	3930	4670
9	4150	5750	2220	2120	942	531	16800	15000	6390	3680	3670	10100
10	3700	2770	3170	2630	1750	854	23900	12000	5550	3180	1250	13500
11	4610	3010	4160	2260	3940	4160	21400	9770	5510	4080	3070	13200
12	4630	4290	2420	1240	1790	4070	16000	9590	5370	5110	4310	10600
13	2110	4390	3690	1680	2900	4440	15000	8400	4990	4140	4310	8120
14	3510	4250	2610	2780	866	4110	15400	6070	4210	5360	3560	6410
15	4190	4070	902	2730	1540	2870	19400	7780	4500	6840	2530	8200
16	5320	4600	1250	2370	841	1940	20800	6620	3560	4340	2020	8250
17	7050	2060	3540	2310	1290	1790	13900	6810	4180	4430	3320	8230
18	9490	2200	3120	2050	2560	3150	13400	8830	3050	5430	4100	8260
19	9850	3110	3820	1440	2740	3700	13600	6270	4680	7400	3720	8170
20	12200	3620	2010	810	2640	5020	12000	5270	4890	5820	3670	7080
21	13700	4760	2790	2400	2140	7980	8450	6480	5700	5630	2960	4390
22	9860	2250	1760	2160	1870	8280	6830	5180	10300	4860	2670	4530
23	10100	4170	1390	1730	315	9800	7140	4740	13600	4770	1630	5510
24	10400	3270	1670	3010	1330	26000	7380	4700	10100	4110	4070	2580
25	10200	2920	1000	1660	2380	31600	6770	4700	7000	5050	2710	5130
26	9890	3430	2710	938	2520	30900	7530	6330	5420	4580	3090	4730
27	9680	3790	3280	1320	2630	31400	6300	7870	4230	3210	2840	4710
28	5520	4080	3340	2430	2220	30600	5530	9910	5210	3050	3350	2880
29	6470	4000	1530	2070	---	31000	7660	13700	3840	4680	2500	1690
30	5880	3280	1220	1590	---	25400	6950	20400	3920	4600	4220	4740
31	7380	---	3690	2450	---	17500	---	19300	---	5430	349	---
TOTAL	215890	122220	79462	62688	55494	311694	349420	294010	256680	147370	106029	172240
MEAN	6964	4074	2563	2022	1982	10050	11650	9484	8556	4754	3420	5741
MAX	13700	6240	4160	3610	3940	31600	23900	20400	25900	7400	5340	13500
MIN	2110	2060	902	810	315	269	5530	4700	3050	3050	349	662

CAL YR 1990 TOTAL 1791287 MEAN 4908 MAX 29500 MIN 234  
WTR YR 1991 TOTAL 2173197 MEAN 5954 MAX 31600 MIN 269

## CHIPPEWA RIVER BASIN

444720090445000 MEAD LAKE, EAST BAY, NEAR WILLARD, WI

LOCATION.--Lat 44°47'20", long 90°44'50", in SW 1/4 SE 1/4 sec.28, T.27 N., R.3 W., Clark County, Hydrologic Unit 07050006, 4.1 mi northwest of Willard.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in east bay. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 17 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 17	June 11	July 16	Aug. 14
Depth of sample (ft)	1.0	1.5	1.5	1.0
Lake stage (ft)	2.13	1.70	1.82	1.62
Specific conductance (μS/cm)	124	123	130	125
pH (units)	7.6	8.1	8.8	8.5
Water temperature (°C)	8.5	24.1	25.2	25.0
Color (Pt-Co. scale)	60	---	---	---
Turbidity (NTU)	3.8	---	---	---
Secchi-depth (meters)	0.80	0.70	0.60	0.60
Dissolved oxygen	9.5	10.4	11.0	10.7
Hardness, as CaCO <sub>3</sub>	41	---	---	---
Calcium, dissolved (Ca)	9.3	---	---	---
Magnesium, dissolved (Mg)	4.0	---	---	---
Sodium, dissolved (Na)	4.0	---	---	---
Potassium, dissolved (K)	4.6	---	---	---
Alkalinity, as CaCO <sub>3</sub>	32	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	7.0	---	---	---
Fluoride, dissolved (F)	<0.1	---	---	---
Chloride, dissolved (Cl)	9.0	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	7.0	---	---	---
Solids, dissolved, at 180°C	96	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.371	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.057	---	---	---
Nitrogen, amm. + org., total (as N)	0.90	---	---	---
Phosphorus, total (as P)	0.091	0.157	0.210	0.115
Phosphorus, ortho, dissolved (as P)	0.041	---	---	---
Iron, dissolved (Fe) μg/L	290	---	---	---
Manganese, dissolved (Mn) μg/L	<40	---	---	---
Chlorophyll a, phytoplankton (μg/L)	4.0	33	79	21

## CHIPPEWA RIVER BASIN

199

444733090460100 MEAD LAKE, WEST BAY, NEAR WILLARD, WI

LOCATION.--Lat 44°47'33", long 90°46'01", in NW 1/4 SE 1/4 sec.29, T.27 N., R.3 W., Clark County, Hydrologic Unit 07050006, 4.7 mi northwest of Willard.

DRAINAGE AREA.--99.9 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--February to September 1991.

GAGE.--Nonrecording gage. Staff mounted to the wingwall of the dam. Staff read by Margaret Stauner. Elevation of lake is 1,037 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.13 ft, Apr. 17; minimum observed, 1.14 ft, Sept. 2.

GAGE HEIGHT, FEET, FEBRUARY TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	1.60	1.60	---
2	---	---	---	---	---	---	---	---	---	---	---	1.14
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	1.70	---	1.60
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	1.65	1.70
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	1.60	1.78	---
9	---	---	---	---	---	---	---	---	---	---	---	1.82
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	1.70	1.56	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	1.60	---
14	---	---	---	---	---	---	---	---	---	---	1.62	1.72
15	---	---	---	---	---	---	---	---	---	1.90	---	---
16	---	---	---	---	---	---	---	---	---	1.82	1.58	1.90
17	---	---	---	---	---	---	2.13	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	1.76	---	---
19	---	---	---	---	---	---	---	---	---	---	---	1.76
20	---	---	---	---	---	---	---	---	---	---	1.50	---
21	---	---	---	---	---	---	---	---	---	2.00	---	---
22	---	---	---	---	---	---	---	---	---	---	---	1.68
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	1.44	---
25	---	---	---	---	1.64	---	---	---	1.80	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	1.66
27	---	---	---	---	---	---	---	---	---	---	1.28	---
28	---	---	---	---	---	---	---	---	1.68	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	1.24	---
31	---	---	---	---	---	---	---	---	---	1.60	---	---

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled in west bay at a lake depth of about 17 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 25 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 25		Apr. 17		June 11		July 16		Aug. 14	
Depth of sample (ft)	3.0	14.0	1.0	13.0	3.0	15.0	2.0	14.0	2.0	12.0
Lake stage (ft)	1.64		2.13		1.70		1.82		1.62	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	227	215	117	114	106	134	121	155	119	142
pH (units)	8.0	7.2	8.4	7.9	8.0	6.7	9.1	7.1	8.9	7.1
Water temperature ( $^{\circ}\text{C}$ )	1.0	3.9	7.2	6.3	24.8	18.3	25.5	20.7	24.7	19.6
Color (Pt-Co. scale)	---	---	---	60	---	---	---	---	---	---
Turbidity (NTU)	---	---	---	3.8	---	---	---	---	---	---
Secchi-depth (meters)	---	---	0.8		0.7		0.6		0.7	
Dissolved oxygen	4.50	3.70	10.30	10.30	10.50	0.12	11.10	0.20	11.40	0.10
Hardness, as $\text{CaCO}_3$	---	---	---	40.0	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	---	9.2	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	---	4.0	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	---	4.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	---	4.5	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	---	32	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	---	7.0	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	---	<0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	---	9.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	---	7.0	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	---	96	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	---	0.379	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	---	0.059	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	---	0.90	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	---	0.090	0.127	0.380	0.130	0.280	0.111	0.190
Phosphorus, ortho, dissolved (as P)	---	---	---	0.041	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	---	290	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	---	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	6.0	---	25	---	78	---	35	---

2-25-91

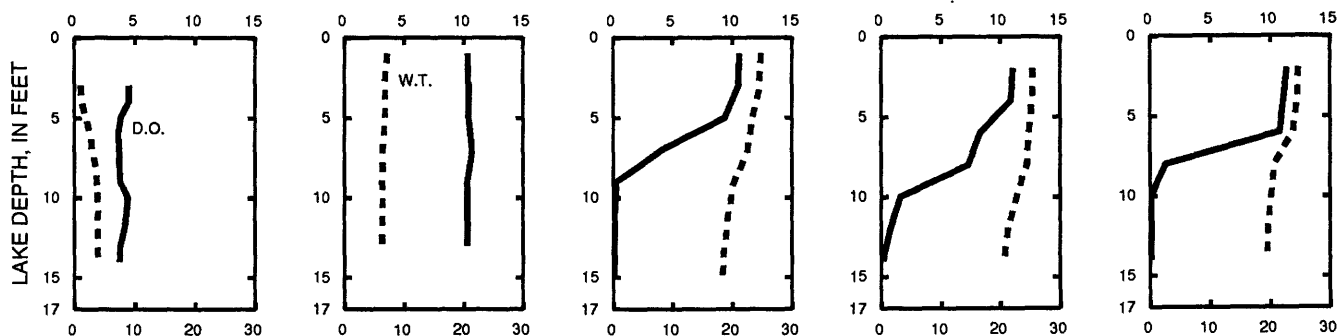
4-17-91

6-11-91

7-16-91

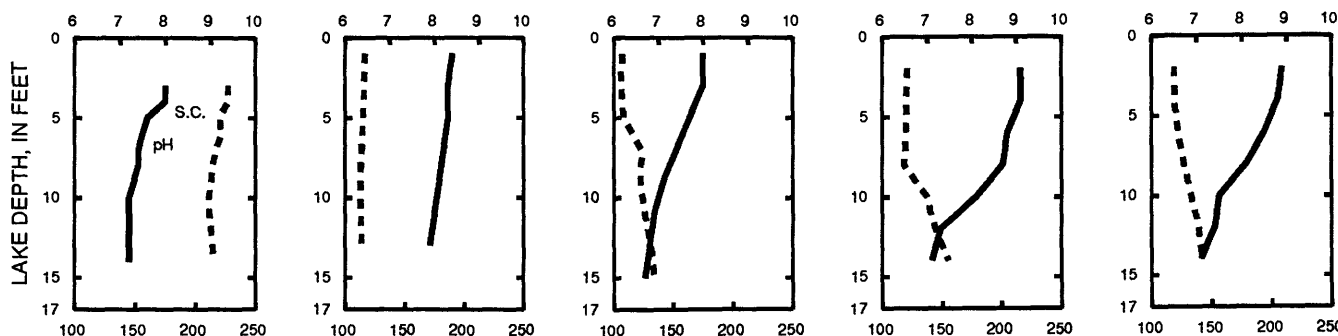
8-14-91

## 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

## CHIPPEWA RIVER BASIN

201

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,115 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods and those below 1.0 ft<sup>3</sup>/s, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years, 39.7 ft<sup>3</sup>/s, 10.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,050 ft<sup>3</sup>/s, Sept. 22, 1986, gage height, 10.13 ft, from rating curve extended above 2,500 ft<sup>3</sup>/s on basis of step-backwater measurement of peak flow; minimum, 0.02 ft<sup>3</sup>/s, July 30, 31, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 908 ft<sup>3</sup>/s, Mar. 24, gage height, 5.20 ft, but may have been greater during period Mar. 21-23; maximum gage height, 5.67 ft, Mar. 21 (backwater from ice); minimum discharge, 0.86 ft<sup>3</sup>/s, part or all of each day Aug. 31 to Sept. 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 8-13, Nov. 25 to Mar. 23.)

1.2	0.86	1.8	23	3.5	246
1.3	2.2	2.0	38	4.0	380
1.4	4.4	2.5	87	5.0	800
1.5	7.5	3.0	155	6.0	1,430
1.6	12				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	11	12	2.0	1.5	2.7	70	67	208	13	3.3	.86
2	8.4	12	10	2.0	1.6	3.2	56	53	217	16	5.4	.94
3	25	14	8.4	1.9	1.6	4.1	50	39	121	11	19	45
4	69	12	7.4	1.9	1.7	6.0	50	32	62	10	16	6.9
5	44	11	7.2	1.9	1.7	5.2	54	44	38	10	9.1	3.7
6	28	10	7.4	1.8	1.8	5.2	54	151	25	6.9	6.1	3.0
7	21	9.1	7.6	1.8	1.9	5.0	52	118	17	5.2	5.2	25
8	15	8.8	7.8	1.8	2.1	5.4	139	72	14	4.3	9.9	40
9	15	8.6	8.0	1.9	2.6	5.2	351	62	13	3.7	13	76
10	12	8.2	8.4	1.9	3.0	5.0	225	49	15	3.2	8.7	85
11	10	7.8	8.8	1.9	2.8	6.0	129	38	13	2.7	6.0	34
12	9.4	7.8	8.0	2.0	2.5	8.0	86	30	10	61	4.6	44
13	8.5	6.8	7.0	2.0	2.3	7.6	108	24	7.7	367	3.9	44
14	14	6.9	6.6	2.0	2.2	29	279	20	8.4	191	3.3	132
15	17	8.6	6.8	2.0	2.0	80	245	16	11	63	2.9	129
16	14	10	6.8	2.0	2.1	180	150	34	10	26	2.9	88
17	13	10	6.8	2.1	2.5	190	90	78	8.3	16	3.4	52
18	16	9.3	6.6	2.1	3.0	180	63	69	6.4	18	2.9	32
19	22	8.2	6.6	2.1	3.1	250	76	45	5.1	15	2.4	23
20	20	7.9	5.6	2.0	3.0	300	59	30	7.0	13	2.4	18
21	46	17	4.5	1.9	3.2	560	46	22	84	12	2.5	15
22	46	38	3.8	1.7	3.3	370	37	19	160	10	2.4	12
23	35	29	3.1	1.6	2.9	900	36	18	72	8.3	2.1	10
24	29	20	2.5	1.5	2.7	663	33	21	27	6.7	2.0	9.1
25	25	14	2.4	1.4	2.5	321	29	24	16	6.2	1.9	9.5
26	23	12	2.2	1.4	2.5	248	24	310	10	5.7	1.9	9.5
27	16	14	2.2	1.5	2.4	256	23	337	6.8	4.6	1.5	9.6
28	14	17	2.1	1.5	2.4	241	24	333	5.5	4.6	1.8	8.8
29	13	35	2.1	1.5	---	159	23	367	4.7	5.2	1.8	7.8
30	12	15	2.0	1.4	---	99	52	160	3.9	5.2	1.2	7.3
31	13	---	2.0	1.4	---	77	---	195	---	4.4	.98	---
TOTAL	661.0	399.0	182.7	55.9	66.9	5171.6	2713	2877	1206.8	928.9	150.48	981.00
MEAN	21.3	13.3	5.89	1.80	2.39	167	90.4	92.8	40.2	30.0	4.85	32.7
MAX	69	38	12	2.1	3.3	900	351	367	217	367	19	132
MIN	7.7	6.8	2.0	1.4	1.5	2.7	23	16	3.9	2.7	.98	.86
CFSM	.42	.26	.12	.04	.05	3.27	1.77	1.82	.79	.59	.10	.64
IN.	.48	.29	.13	.04	.05	3.77	1.98	2.10	.88	.68	.11	.72

CAL YR 1990 TOTAL 24190.93 MEAN 66.3 MAX 3330 MIN .20 CFSM 1.30 IN. 17.65  
WTR YR 1991 TOTAL 15394.28 MEAN 42.2 MAX 900 MIN .86 CFSM .83 IN. 11.23

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1951, nonrecording gage.

REMARKS.--Estimated daily discharges: Mar. 7-15 and ice periods listed in rating table below. Records good except those for estimated periods, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--41 years, 311 ft<sup>3</sup>/s, 10.10 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft<sup>3</sup>/s, Mar. 31, 1967, gage height, 15.04 ft, from rating curve extended above 9,000 ft<sup>3</sup>/s; minimum, 55 ft<sup>3</sup>/s, Mar. 13, 1954, gage height, 2.32 ft, result of freezeup.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Maximum stage since 1915, 16.6 ft April 1934, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 24	0300	*5,460	*11.63	June 2	1000	2,020	8.47
Mar. 28	1500	1,570	7.35	Sept. 10	1700	3,700	10.61
May 7	0700	2,410	8.78	Sept. 16	0100	1,900	8.28
May 30	1500	1,870	8.22				

Minimum daily discharge, 150 ft<sup>3</sup>/s, Dec. 21, 24-26, 30, 31, and Jan. 3, 4.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 16-19, May 28 to July 10, July 18-22, Aug. 3, 4, and Sept. 9-30; stage-discharge relation affected ice Nov. 26 to Dec. 8, and Dec. 13 to Mar. 6.)

2.6	135	5.0	690	11.0	4,480
3.0	202	7.0	1,400	12.0	6,100
4.0	410	9.0	2,560		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	206	214	180	160	170	180	523	864	1270	397	254	215
2	205	213	180	160	190	180	475	594	1880	405	280	217
3	267	211	180	150	200	170	439	472	1740	338	397	226
4	416	213	180	150	210	180	418	448	1480	338	315	242
5	301	213	180	160	210	180	405	575	1030	341	284	229
6	253	211	180	160	200	170	390	1470	697	331	269	224
7	234	207	190	160	200	170	380	2170	596	323	260	225
8	223	203	190	160	220	170	415	1230	536	317	274	259
9	219	202	200	160	220	180	488	803	494	311	276	922
10	214	204	198	160	210	180	428	666	476	306	258	3120
11	212	202	196	160	200	180	392	588	453	298	249	1890
12	212	201	195	180	210	180	378	537	429	292	243	852
13	211	200	180	180	210	180	398	502	409	291	241	651
14	218	200	170	200	180	190	611	473	431	279	236	768
15	218	206	180	190	180	210	798	452	659	268	233	1610
16	212	205	170	190	180	242	638	442	853	259	233	1610
17	215	201	170	190	190	259	498	459	708	257	240	955
18	244	200	160	210	180	300	453	478	514	383	237	705
19	280	199	160	220	180	443	415	441	482	513	232	570
20	276	198	160	210	180	998	380	408	497	470	228	493
21	282	201	150	200	190	1630	360	387	580	346	228	454
22	281	202	160	190	180	2560	357	371	604	309	227	415
23	257	200	160	200	160	3090	365	359	479	286	230	397
24	241	199	150	180	160	4590	357	358	433	272	238	382
25	233	198	150	170	160	2340	340	367	401	266	231	373
26	228	190	150	180	160	1110	327	451	379	258	227	361
27	224	190	160	200	160	956	322	575	365	254	225	346
28	220	180	160	200	180	1440	315	590	353	270	222	332
29	217	180	160	170	---	1140	393	988	343	277	222	321
30	217	190	150	170	---	705	964	1710	336	270	219	313
31	216	---	150	180	---	581	---	1220	---	262	216	---
TOTAL	7452	6033	5299	5550	5270	25084	13422	21448	19907	9787	7724	19677
MEAN	240	201	171	179	188	809	447	692	664	316	249	656
MAX	416	214	200	220	220	4590	964	2170	1880	513	397	3120
MIN	205	180	150	150	160	170	315	358	336	254	216	215
CFSM	.58	.48	.41	.43	.45	1.94	1.07	1.66	1.59	.76	.60	1.57
IN.	.66	.54	.47	.49	.47	2.23	1.19	1.91	1.77	.87	.69	1.75
CAL YR 1990	TOTAL 122055	MEAN 334	MAX 4500	MIN 140	CFSM .80	IN. 10.86						
WTR YR 1991	TOTAL 146653	MEAN 402	MAX 4590	MIN 150	CFSM .96	IN. 13.05						

## 05369000 RED CEDAR RIVER AT MENOMONIE, WI

LOCATION.--Lat 44°53'02", long 91°55'57", in 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929 (Northern States Power Co. bench mark). Prior to Sept. 3, 1908, nonrecording 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. Flow regulated by powerplants at Menomonie and Cedar Falls. Gage-height telemeter at station.

AVERAGE DISCHARGE.--79 years (1908, 1914-91), 1,280 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s, Apr. 4, 1934, gage height, 16.0 ft, from floodmarks, from rating curve extended above 27,000 ft<sup>3</sup>/s on basis of computed flow over Cedar Falls Dam 6 mi upstream; minimum, less than 10 ft<sup>3</sup>/s, July 3, 1985, gage height, 0.46 ft, result of temporary power-plant shutdown at request of Dunn County Sheriff's Department.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,600 ft<sup>3</sup>/s, Mar. 24, gage height, 7.02 ft; minimum, 19 ft<sup>3</sup>/s, July 20, gage height, 0.72 ft; minimum daily, 571 ft<sup>3</sup>/s, Dec. 23.

## RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

1.5	500	3.0	2,350
2.0	987	4.0	4,220
2.5	1,600	6.0	9,400
		7.0	12,500

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	973	1150	1150	787	871	934	3260	3760	4180	1630	899	746
2	1050	1130	883	836	846	964	2950	3160	5340	1780	1070	705
3	1210	1230	876	886	846	883	2660	2670	5200	1640	1540	912
4	1460	1150	714	787	855	1070	2320	2320	4720	1440	1420	937
5	1530	1130	755	818	882	1140	2310	2400	4180	1150	1260	900
6	1390	1180	965	751	909	1200	2210	3710	2990	1220	1070	979
7	1210	1060	934	791	1000	1180	2090	4960	2510	1140	1040	912
8	1060	1150	1090	831	967	1150	1720	5360	2110	1130	1170	1260
9	1130	1110	1050	763	1110	1120	1670	3700	1760	1040	1040	1680
10	1110	1100	1020	815	1050	1160	1580	3260	1810	1070	876	3750
11	1070	1130	1110	822	924	1230	1530	2950	1650	1130	911	4930
12	1060	1140	1070	838	958	1280	1390	2900	1650	1090	830	4380
13	1070	1070	911	871	1050	1240	1820	2760	1450	1130	907	3040
14	1220	1270	806	873	939	1150	2440	2870	1610	1140	788	2840
15	1120	1030	961	876	862	1170	2900	2840	1620	1010	882	3450
16	1200	1170	974	877	785	1260	2580	1630	2120	1110	849	3980
17	1220	1040	1040	935	872	1210	2430	839	2320	995	888	4170
18	1110	1070	1040	915	1040	1360	2160	1100	2030	1310	863	2840
19	1470	982	968	892	982	1600	1900	1820	1720	1340	850	2380
20	1510	977	920	888	916	2370	1830	1610	1570	1250	851	2200
21	1480	986	698	835	979	2890	1790	1480	1900	1540	931	2120
22	1300	1100	660	936	947	4220	1660	1590	2110	1130	825	1680
23	1520	920	571	810	913	7990	1750	1380	1970	1090	915	1560
24	1400	1040	608	824	671	10500	1800	1530	1540	995	933	1650
25	1240	1140	762	825	852	9610	1810	1510	1510	932	843	1490
26	1310	951	884	848	923	5430	1580	1700	1580	999	912	1570
27	1030	1110	842	815	928	4240	1330	1830	1560	918	821	1440
28	1180	955	1020	819	938	4430	1360	1840	1610	1040	982	1230
29	1140	832	898	847	---	4600	1910	2780	1480	965	773	1340
30	1130	952	761	772	---	4200	2810	3800	1180	920	819	1230
31	1190	---	943	867	---	3640	---	4040	---	917	708	---
TOTAL	38093	32255	27884	26050	25815	86421	61550	80099	68980	36191	29466	62301
MEAN	1229	1075	899	840	922	2788	2052	2584	2299	1167	951	2077
MAX	1530	1270	1150	936	1110	10500	3260	5360	5340	1780	1540	4930
MIN	973	832	571	751	671	883	1330	839	1180	917	708	705

CAL YR 1990 TOTAL 506457 MEAN 1388 MAX 14100 MIN 560  
WTR YR 1991 TOTAL 575105 MEAN 1576 MAX 10500 MIN 571

## CHIPPEWA RIVER BASIN

05369500 CHIPPEWA RIVER AT DURAND, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)  
(NATIONAL RADIOCHEMICAL SURVEILLANCE NETWORK STATION)

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1930, nonrecording gage at bridge 400 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. 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.

AVERAGE DISCHARGE.--63 years, 7,621 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft<sup>3</sup>/s, Apr. 2, 1967, gage height, 16.93 ft; minimum observed, 1,020 ft<sup>3</sup>/s, Nov. 24, 1950, gage height, 0.12 ft.

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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,500 ft<sup>3</sup>/s, Mar. 26, gage height, 11.54 ft; minimum, 2,250 ft<sup>3</sup>/s, Sept. 2, gage height, 0.75 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Apr. 2-9, 13, 14, Apr. 18 to May 7, May 10-29, June 7 to July 9, July 12-27, July 30 to Aug. 9, Aug. 13, 19, Sept. 9, 10, 13-24, and 26-28; stage-discharge relation affected by ice Dec. 24 to Mar. 23.)

0.5	1,840	6.0	15,100
1.0	2,650	8.0	22,400
2.0	4,360	10.0	31,800
4.0	9,150	12.0	45,000

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6150	9410	5090	5600	4000	4100	19800	13600	25800	6470	7040	2640
2	6200	7390	4790	3800	4000	4100	15600	14700	29400	8270	7030	2440
3	6500	7480	4200	2600	3000	2600	17300	14300	32100	7490	6920	2750
4	7040	7300	5310	5600	3000	2500	13800	13800	30800	6990	6440	5470
5	9190	6330	3910	4200	3900	4500	13100	13700	22800	7780	6840	5320
6	9570	8090	4180	3200	4300	6800	12800	15100	18800	7690	7290	4230
7	8290	7050	4570	2400	4300	7000	12200	18100	14200	6390	6290	4420
8	7090	6600	5350	3100	4200	6800	12800	23000	12900	6070	7110	3870
9	7960	7030	4280	4000	4300	6400	14500	22200	12200	6030	6140	8380
10	6270	6890	4670	3400	4000	3200	20900	18000	9920	5650	5850	13600
11	5610	5200	4950	4000	3800	4500	25200	15600	8930	5210	3330	16500
12	6380	5390	5550	4200	4300	5800	22500	14500	9310	6780	5130	17200
13	6060	5910	4530	2500	4200	6200	17800	13800	8350	6360	6210	13800
14	4760	6390	5070	3600	4500	6400	18400	11400	8100	6490	5570	12200
15	5740	6070	4370	4600	3300	5400	19400	11500	7950	7510	5460	11700
16	5730	5950	3180	4500	2500	4200	23800	11400	7590	9090	4480	13500
17	7250	5710	3370	4400	2700	3600	23400	9240	7380	6310	3870	14500
18	9600	4370	5090	4500	3100	3400	16900	10500	8200	6930	4890	13400
19	10700	4370	5190	4100	3700	4400	17500	11700	6240	9210	5800	12400
20	11500	5250	5160	3200	4200	6400	16700	9780	7740	9920	5250	11400
21	14300	5520	4500	2400	4000	9000	14700	9350	7530	8280	5210	10200
22	13200	6070	5850	3100	3900	13000	12100	9510	10400	7970	4570	8010
23	11600	4670	3130	4000	3700	17000	11700	8310	14100	7470	4170	7180
24	12000	5320	2700	3100	2500	24900	10800	7900	15300	7170	4220	8560
25	12000	4950	3200	3700	2300	38100	11500	7260	11700	6090	5380	5450
26	11600	5070	2500	3700	3900	40700	10700	8280	10000	7100	4430	7740
27	11400	5250	3300	2500	4000	36800	11500	10800	7980	6300	4120	7520
28	9890	5640	4500	2800	4100	36000	8740	14100	7050	5190	4380	6640
29	7750	5800	5400	4000	---	35300	10200	16900	7920	5580	4930	5250
30	8660	5800	3600	3600	---	35000	13000	21500	6630	6430	4510	4270
31	7510	---	2600	3500	---	28300	---	26800	---	6370	4950	---
TOTAL	267500	182270	134090	113900	103700	412400	469340	426630	387320	216590	167810	260540
MEAN	8629	6076	4325	3674	3704	13300	15640	13760	12910	6987	5413	8685
MAX	14300	9410	5850	5600	4500	40700	25200	26800	32100	9920	7290	17200
MIN	4760	4370	2500	2400	2300	2500	8740	7260	6240	5190	3330	2440

CAL YR 1990 TOTAL 2724390 MEAN 7464 MAX 44900 MIN 1900  
WTR YR 1991 TOTAL 3142090 MEAN 8608 MAX 40700 MIN 2300



05369500 CHIPPEWA RIVER AT DURAND, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)  
(NATIONAL RADIOCHEMICAL SURVEILLANCE NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1967, 1973 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT 1990 02...	1130	--	6110	120	7.6	14.5	3.6	--	765	--	K980
JAN 1991 16...	1330	--	4700	167	7.2	0.0	2.7	12.2	770	83	490
FEB 13...	1045	4200	--	172	7.6	0.0	3.0	12.8	761	88	640
APR 10...	1045	--	20600	90	7.2	4.0	4.8	13.4	775	100	620
JUN 05...	1400	--	773	100	7.5	21.0	5.9	7.2	779	79	550
AUG 06...	1300	--	651	123	7.8	22.0	1.6	--	778	--	120
DATE	STREP- TOCOCCEI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)	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)
OCT 1990 02...	620	55	14	4.9	3.6	1.6	53	44	5.1	4.5	<0.10
JAN 1991 16...	76	66	17	5.8	5.3	1.1	62	50	7.6	7.2	<0.10
FEB 13...	110	67	17	6.0	5.0	1.3	65	54	6.6	7.6	<0.10
APR 10...	180	32	8.0	2.9	2.5	2.1	29	24	5.6	3.8	0.20
JUN 05...	270	44	11	3.9	2.4	1.9	46	38	3.6	3.9	0.20
AUG 06...	260	59	15	5.1	3.4	1.2	59	48	4.7	4.5	0.10
DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1990 02...	9.8	91	72	<0.010	0.500	0.020	0.010	0.80	0.050	0.040	0.020
JAN 1991 16...	13	91	92	0.010	1.00	0.080	0.090	0.50	0.050	0.040	0.050
FEB 13...	13	107	93	<0.010	0.900	0.090	0.080	0.80	0.060	0.040	0.030
APR 10...	7.6	70	49	0.010	0.410	0.130	0.140	0.80	0.090	0.060	0.020
JUN 05...	7.1	72	59	0.020	0.370	0.080	0.080	1.0	0.120	0.100	0.050
AUG 06...	9.1	90	74	0.010	0.300	<0.010	<0.010	0.90	0.050	0.100	0.030

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## CHIPPEWA RIVER BASIN

05369500 CHIPPEWA RIVER AT DURAND, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC, DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM, DIS-SOLVED (UG/L AS CD) (01025)	CHROMIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
OCT 1990 02...	1130	--	6110	40	<1	17	<0.5	<1.0	<1	<3	3
FEB 1991 13...	1045	4200	--	30	<1	24	<0.5	<1.0	1	<3	6
APR 10...	1045	--	20600	40	<1	11	<0.5	<1.0	2	<3	5
AUG 06...	1300	--	651	10	<1	11	<0.5	1.0	<1	<3	3

DATE	TIME	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM, DIS-SOLVED (UG/L AS LI) (01130)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY, DIS-SOLVED (UG/L AS HG) (71890)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELENIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRONTIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANADIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 1990 02...	430	<1	<4	17	<0.1	<10	<1	<1	<1	32	<6	18
FEB 1991 13...	520	<1	<4	61	<0.1	<10	1	<1	<1	34	<6	11
APR 10...	300	<1	<4	19	<0.1	<10	<1	<1	<1	19	<6	8
AUG 06...	300	<1	<4	6	<0.1	<10	1	<1	<1	32	<6	6

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990 02...	1130	--	6110	120	14.5	10	165	50
DEC 23...	1130	--	11000	120	9.5	--	--	--
DEC 11...	1230	--	5280	160	2.0	--	--	--
JAN 1991 16...	1330	--	4700	167	0.0	7	89	72
FEB 13...	1045	4200	--	172	0.0	4	45	100
MAR 25...	1400	--	38900	180	2.0	--	--	--
APR 10...	1045	--	20600	90	4.0	77	4280	25
MAY 01...	1500	--	14700	115	10.0	--	--	--
JUN 05...	1400	--	773	100	21.0	35	73	50
AUG 06...	1300	--	651	123	22.0	13	23	65
AUG 22...	1015	--	5150	214	21.0	--	--	--

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L) (09511)	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
APR 1991 10...	1045	20600	0.7	0.8	2.7	1.1	2.3	1.0	0.04	0.04

05369945 EAU GALLE RIVER AT LOW-WATER BRIDGE AT SPRING VALLEY, WI

LOCATION.--Lat 44°52'02", long 92°15'07", in SE 1/4 NW 1/4 sec.31, T.28 N., R.15 W., St. Croix County, Hydrologic Unit 07050005, on right bank 50 ft downstream from Low-Water Bridge on Coulee Road, approximately 550 ft upstream from French Creek and at Spring Valley.

DRAINAGE AREA.--47.9 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1981 to September 1983, May 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 960 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 22 to Dec. 7, Jan. 15 to Mar. 11, Apr. 4 to May 1, and period of ice effect listed in rating table below. Records good for discharges less than 300 ft<sup>3</sup>/s, fair for estimated periods, and poor for discharges greater than 300 ft<sup>3</sup>/s.

AVERAGE DISCHARGE.--6 years (1983, 1987-91), 28.0 ft<sup>3</sup>/s, 7.94 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 6,000 ft<sup>3</sup>/s, Sept. 21, 1986, gage height, 8.80 ft, from rating curve extended above 140 ft<sup>3</sup>/s on basis of indirect measurement of peak flow but may have been exceeded on Mar. 27, 1989; maximum gage height, 13.80 ft, Mar. 27, 1989, backwater from reservoir; minimum discharge, 4.7 ft<sup>3</sup>/s, Feb. 1, 1989, gage height, 1.10 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,580 ft<sup>3</sup>/s, Mar. 23, gage height, 6.48 ft; minimum discharge, 7.0 ft<sup>3</sup>/s, Dec. 21, gage height, 1.15 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 24 to Jan. 14.)

1.1	6.0	2.5	133
1.2	9.0	3.0	219
1.3	13	3.5	345
1.6	35	4.0	530
2.0	72	5.0	1,110

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	9.4	8.4	7.6	7.6	8.4	34	50	698	22	11	9.0
2	11	9.2	9.0	7.8	7.6	8.4	23	32	706	20	12	9.0
3	17	9.2	9.4	7.6	7.8	7.8	17	20	89	18	12	9.8
4	13	9.2	9.4	7.6	7.8	8.0	17	32	38	18	11	9.6
5	15	9.2	9.0	7.8	8.4	8.8	17	287	26	17	10	9.5
6	13	9.0	8.6	7.6	8.2	12	16	222	22	16	10	9.5
7	10	8.4	8.6	7.6	8.8	9.4	16	69	20	15	11	9.4
8	9.6	8.6	8.6	7.8	9.8	9.4	15	36	19	15	12	15
9	9.4	8.6	8.6	7.6	15	9.2	15	29	19	15	11	48
10	9.4	9.2	8.6	7.8	18	9.4	16	24	19	15	10	65
11	9.6	9.0	8.6	8.2	15	15	15	21	19	14	10	22
12	9.8	8.4	8.6	8.4	12	21	15	19	19	15	9.9	14
13	11	8.6	8.6	8.6	10	22	17	18	19	15	9.8	13
14	11	9.0	8.6	8.4	10	28	110	17	21	13	9.6	144
15	10	9.4	8.7	7.6	8.6	55	98	16	19	14	9.1	151
16	9.2	9.2	8.8	7.6	9.6	70	30	18	19	13	9.3	36
17	9.0	9.0	8.4	7.6	8.4	44	22	32	18	13	9.6	18
18	9.3	8.6	8.5	7.8	9.4	46	19	22	18	13	9.1	14
19	9.3	8.8	8.6	8.0	9.2	86	18	19	17	18	9.0	12
20	9.4	9.0	8.4	8.0	9.2	136	15	16	19	14	8.9	11
21	10	9.4	7.6	7.6	8.4	298	14	15	19	18	8.6	10
22	9.6	9.2	8.0	7.6	8.8	139	13	15	21	15	8.6	10
23	9.4	9.0	8.0	7.6	10	949	13	14	18	13	8.9	10
24	9.4	8.6	8.0	7.6	9.0	87	12	14	16	12	8.9	10
25	9.4	8.8	7.4	7.6	8.6	47	12	13	15	12	8.7	10
26	9.4	9.0	7.6	7.6	8.6	40	12	24	16	12	8.7	10
27	9.0	9.4	7.6	7.8	8.6	236	12	286	18	12	9.0	9.8
28	8.6	8.8	8.4	8.6	8.4	112	11	174	20	12	9.0	9.6
29	8.6	8.6	8.4	7.6	---	47	15	251	19	12	9.2	9.4
30	8.6	8.4	8.2	7.8	---	29	82	70	18	11	9.0	9.8
31	9.0	---	8.2	7.6	---	24	---	203	---	11	9.0	---
TOTAL	315.9	268.2	261.4	242.0	270.8	2621.8	741	2078	2024	453	301.9	727.4
MEAN	10.2	8.94	8.43	7.81	9.67	84.6	24.7	67.0	67.5	14.6	9.74	24.2
MAX	17	9.4	9.4	8.6	18	949	110	287	706	22	12	151
MIN	8.6	8.4	7.4	7.6	7.6	7.8	11	13	15	11	8.6	9.0
CFSM	.21	.19	.18	.16	.20	1.77	.52	1.40	1.41	.31	.20	.51
IN.	.25	.21	.20	.19	.21	2.04	.58	1.61	1.57	.35	.23	.56

CAL YR 1990 TOTAL 15081.6 MEAN 41.3 MAX 1640 MIN 6.0 CFSM .86 IN. 11.71  
WTR YR 1991 TOTAL 10305.4 MEAN 28.2 MAX 949 MIN 7.4 CFSM .59 IN. 8.00

## CHIPPEWA RIVER BASIN

05369945 EAU GALLE RIVER AT LOW-WATER BRIDGE AT SPRING VALLEY, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: March 1987 to current year.

INSTRUMENTATION.--Continuous water temperature recorder since March 24, 1987.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Interruptions in data were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum temperature, 27.5°C June 19, 20, 1988; minimum, 0.0°C for many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum temperature, 24.0°C, July 22; minimum, 0.0°C for several days January through March.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					APR 1991				
22...	1440	9.6	480	6.5	03...	1030	17	383	6.5
NOV					MAY				
15...	1100	9.4	480	6.0	01...	1015	78	236	8.0
DEC					08...	1005	35	300	8.5
07...	1243	8.6	526	2.0	JUN				
JAN 1991					26...	1205	14	423	19.5
15...	1224	7.6	490	0.5	AUG				
MAR					23...	1325	8.9	440	16.0
14...	1200	22	336	1.0	27...	1017	9.3	420	18.5
19...	0900	46	335	0.5					

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	.5	.0	.0
2	---	---	---	---	---	---	1.0	.5	1.0	.0	.0	.0
3	---	---	---	---	---	---	1.0	.5	1.0	.0	.0	.0
4	---	---	---	---	---	---	.5	.0	.5	.0	.0	.0
5	---	---	---	---	---	---	1.0	.5	.5	.0	.0	.0
6	---	---	---	---	---	---	1.0	.5	1.0	.0	.0	.0
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	2.0	1.0	1.5	.0	.0	.0
9	---	---	---	---	---	---	2.0	1.0	1.5	.0	.0	.0
10	---	---	---	---	---	---	2.5	1.5	2.0	.0	.0	.0
11	---	---	---	---	---	---	2.5	2.0	2.5	.5	.0	.0
12	---	---	---	---	---	---	2.5	2.0	2.5	.5	.5	.5
13	---	---	---	---	---	---	2.0	.5	1.0	.5	.5	.5
14	---	---	---	---	---	---	.5	.0	.5	.5	.5	.5
15	---	---	---	---	---	---	1.0	.5	1.0	.5	.5	.5
16	---	---	---	---	---	---	1.5	.5	1.0	.5	.5	.5
17	---	---	---	---	---	---	2.0	1.0	1.5	1.0	.5	.5
18	---	---	---	---	---	---	2.0	1.0	1.5	1.0	.0	.5
19	---	---	---	---	---	---	1.0	1.0	1.0	1.0	.5	1.0
20	---	---	---	---	---	---	1.5	.0	1.0	1.0	.0	.5
21	---	---	---	---	---	---	.5	.0	.0	.5	.0	.0
22	---	---	---	---	---	---	.5	.0	.0	.0	.0	.0
23	---	---	---	---	---	---	.5	.0	.0	.5	.0	.0
24	---	---	---	---	---	---	.0	.0	.0	.5	.0	.0
25	---	---	---	---	---	---	.0	.0	.0	.5	.0	.0
26	---	---	---	3.0	1.0	2.0	.0	.0	.0	.5	.0	.0
27	---	---	---	3.5	3.0	3.5	.0	.0	.0	.5	.0	.0
28	---	---	---	2.5	1.0	2.0	.5	.0	.0	.5	.0	.5
29	---	---	---	1.0	.5	1.0	.5	.0	.5	.5	.0	.0
30	---	---	---	---	---	---	.5	.0	.0	.5	.0	.0
31	---	---	---	---	---	---	.0	.0	.0	.5	.0	.0



## CHIPPEWA RIVER BASIN

05370000 EAU GALLE RIVER AT SPRING VALLEY, WI

LOCATION.--Lat 44°51'10", long 92°14'17", in SE 1/4 NE 1/4 sec.6, T.27 N., R.15 W., Pierce County, Hydrologic Unit 07050005, on right bank 770 ft downstream from flood control dam, 1,500 ft upstream from Mines Creek, at Spring Valley.

DRAINAGE AREA.--64.1 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR WI-67-1: 1966. WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and v-notch sharp-crested weir. Datum of gage is 900.00 ft above National Geodetic Vertical Datum of 1929 (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 National Geodetic Vertical Datum of 1929. Aug. 1, 1957, to June 6, 1966, nonrecording gage at downstream site at datum of 910.45 ft above National Geodetic Vertical Datum of 1929. June 7, 1966, to Oct. 31, 1968, nonrecording gage at downstream site at datum of 909.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Low flow slightly regulated and high flow completely regulated by flood-control dam 770 ft upstream. Data-collection platform at station.

AVERAGE DISCHARGE.--23 years (1969-91), 33.9 ft<sup>3</sup>/s, since operation of flood-control reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft<sup>3</sup>/s, Apr. 15, 1954, gage height, 12.50 ft, datum then in use; no flow Aug. 11-15, 1971, 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; minimum observed prior to dam construction period, 5.8 ft<sup>3</sup>/s, Sept. 25, 27, 28, 30, 1949.

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 National Geodetic Vertical Datum of 1929, from floodmarks, discharge, 33,000 ft<sup>3</sup>/s estimated by U.S. Army Corps of Engineers on basis of slope-area measurement by Geological Survey of peak discharge of 39,000 ft<sup>3</sup>/s at Elmwood, drainage area, 91.9 mi<sup>2</sup>.

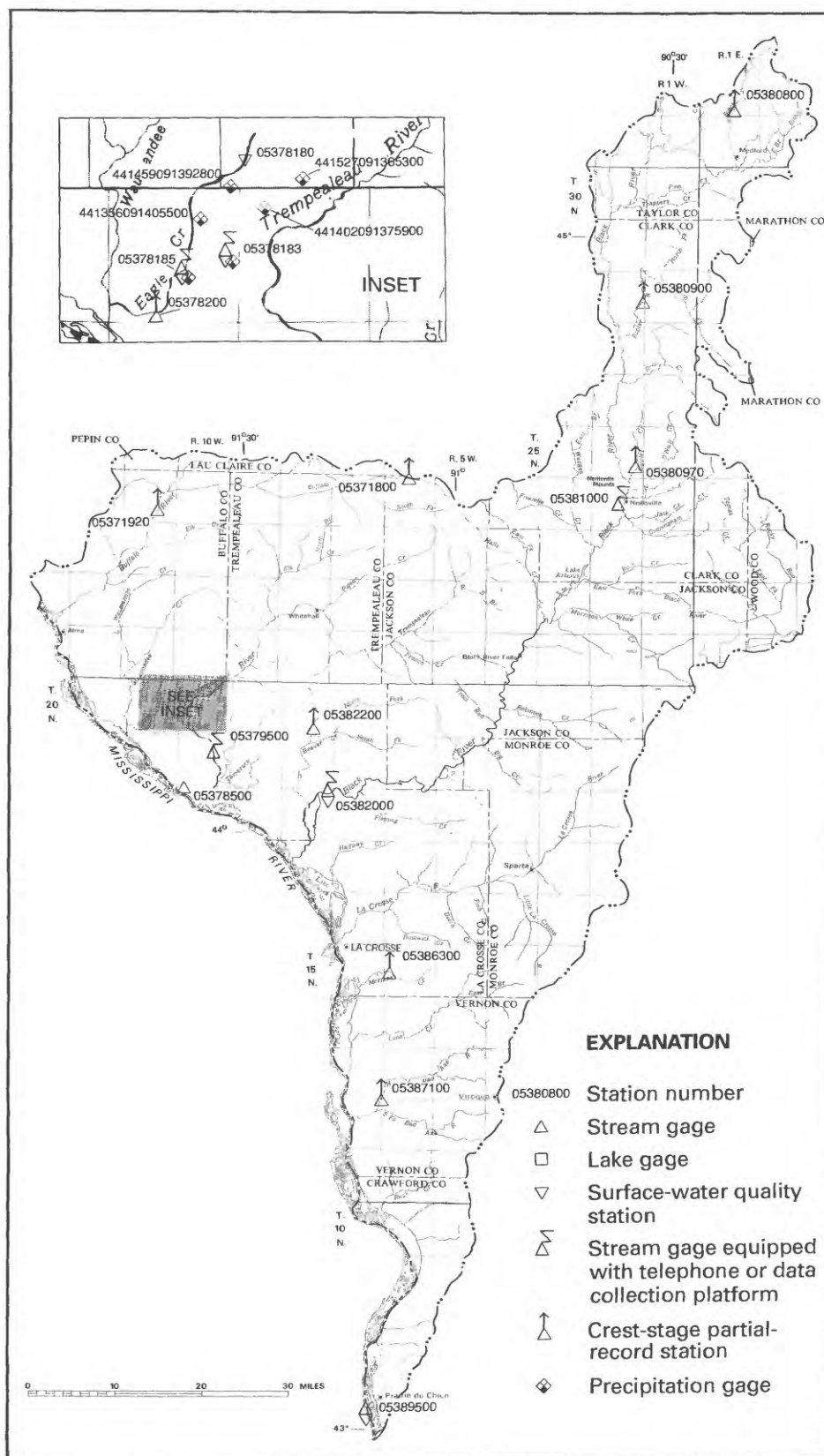
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,320 ft<sup>3</sup>/s, Mar. 23, gage height, 17.29 ft; minimum discharge, 13 ft<sup>3</sup>/s, for many days between Dec. 1 and Mar. 4; minimum gage height, 13.46 ft, Jan. 26.

## RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

13.5	13	14.6	120
13.7	18	15.0	240
13.9	27	15.4	400
14.1	40	16.0	660
14.3	62	17.0	1,150

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	13	13	13	14	35	92	425	24	17	14
2	15	15	14	13	13	14	33	53	548	23	19	14
3	22	15	15	13	13	13	29	34	171	22	20	18
4	21	15	15	13	13	13	27	31	81	23	19	18
5	21	15	15	13	14	14	26	256	72	22	18	16
6	19	15	14	13	14	18	25	594	59	20	18	16
7	18	14	14	13	15	16	25	148	40	19	18	16
8	16	14	14	13	16	15	23	66	32	19	21	22
9	16	14	14	13	22	15	24	44	29	19	21	33
10	15	14	14	13	28	15	25	36	27	19	19	63
11	15	15	14	14	23	17	24	32	27	20	19	41
12	16	14	14	14	19	37	23	28	26	21	18	30
13	16	14	14	14	17	33	24	26	25	22	17	24
14	18	14	14	14	16	31	105	24	28	19	17	73
15	17	15	15	14	14	40	151	23	27	18	16	188
16	16	15	15	14	15	56	59	25	24	18	17	67
17	16	15	15	13	14	50	37	44	23	18	18	39
18	17	14	15	13	15	44	29	36	23	20	17	31
19	16	14	15	14	15	61	26	31	22	28	17	25
20	16	14	15	13	15	120	23	26	26	24	16	22
21	17	15	14	13	14	284	21	24	26	23	16	20
22	16	15	14	13	14	133	20	22	27	21	16	20
23	15	15	14	13	16	762	20	21	27	20	17	19
24	15	14	14	13	15	166	20	20	25	21	17	20
25	15	14	13	13	14	64	19	20	23	19	17	21
26	15	14	13	13	14	47	19	22	22	18	17	19
27	15	15	13	13	14	122	19	94	21	18	16	18
28	14	15	14	14	14	209	18	246	22	19	16	17
29	14	14	14	13	---	75	23	212	20	19	16	17
30	14	14	14	13	---	42	88	141	19	19	15	17
31	14	---	14	13	---	33	---	177	---	18	15	---
TOTAL	505	435	439	411	439	2573	1040	2648	1967	633	540	958
MEAN	16.3	14.5	14.2	13.3	15.7	83.0	34.7	85.4	65.6	20.4	17.4	31.9
MAX	22	15	15	14	28	762	151	594	548	28	21	188
MIN	14	14	13	13	13	13	18	20	19	18	15	14
CAL YR 1990	TOTAL	15533.3	MEAN	42.6	MAX	1520	MIN	4.9				
WTR YR 1991	TOTAL	12588	MEAN	34.5	MAX	762	MIN	13				



TREMPEALEAU-BLACK RIVER BASIN

## WAUMANDEE CREEK BASIN

441459091392800 EAGLE CREEK RAIN GAGE E3-1006, LOSINSKI FARM, NEAR FOUNTAIN CITY, WI

LOCATION.--Lat 44°14'59", long 91°39'28", in NE 1/4 SE 1/4 sec.36, T.21 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, on Eagle Valley Road, 0.3 mi west of junction with Glencoe-Waumandee Road, near Fountain City.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 12, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 5, 7-9, 12, Jan. 14, and Feb. 1-3, 27-28.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.23 in., May 16.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.00	.00	.00	.00	.24	.00	.00	.24	.24	---	.00
2	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	---	.00
3	.92	.13	.00	.00	.00	.00	.00	.11	.00	.06	---	.05
4	.00	.01	.00	.00	.00	.00	.00	.03	.00	.08	---	.00
5	.00	.01	.00	.00	.00	.19	.00	1.09	.00	.00	.02	.01
6	.00	.00	.00	.00	.00	.02	.00	.07	.00	.00	.02	.00
7	.00	.00	.00	.00	.00	.00	.01	.00	.00	.10	1.29	.00
8	.09	.00	.00	.00	.00	.04	1.00	.31	.00	.00	.56	.68
9	.00	.00	.00	.00	.00	.00	.02	.00	.09	.03	.01	.15
10	.00	.00	.00	.00	.00	.00	.01	.00	.50	.01	.01	---
11	.00	.01	.00	.00	.00	.00	.00	.00	.00	.55	.00	.78
12	.00	.00	.00	.00	.00	.00	---	.00	.00	.22	.00	.00
13	.13	.00	.00	.00	.00	.00	---	.23	.21	.00	.00	.01
14	.01	.00	.00	.00	.00	.00	---	.00	.52	.00	.00	.34
15	.00	.00	.00	.00	.00	.00	.00	.34	.55	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	2.23	.00	.00	.26	.00
17	.15	.00	.00	.00	---	.00	.00	.03	.00	.84	.00	.00
18	.24	.00	.00	.00	.00	.00	.40	.17	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.15	.00	.00	.21	.00	.00
20	.16	.00	.00	.00	.20	.21	.00	.00	.01	.83	.02	.00
21	.13	.03	.00	.00	.00	.08	.00	.00	.00	1.34	.01	.00
22	.00	.00	.00	.00	.00	.73	.40	.13	.00	.45	.00	.00
23	.04	.00	.00	.00	.00	.23	.02	.10	.00	.00	.03	.00
24	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.15
25	.00	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00	.06
26	.00	.01	.00	.00	.00	.00	.32	.03	.00	.00	.00	.00
27	.00	.07	.00	.00	.00	.41	.48	.00	.00	.29	.00	.00
28	.01	.00	.00	.00	.00	.00	.00	.55	.00	.23	.00	.00
29	.00	.00	.00	.00	---	.01	1.82	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.20	.41	.00	---	.00	.00
31	.00	---	.00	.00	---	.09	---	.50	---	---	.00	---
TOTAL	1.93	0.27	0.00	0.00	---	2.26	---	6.67	2.12	---	---	---



05378180 EAGLE CREEK, AT SCHAFFNER ROAD, NEAR FOUNTAIN CITY, WI

LOCATION.--Lat 44°14'01", long 91°40'52", in NW 1/4 SE 1/4 sec.3, T.20 N., R.6 W., Buffalo County, Hydrologic Unit 07040003, at Schaffner Road, about 7.2 mi northeast of Fountain City.

DRAINAGE AREA.--4.52 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1990 to current year.

## WATER-QUALITY DATA, JULY TO SEPTEMBER 1990

DATE	TIME	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
SEP 1990			
20...	1000	26	66

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. TOTAL, FALL DIAM. % FINER THAN .062 MM (80186)	SED. TOTAL, FALL DIAM. % FINER THAN .125 MM (80187)	SED. TOTAL, FALL DIAM. % FINER THAN .250 MM (80188)
APR 1991						
29...	1000	2530	--	90	98	100
29...	1032	7900	89	--	--	--
29...	1112	13200	90	--	--	--
29...	1255	14600	92	--	--	--
MAY						
16...	1817	9720	90	--	--	--
JUL						
21...	1837	2830	96	--	--	--
21...	1919	4970	91	--	--	--

## WAUMANDEE CREEK BASIN

441356091405500 EAGLE CREEK RAIN GAGE E2-1005, SCHAFFNER FARM, NEAR FOUNTAIN CITY, WI

LOCATION.--Lat 44°13'56", long 91°40'55", in SW 1/4 SE 1/4 sec.3, T.20 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, on Schaffner Valley Road, 1.7 mi north of junction with CTH G, near Fountain City.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 19, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 5, 9, 20, Jan. 5, 14, 19, Feb. 2, 28, and Mar. 17.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.33 in., May 16.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.00	.00	.00	.00	.37	.00	---	---	---	---	.00
2	.01	.00	.00	.00	.00	.00	.00	---	---	---	---	.00
3	.84	.19	.00	.00	.00	.00	.00	---	---	---	---	.04
4	.01	.00	.00	.00	.00	.00	.00	---	---	---	---	.00
5	.00	.00	.00	.00	.00	.25	.00	---	---	---	---	.01
6	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	.00
7	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	.00
8	.07	.00	.00	.00	.00	.05	1.14	---	---	---	---	.65
9	.00	.01	.00	.00	.00	.00	.04	---	---	---	---	.18
10	.01	.00	.00	.00	.00	.00	.01	---	---	---	---	.00
11	.00	.02	.00	.00	.00	.00	.00	---	---	---	---	.73
12	.00	.00	.00	.00	.00	.00	.52	---	---	---	---	.00
13	.08	.00	.00	.00	.00	.00	.06	---	---	---	---	.03
14	.01	.00	.00	.00	.00	.00	.40	---	---	---	---	.61
15	.00	.00	.00	.00	.00	.00	.03	.48	---	---	---	.00
16	.00	.00	.00	.00	.00	.00	.00	2.33	---	---	---	.00
17	.15	.00	.00	.00	.00	.00	.00	.01	---	---	---	.01
18	.20	.00	.00	.00	.00	.00	.41	.20	---	---	---	.00
19	.00	.00	.00	.00	.01	.00	.22	.00	---	---	---	.00
20	.17	.00	.00	.00	.07	.25	.00	.00	---	---	---	.00
21	.11	.01	.00	.00	.00	.07	.00	.00	---	---	---	.00
22	.01	.00	.00	.00	.00	.90	.37	.09	---	---	---	.00
23	.03	.00	.00	.00	.00	.28	.02	.09	---	---	---	.00
24	.00	.00	.00	.00	.00	.00	.00	.01	---	---	---	.34
25	.00	.00	.00	.00	.00	.00	.00	.18	---	---	---	.06
26	.00	.02	.00	.00	.00	.00	---	.09	---	---	.00	.00
27	.00	.06	.00	.00	.00	.44	---	.00	---	---	.00	.00
28	.00	.00	.00	.00	.00	.02	---	.36	---	---	.00	.00
29	.00	.00	.00	.00	---	.00	---	.11	---	---	.00	.00
30	.00	.00	.00	.00	---	.00	---	.47	---	---	.00	.00
31	.00	---	.00	.00	---	.06	---	.50	---	---	.00	---
TOTAL	1.75	0.31	0.00	0.00	0.08	2.69	---	---	---	---	---	2.66

441527091365300 JOOS VALLEY CREEK RAIN GAGE J3-1003, HANSEN FARM, NEAR ARCADIA, WI

LOCATION.--Lat 44°15'27", long 91°36'53", in NE 1/4 NW 1/4 sec.32, T.21 N., R.10 W., Buffalo County, Hydrologic Unit 07040003, on Hannon Road, 0.1 mi north of the junction with Pausy Pass, near Arcadia.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 12, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 6, Jan. 19, and Feb. 2, 28.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.05 in., Apr. 29.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.00	.00	.00	.00	.39	.00	.00	.32	.27	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00
3	.84	.09	.00	.00	.00	.00	.00	.09	.00	.05	.02	.06
4	.00	.00	.00	.00	.00	.00	.00	.03	.00	.11	.00	.00
5	.00	.01	.00	.00	.00	.20	.00	.88	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00	.03	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	1.27	.00
8	.08	.00	.00	.00	.00	.02	.87	.33	.00	.00	1.20	.53
9	.00	.00	.00	.00	.00	.00	.02	.00	.09	.03	.00	.19
10	.00	.00	.00	.00	.00	.00	.01	.00	.50	.00	.00	.00
11	.00	.02	.00	.00	.00	.00	.00	.00	.00	.63	.00	1.00
12	.00	.00	.00	.00	.00	.00	.08	.00	.00	.30	.00	.00
13	.11	.00	.00	.00	.00	.00	.23	.31	.17	.02	.00	.02
14	.01	.00	.00	.00	.00	.00	.38	.00	.44	.00	.00	.74
15	.00	.00	.00	.00	.00	.00	.04	.44	.52	.00	.00	.01
16	.00	.00	.00	.00	.00	.00	.00	1.85	.00	.00	.27	.01
17	.11	.00	.00	.00	.00	.00	.00	.01	.00	1.09	.05	.00
18	.11	.00	.00	.00	.00	.00	.41	.20	.00	.00	.00	.00
19	.05	.00	.00	.00	.00	.00	.21	.00	.00	.16	.00	.00
20	.16	.01	.00	.00	.07	.18	.00	.00	.01	.77	.00	.00
21	.11	.00	.00	.00	.00	.05	.00	.00	.00	.22	.00	.00
22	.00	.00	.00	.00	.00	.84	.32	.06	.00	.35	.00	.00
23	.03	.00	.00	.00	.00	.27	.04	.21	.00	.00	.04	.00
24	.00	.00	.00	.00	.00	.00	.00	.04	.00	.02	.00	.29
25	.00	.00	.00	.00	.00	.00	.00	.41	.00	.00	.00	.06
26	.00	.02	.00	.00	.00	.00	.31	.05	.00	.00	.00	.00
27	.00	.07	.00	.00	.00	.57	.46	.00	.00	.31	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.63	.00	.24	.00	.00
29	.00	.00	.00	.00	---	.00	2.05	.00	.00	.00	.00	.00
30	.00	.01	.00	.00	---	.00	.16	.25	.00	.00	.00	.00
31	.00	---	.00	.00	---	.01	---	.58	---	.00	.00	---
TOTAL	1.67	0.23	0.00	0.00	0.07	2.53	5.59	6.44	2.05	4.66	3.01	2.91

## WAUMANDEE CREEK BASIN

441402091395900 JOOS VALLEY CREEK RAIN GAGE J2-1002, SLABY FARM, NEAR FOUNTAIN CITY, WI

LOCATION.--Lat 44°14'02", long 91°37'59", in NE 1/4 SE 1/4 sec.1, T.20 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, on Slaby Farm entrance road just off Joos Valley Road, and approximately 3.1 mi northeast of the junction of Joos Valley Road and CTH G, near Fountain City.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 12, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 4-9, 20, Jan. 14, 19, and Feb. 2-3, 17, 18.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.50 in., Apr. 29.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.00	.00	.00	.00	.37	.00	.00	.41	---	.00	.00
2	.00	.00	.00	.00	.00	.01	.00	.00	.00	---	.10	.00
3	.79	.19	.00	.00	.00	.00	.00	.11	.00	---	.00	.02
4	.00	.04	.00	.00	.00	.00	.00	.04	.00	---	.00	.00
5	.00	.00	.00	.00	.00	.14	.00	1.43	.00	---	.00	.01
6	.00	.00	.00	.00	.00	.00	.00	.08	.00	---	.01	.00
7	.00	.00	.00	.00	.00	.00	---	.00	.00	---	1.47	.00
8	.09	.00	.00	.00	.00	.05	.95	.34	.00	---	1.06	.74
9	.01	.00	.00	.00	.00	.00	.04	.00	.08	---	.00	.24
10	.00	.00	.00	.00	.00	.00	.03	.00	.28	---	.01	.00
11	.00	.02	.00	.00	.00	.00	.00	.00	.00	---	.00	.78
12	.00	.00	.00	.00	.00	.00	.48	.00	.00	---	.00	.00
13	.08	.00	.00	.00	.00	.00	.12	.40	.22	---	.00	.03
14	.00	.00	.00	.00	.00	.00	.36	.00	.45	---	.00	.87
15	.00	.00	.00	.00	.00	.00	.04	.50	.70	---	.00	.03
16	.00	.00	.00	.00	.00	.00	.00	2.10	.00	---	.28	.01
17	.12	.00	.00	.00	.00	.00	.00	.06	.00	---	.01	.01
18	.21	.00	.00	.00	.00	.00	.51	.26	.00	---	.00	.00
19	.00	.00	.00	.00	.00	.00	.20	.00	.00	---	.00	.00
20	.20	.00	.00	.00	.15	.24	.00	.00	.00	---	.04	.00
21	.13	.00	.00	.00	.01	.05	.00	.00	.00	---	.01	.00
22	.00	.00	.00	.00	---	.98	.39	.05	.00	---	.00	.00
23	.05	.00	.00	.00	---	.23	.02	.21	.00	---	.03	.00
24	.00	.00	.00	.00	---	.00	.00	.15	.00	---	.00	.36
25	.00	.00	.00	.00	---	.00	.00	.39	.00	---	.00	.07
26	.00	.01	.00	.00	---	.00	.39	.04	.00	---	.00	.00
27	.00	.07	.00	.00	---	.70	.57	.00	.00	.39	.00	.00
28	.00	.00	.00	.00	.00	.01	.00	.51	.00	.27	.00	.00
29	.00	.00	.00	.00	---	.01	2.50	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.13	.09	.00	.00	.00	.00
31	.00	---	.00	.00	---	.06	---	.55	---	.00	.00	---
TOTAL	1.75	0.33	0.00	0.00	---	2.85	---	7.31	2.14	---	3.02	3.17

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI

LOCATION.--Lat 44°12'54", long 91°39'54", in NE 1/4 NW 1/4 sec.14, T.20 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, on left bank at bridge on private road, 6.3 mi northeast of Fountain City.

DRAINAGE AREA.--5.89 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 800 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 1-11 and July 26 to Aug. 3, 1990; Apr. 17 and June 11, 12, 1991; and ice periods listed in the rating table below. Records good except those for estimated daily discharges, which are poor. Gage-height telemeter at station.

## EXTREMES FOR CURRENT PERIOD.--

JULY TO SEPTEMBER 1990: Maximum discharge, 574 ft<sup>3</sup>/s, Aug. 26, gage height, 9.46 ft, from rating curve extended above 10 ft<sup>3</sup>/s on basis of step-backwater method; minimum discharge, 1.9 ft<sup>3</sup>/s, Aug. 9, 14-17.

WATER YEAR 1991: Maximum discharge, 155 ft<sup>3</sup>/s, Apr. 29, gage height, 7.18 ft, from rating curve extended above 10 ft<sup>3</sup>/s on basis of step-backwater method; minimum discharge, 0.54 ft<sup>3</sup>/s, Dec. 3, result of freezeup.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4-6, Dec. 14 to Jan. 11, Jan. 21 to Feb. 2, and Feb. 11 to Mar. 1.)

1.8	1.3	3.0	17
2.0	3.0	4.0	39
2.4	7.7	5.0	67

DISCHARGE, CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										2.7	2.2	3.6
2										2.6	2.3	3.4
3										2.6	3.3	3.3
4										2.5	2.4	3.3
5										2.5	2.2	3.2
6										2.5	2.2	3.2
7										2.7	2.2	3.2
8										4.2	2.2	3.1
9										3.4	2.3	4.1
10										2.7	2.2	3.7
11										2.5	2.9	3.2
12										2.5	2.5	3.2
13										2.4	2.6	3.0
14										2.4	2.2	3.8
15										2.4	2.2	3.1
16										2.4	2.0	2.9
17										2.4	11	2.9
18										2.3	13	3.1
19										2.9	4.8	3.2
20										2.4	3.4	2.9
21										2.3	3.0	2.8
22										2.3	2.8	2.8
23										2.3	2.8	2.8
24										2.2	3.6	2.8
25										2.2	4.0	2.8
26										2.2	40	2.8
27										2.6	9.5	2.7
28										5.2	4.6	2.7
29										3.5	4.3	2.7
30										2.4	3.9	2.7
31										2.3	3.6	---
TOTAL										82.5	152.2	93.0
MEAN										2.66	4.91	3.10
MAX										5.2	40	4.1
MIN										2.2	2.0	2.7
CFSM										.45	.83	.53
IN.										.52	.96	.59

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.2	2.0	1.9	1.7	2.6	3.2	5.6	5.1	3.3	2.9	2.4
2	2.7	2.1	2.0	1.8	1.8	3.9	3.1	5.0	4.3	3.0	3.0	2.5
3	4.0	2.2	1.6	1.7	2.1	2.8	3.0	4.7	4.0	3.0	2.9	2.6
4	2.7	2.3	2.0	1.8	2.4	2.6	3.0	4.7	3.7	3.1	2.8	2.4
5	2.5	2.2	2.0	1.9	2.3	3.2	2.9	11	3.2	3.1	2.7	2.4
6	2.5	2.1	2.1	1.9	2.3	4.2	2.8	7.1	3.1	3.4	2.7	2.4
7	2.3	2.1	2.2	1.9	2.3	2.9	2.7	5.3	3.1	3.5	3.3	2.4
8	2.3	2.1	2.1	1.9	2.4	3.0	4.1	6.1	3.1	3.6	8.2	3.1
9	2.4	2.1	2.1	1.9	2.3	3.1	3.3	5.1	3.1	3.6	3.7	3.0
10	2.3	2.1	2.1	1.9	2.2	3.2	3.1	4.6	3.5	3.6	3.4	2.6
11	2.3	2.1	2.1	2.0	2.0	4.1	2.9	4.2	3.2	3.3	3.3	3.1
12	2.3	2.1	2.1	2.1	1.9	3.3	3.4	4.1	2.9	3.9	3.1	2.9
13	2.4	2.1	2.0	2.1	2.0	3.0	3.4	4.4	3.0	3.1	2.9	2.7
14	2.3	2.1	1.9	2.2	2.3	3.3	4.3	3.9	3.6	3.0	2.9	4.1
15	2.2	2.1	2.0	2.1	1.9	3.3	3.7	4.4	5.0	3.1	2.7	3.0
16	2.2	2.1	2.0	2.1	1.7	3.1	3.4	19	3.4	3.1	2.9	2.8
17	2.2	2.1	2.1	2.1	2.0	3.3	3.2	7.0	3.2	3.7	3.0	2.7
18	2.6	2.1	2.1	2.1	1.9	3.4	3.4	6.1	3.0	3.3	2.9	2.6
19	2.3	2.1	2.1	2.1	1.9	3.5	4.6	5.2	2.8	2.9	2.9	2.6
20	2.3	2.1	1.9	2.0	1.9	3.7	3.7	4.9	2.9	3.9	3.0	2.6
21	2.6	2.1	2.0	1.8	2.2	4.3	3.6	4.7	2.9	6.6	3.0	2.6
22	2.4	2.1	1.8	1.7	2.3	5.6	3.8	4.5	2.9	5.7	2.7	2.5
23	2.3	2.0	1.6	2.0	2.1	6.9	3.9	4.8	2.7	2.9	2.1	2.3
24	2.2	2.0	1.6	1.7	2.0	4.4	3.3	4.7	2.6	2.6	2.1	2.7
25	2.2	2.0	1.7	1.6	1.8	3.8	3.0	4.5	2.8	2.4	2.4	2.7
26	2.2	2.0	1.6	1.6	1.8	3.6	3.3	5.0	3.0	2.3	2.4	2.6
27	2.2	2.0	1.5	1.9	1.9	5.1	5.4	4.3	3.2	2.4	2.3	2.5
28	2.2	2.0	1.7	1.8	1.9	3.8	3.7	6.0	3.2	3.0	2.5	2.5
29	2.2	2.0	1.9	1.7	---	3.5	25	4.4	3.2	2.8	2.6	2.5
30	2.2	2.0	1.8	1.7	---	3.4	7.2	4.3	3.2	2.7	2.5	2.5
31	2.2	---	1.8	1.7	---	3.5	---	7.1	---	2.8	2.5	---
TOTAL	74.4	62.7	59.5	58.7	57.3	113.4	129.4	176.7	98.9	102.7	92.3	80.3
MEAN	2.40	2.09	1.92	1.89	2.05	3.66	4.31	5.70	3.30	3.31	2.98	2.68
MAX	4.0	2.3	2.2	2.2	2.4	6.9	25	19	5.1	6.6	8.2	4.1
MIN	2.2	2.0	1.5	1.6	1.7	2.6	2.7	3.9	2.6	2.3	2.1	2.3
CFSM	.41	.35	.33	.32	.35	.62	.73	.97	.56	.56	.51	.45
IN.	.47	.40	.38	.37	.36	.72	.82	1.12	.62	.65	.58	.51

WTR YR 1991 TOTAL 1106.3 MEAN 3.03 MAX 25 MIN 1.5 CFSM .51 IN. 6.99

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1990 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1990 to current year.  
 DISSOLVED OXYGEN: July 1990 to current year.  
 SUSPENDED-SOLIDS DISCHARGE: July 1990 to current year.  
 TOTAL-PHOSPHORUS DISCHARGE: July 1990 to current year.

INSTRUMENTATION.--Water-quality sampler July 1990 to current year; continuous water-temperature recorder July 1990 to current year; dissolved-oxygen recorder July 1990 to current year.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Suspended-sediment and particle-size analyses by U.S. Geological Survey Laboratory. Samples are point samples unless otherwise indicated.

## EXTREMES FOR CURRENT PERIOD.--

## JULY TO SEPTEMBER 1990:

WATER TEMPERATURE: Maximum observed, 29.0°C, July 18; minimum observed, 8.5°C, Sept. 23, 24.  
 DISSOLVED OXYGEN: Maximum observed, 13.2 mg/L, Aug. 9; minimum observed, 5.2 mg/L, July 16 and Aug. 18.  
 SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 766 tons, Aug. 26; minimum daily, 0.15 ton, Sept. 28-30.  
 TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,950 lb, Aug. 26; minimum daily, 0.60 lb., Sept. 30.

## WATER YEAR 1991:

WATER TEMPERATURE: Maximum observed, 31.0°C, June 27-28; minimum observed, 0.0°C, Nov. 28-29, Dec. 2-5, 13-15, 20-27, 29-31, Jan. 1-7, 10-13, 15-31, Feb. 1-28, Mar. 1-4, 6-10, 13-15, 29-30.  
 DISSOLVED OXYGEN: Maximum observed, 15.8 mg/L, Apr. 26; minimum observed, 4.3 mg/L, June 28.  
 SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 846 tons, Apr. 29; minimum daily, 0.04 ton, Nov. 8-9.  
 TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,520 lb, Apr. 29; minimum daily, 0.22 lb., Nov. 9.

## WATER-QUALITY DATA, AUGUST TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
AUG 1990							
*08...	1535	2.3	3.4	--	--	47	342
17...	1920	8.4	--	--	--	1420	1640
17...	1930	14	--	--	--	2730	--
17...	1940	33	--	--	--	4460	4650
17...	2040	57	--	--	--	--	5830
17...	2110	42	--	--	--	7000	--
17...	2125	67	--	--	--	7450	--
17...	2130	112	--	--	--	--	11100
17...	2135	132	--	--	--	--	14200
17...	2150	103	--	--	--	--	11700
17...	2200	78	--	--	--	9070	--
17...	2220	58	--	--	--	--	8330
18...	0015	19	--	--	--	2980	3110
*23...	1350	2.9	1.5	--	--	46	392
24...	0810	7.0	--	--	--	596	--
26...	0620	9.4	--	--	--	--	2410
26...	0640	38	--	--	--	4510	--
26...	0650	68	--	--	--	--	8010
26...	0715	104	--	--	--	--	7460
26...	0740	290	--	--	--	--	9960
26...	0750	574	--	--	--	--	--
26...	0815	307	--	--	--	--	--
26...	0835	193	--	--	--	9730	--
26...	0915	94	--	--	--	--	6660
26...	1145	26	--	--	--	2750	--
26...	1200	24	--	--	--	2450	--
26...	1835	18	--	--	--	13600	8620
27...	0635	17	--	--	--	--	--
SEP							
*06...	1715	3.1	5.5	--	--	450	744
*27...	1420	2.7	--	350	60	21	320

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, AUGUST TO SEPTEMBER 1990

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)
AUG 1990						
08...	84	44	3	0.150	0.020	0.060
17...	192	1300	116	0.390	0.200	1.26
17...	--	--	--	--	--	--
17...	386	4150	308	0.400	0.300	4.90
17...	562	--	540	0.680	0.300	6.56
17...	--	--	--	--	--	--
17...	--	--	--	--	--	--
17...	772	--	--	0.400	0.370	10.3
17...	990	--	970	0.400	0.450	10.2
17...	966	--	970	0.610	0.490	6.80
17...	--	--	--	--	--	--
17...	796	--	780	0.720	0.440	8.58
18...	398	2580	400	1.28	0.560	6.08
23...	110	40	6	0.940	0.030	--
24...	--	--	--	--	--	--
26...	224	--	212	0.720	0.320	1.69
26...	--	--	--	--	--	--
26...	574	--	--	0.500	0.470	5.99
26...	632	--	--	0.570	0.240	6.74
26...	726	--	--	0.530	0.280	9.22
26...	--	--	--	0.530	0.510	--
26...	--	--	--	0.600	0.540	--
26...	--	--	--	--	--	--
26...	582	--	580	0.870	0.360	--
26...	--	--	--	--	--	--
26...	--	--	--	--	--	--
26...	656	12520	1080	--	--	--
27...	--	--	--	0.300	0.500	--
SEP						
06...	120	416	34	0.480	0.050	--
27...	118	19	2	0.470	<0.020	--

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
AUG 1990				
17...	1920	8.4	1360	92
17...	1940	33	4200	92
17...	2040	57	5570	94
17...	2130	112	10500	93
17...	2135	132	13600	96
17...	2150	103	10900	97
17...	2220	58	7810	95
18...	0015	19	2760	95
SEP				
*20...	0842	3.0	51	60

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE



## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)
OCT 1990							
*11...	1455	--	2.3	--	--	--	8
*25...	1245	--	2.2	2.1	80	40	8
NOV							
*09...	0930	--	2.1	1.2	140	100	8
DEC							
*13...	1010	--	2.3	1.8	80	50	42
JAN 1991							
*09...	1145	1.9	--	<1.0	50	50	28
FEB							
*20...	1545	1.9	--	1.5	20	10	109
APR							
*04...	1430	--	2.9	<1.0	250	270	14
*17...	1555	3.2	--	1.2	--	--	15
*24...	1415	--	3.4	<1.0	--	--	16
29...	0400	--	7.4	--	--	--	448
29...	0620	--	13	--	--	--	988
29...	0935	--	27	--	--	--	4260
29...	0945	--	40	--	--	--	7960
29...	1000	--	73	--	--	--	--
29...	1010	--	97	--	--	--	21200
29...	1020	--	131	--	--	--	--
29...	1055	--	107	--	--	--	--
29...	1125	--	148	--	--	--	--
29...	1150	--	117	--	--	--	25200
29...	1200	--	98	--	--	--	22600
29...	1210	--	85	--	--	--	19000
*29...	1225	--	68	--	--	--	18600
*30...	1140	--	6.5	<1.0	--	--	182
MAY							
01...	2020	--	5.3	--	--	--	48
05...	0855	--	6.6	--	--	--	135
05...	1010	--	10	--	--	--	500
05...	1235	--	15	--	--	--	920
05...	1310	--	20	--	--	--	1730
05...	1340	--	26	--	--	--	2950
05...	1600	--	18	--	--	--	1220
05...	2015	--	11	--	--	--	400
05...	2120	--	11	--	--	--	340
07...	1425	--	5.1	--	--	--	41
08...	1300	--	6.9	4.9	--	--	90
09...	0755	--	5.3	1.2	--	--	30
16...	0105	--	11	8.0	--	--	975
16...	0115	--	18	7.7	--	--	2100
16...	0120	--	23	19	--	--	3670
16...	0200	--	33	7.4	--	--	8350
16...	0330	--	23	8.3	--	--	3880
16...	0515	--	15	7.7	--	--	1450
16...	1145	--	5.9	8.3	30000	12000	592
16...	1545	--	12	9.0	--	--	1000
16...	1555	--	17	7.0	--	--	1440
16...	1600	--	26	8.6	--	--	2550
16...	1605	--	35	13	--	--	4280
16...	1655	--	63	12	--	--	13200
16...	1710	--	81	16	--	--	--
16...	1810	--	67	--	--	--	11300
16...	1830	--	54	--	--	--	10400
16...	1855	--	42	--	--	--	--
16...	1930	--	33	--	--	--	--
16...	2150	--	16	20	--	--	3020
17...	0920	--	7.0	2.9	30000	28000	262
28...	0535	--	11	9.2	--	--	1140
*30...	1213	--	4.2	E1.8	1200	320	34
31...	0930	--	7.8	E2.8	--	--	616
31...	1030	--	11	E12	--	--	1080
31...	1055	--	16	E12	--	--	3700
31...	1235	--	20	E8.3	--	--	--
31...	1415	--	13	E9.5	--	--	2400
31...	1710	--	6.1	E14	--	--	2680

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1990							
11...	324	88	6	2	0.760	<0.020	--
25...	328	94	4	4	0.770	<0.020	0.030
NOV							
09...	338	82	6	2	0.900	<0.100	0.020
DEC							
13...	380	86	36	6	--	--	--
JAN 1991							
09...	346	76	24	4	1.08	0.060	0.060
FEB							
20...	460	102	103	6	0.930	0.022	--
APR							
04...	342	86	10	4	0.786	0.036	0.060
17...	340	86	13	2	0.940	0.043	0.050
24...	330	86	12	4	0.893	0.014	0.050
29...	716	124	384	64	0.974	0.152	0.840
29...	1250	154	876	112	0.882	0.192	1.43
29...	4480	316	3920	340	1.02	0.264	3.69
29...	8190	614	7330	630	0.897	0.593	8.16
29...	20400	1400	--	--	0.764	0.587	20.2
29...	22100	1410	19620	--	0.734	0.723	20.3
29...	22500	1420	22680	--	0.654	0.870	20.5
29...	23200	1470	21860	--	0.824	0.481	20.5
29...	22200	1170	21980	--	0.793	0.425	16.5
29...	25500	1450	23450	--	0.847	0.495	19.8
29...	23200	1440	20850	--	1.00	0.693	19.6
29...	19200	1320	17600	--	1.06	0.867	17.8
29...	19800	1390	17050	--	1.09	0.881	20.1
30...	524	94	160	22	1.94	0.119	0.290
MAY							
01...	388	88	40	8	1.89	0.050	0.100
05...	456	86	117	18	1.57	0.109	0.230
05...	796	112	436	64	1.53	0.122	0.650
05...	1210	148	810	110	1.18	0.199	1.50
05...	1950	182	1580	150	1.04	0.211	1.94
05...	3050	266	2690	260	0.987	0.194	3.18
05...	1530	168	1090	130	1.08	0.205	1.96
05...	660	106	356	44	1.46	0.125	0.730
05...	598	106	304	36	1.53	0.117	0.600
07...	384	92	34	7	2.00	0.030	0.090
08...	406	86	75	15	1.68	0.057	0.230
09...	366	86	24	6	1.93	0.030	0.080
16...	1240	150	885	90	0.894	0.066	1.04
16...	2400	196	1960	144	0.827	0.052	0.880
16...	3820	300	3420	248	0.818	0.124	3.32
16...	8490	616	7810	540	0.595	0.153	7.12
16...	3990	410	3480	400	0.658	0.115	4.88
16...	1700	182	1310	145	1.11	0.083	1.89
16...	894	130	524	68	1.12	0.093	1.23
16...	1300	148	912	88	1.49	0.358	1.23
16...	1690	182	1340	104	1.40	0.243	1.46
16...	2830	232	2390	160	1.29	0.189	1.97
16...	4590	322	4040	244	1.23	0.183	3.37
16...	12900	900	12250	950	0.527	0.296	12.2
16...	22200	1520	21240	1700	0.496	0.359	17.8
16...	10900	824	10360	940	0.626	0.755	12.6
16...	10200	804	9520	880	0.622	0.699	13.8
16...	8740	742	8260	820	0.652	0.696	11.6
16...	7790	722	7120	--	0.746	0.706	12.3
16...	3380	408	2660	360	1.04	0.693	6.33
17...	634	112	238	24	1.79	0.206	0.610
28...	1430	186	1000	140	1.09	0.121	1.38
30...	390	90	28	6	1.27	<0.013	0.070
31...	890	106	548	68	1.04	0.040	0.570
31...	1290	160	930	150	1.08	0.214	1.65
31...	3850	402	3220	480	1.04	0.169	3.56
31...	5210	500	4660	--	1.04	0.117	4.73
31...	2670	278	2060	--	1.69	0.441	2.69
31...	2840	380	2280	--	1.90	1.10	4.34

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
JUN 1991							
01...	1145	8.1	E6.1	--	--	480	810
*05...	1112	3.3	2.5	890	140	46	400
15...	0220	8.4	--	--	--	800	1020
*18...	1234	3.1	1.5	590	120	19	316
JUL							
*02...	1148	3.1	2.8	2800	210	37	366
*17...	1150	3.1	1.8	4000	1100	26	342
21...	1750	8.8	9.9	--	--	1510	1710
21...	1820	18	19	--	--	2450	2750
21...	1835	24	21	--	--	--	3400
21...	2230	9.6	8.9	--	--	732	954
*22...	1228	4.9	1.8	8000	4400	142	462
AUG							
*05...	1200	2.7	1.5	370	60	10	302
08...	0005	8.3	10	100000	53000	520	818
08...	0125	12	11	--	--	724	1010
08...	0235	17	14	100000	100000	1040	1310
08...	0730	11	5.2	--	--	392	624
*08...	1344	5.5	1.5	29000	9500	84	388
*14...	1510	2.9	3.7	3000	270	96	378
*26...	1302	2.2	1.5	1200	140	14	304
SEP							
11...	1150	2.7	1.2	3300	620	26	354
24...	1258	3.0	1.7	3200	1100	22	350

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
JUN 1991						
01...	114	416	64	1.44	0.164	0.680
05...	104	38	8	1.14	0.037	0.100
15...	132	720	80	--	--	0.750
18...	86	15	4	0.923	0.033	0.060
JUL						
02...	92	29	8	0.767	0.071	0.110
17...	92	19	7	0.537	0.026	0.070
21...	198	1320	190	0.514	0.212	1.52
21...	282	2190	260	0.517	0.355	2.72
21...	338	3140	--	0.610	0.440	3.83
21...	162	624	108	1.01	0.208	1.37
22...	120	116	26	1.25	0.107	0.310
AUG						
05...	88	8	2	0.553	0.016	0.040
08...	160	448	72	0.706	0.286	0.900
08...	168	632	92	0.649	0.249	1.24
08...	182	936	104	0.611	0.223	1.62
08...	126	340	52	0.663	0.112	0.700
08...	94	71	13	0.832	0.077	0.210
14...	102	80	16	0.382	0.015	0.130
26...	82	10	4	0.548	0.022	0.060
SEP						
11...	84	20	6	0.824	0.048	0.080
24...	92	18	4	0.878	0.020	0.080

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. TOTAL, FALL DIAM. % FINER THAN .125 MM (80187)	SED. TOTAL, FALL DIAM. % FINER THAN .250 MM (80188)	SED. TOTAL, FALL DIAM. % FINER THAN .500 MM (80189)
MAR 1991							
05...	2245	5.1	472	--			
13...	0935	7.0	235	--			
22...	2055	9.4	1270	93			
22...	2155	16	3310	93			
23...	0955	6.2	540	--			
23...	2155	5.3	142	--			
27...	1155	9.7	746	--			
APR							
**29...	1010	97	20700	87			
**29...	1042	123	23100	96			
**29...	1124	145	17800	93			
**29...	1312	40	13700	95			
*29...	2118	9.4	1180	--			
MAY							
**16...	1801	72	11000	94			
JUL							
**21...	1818	18	1820	85			
**21...	1901	23	3920	94			
APR 1991							
*29...	2118	9.4	69	76	82	99	

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.  
 \*\* SINGLE VERTICAL SAMPLE.

WAUMANDEE CREEK BASIN

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05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1				---	---	---	---	---	---	23.5	17.0	20.0
2				---	---	---	---	---	---	24.0	16.5	19.5
3				---	---	---	---	---	---	21.5	16.5	18.5
4				---	---	---	23.5	17.0	19.5	26.5	17.0	21.5
5				---	---	---	23.5	14.0	18.5	24.0	18.5	21.0
6				---	---	---	24.5	13.5	18.5	27.0	18.5	22.0
7				---	---	---	25.5	14.0	19.5	22.0	19.0	20.5
8				---	---	---	25.5	15.0	20.0	21.0	17.5	19.0
9				---	---	---	25.5	15.0	19.5	24.0	17.0	19.5
10				---	---	---	27.0	17.0	21.0	25.0	17.5	20.5
11				---	---	---	22.5	17.0	19.5	24.5	16.5	20.0
12				23.5	15.0	19.0	22.5	15.0	18.0	27.5	18.5	22.5
13				26.0	14.0	19.5	23.5	14.0	18.5	27.0	19.0	22.5
14				24.0	16.0	19.5	25.0	15.5	20.0	22.5	16.5	19.5
15				24.0	16.0	19.5	23.0	18.5	20.5	21.0	14.5	17.5
16				27.0	16.0	21.5	27.0	17.5	21.5	17.5	13.5	15.5
17				26.5	18.5	22.0	24.5	19.0	21.0	17.5	12.0	14.5
18				29.0	19.5	24.0	27.0	19.0	22.0	14.0	12.5	13.0
19				26.0	19.5	22.0	21.0	16.5	18.5	20.0	12.5	15.5
20				28.0	18.0	22.5	17.0	15.5	16.5	20.0	12.0	15.5
21				24.5	17.5	21.0	23.5	15.0	18.5	18.0	14.0	16.0
22				24.5	17.0	20.0	25.0	16.0	19.5	14.0	11.0	12.0
23				24.5	15.0	19.5	21.5	16.0	18.5	16.0	8.5	12.0
24				25.5	15.0	19.5	26.0	18.0	21.0	18.0	8.5	13.0
25				25.0	17.0	20.5	27.5	18.5	22.5	20.5	11.5	15.5
26				---	---	---	25.0	19.0	21.5	20.0	11.0	15.0
27				---	---	---	27.0	20.5	22.5	17.0	12.0	14.5
28				---	---	---	26.0	20.5	22.5	19.0	12.0	15.0
29				---	---	---	26.0	18.0	21.0	17.0	12.0	14.0
30				---	---	---	26.0	16.5	20.5	17.0	10.0	13.0
31				---	---	---	22.0	17.5	19.5	---	---	---
MONTH				---	---	---	---	---	---	27.5	8.5	17.3

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.0	11.0	13.5	13.5	8.0	10.5	4.0	1.0	2.5	.5	.0	.5
2	17.5	9.0	13.0	13.5	10.0	11.5	1.0	.0	.5	.5	.0	.5
3	15.5	11.5	14.5	11.5	6.5	8.5	.5	.0	.0	.0	.0	.0
4	15.0	9.5	12.0	7.5	4.5	6.0	.5	.0	.0	.0	.0	.0
5	19.0	10.0	14.0	6.5	4.0	5.0	.5	.0	.5	.5	.0	.5
6	19.0	13.0	15.0	5.5	3.0	4.0	.5	.5	.5	.5	.0	.0
7	15.5	10.5	12.5	5.0	1.5	3.0	.5	.5	.5	.5	.0	.5
8	11.0	9.0	10.0	2.0	.5	1.5	1.0	.5	.5	.5	.5	.5
9	12.5	7.5	9.5	6.5	2.0	4.0	1.0	.5	.5	.5	.5	.5
10	12.5	6.0	8.5	6.5	2.5	4.0	1.0	.5	.5	.5	.0	.0
11	14.0	5.5	9.5	6.5	1.5	3.5	1.5	.5	1.0	.5	.0	.0
12	15.0	9.5	11.5	6.5	2.5	4.0	1.5	.5	1.0	.5	.0	.5
13	14.0	7.5	10.5	5.5	1.5	3.5	1.0	.0	.5	.5	.0	.5
14	14.5	9.5	11.5	9.5	2.0	5.5	.5	.0	.5	.5	.5	.5
15	13.0	7.5	10.0	12.0	7.5	9.5	.5	.0	.5	.5	.0	.5
16	13.0	7.5	10.5	9.5	5.0	7.5	1.0	.5	.5	.5	.0	.5
17	14.5	10.5	13.0	6.5	2.5	4.5	1.0	.5	.5	.5	.0	.5
18	10.0	5.5	7.5	8.0	4.0	5.5	1.5	.5	1.0	.5	.0	.0
19	10.0	4.0	6.5	7.5	3.5	5.5	1.0	.5	.5	.5	.0	.5
20	10.0	6.0	8.0	8.5	4.5	6.0	1.5	.0	.5	.5	.0	.0
21	10.5	6.5	8.5	13.5	7.0	10.5	.5	.0	.0	.0	.0	.0
22	10.5	4.0	7.0	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0
23	13.5	8.0	10.0	5.5	1.0	3.0	.0	.0	.0	.0	.0	.0
24	10.5	6.0	8.5	5.0	1.0	3.0	.0	.0	.0	.0	.0	.0
25	9.5	4.5	7.0	4.5	1.5	3.0	.0	.0	.0	.5	.0	.0
26	11.0	4.0	7.5	4.0	.5	2.0	.0	.0	.0	.0	.0	.0
27	9.0	6.0	7.5	4.5	4.0	4.5	.5	.0	.0	.5	.0	.0
28	9.5	3.5	6.0	4.0	.0	1.5	.5	.5	.5	.5	.0	.0
29	10.5	3.5	7.0	1.5	.0	.5	.5	.0	.0	.0	.0	.0
30	11.0	5.5	8.0	4.0	.5	2.0	.0	.0	.0	.0	.0	.0
31	12.0	6.0	8.5	---	---	---	.5	.0	.5	.5	.0	.0
MONTH	19.0	3.5	9.9	13.5	.0	4.9	4.0	.0	.4	.5	.0	.2

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.5	.0	.0	1.0	.0	.5	13.5	2.0	7.0	8.5	6.5	7.5
2	.5	.0	.0	2.0	.0	.5	13.5	3.0	7.5	14.0	5.0	9.0
3	.5	.0	.5	1.5	.0	.5	15.0	5.0	10.0	12.0	6.5	9.0
4	.5	.0	.5	3.5	.0	1.5	16.5	9.0	12.0	10.5	8.0	9.0
5	.5	.0	.5	4.0	.5	2.0	18.5	7.5	13.0	9.5	7.5	8.5
6	.5	.0	.5	3.0	.0	1.5	21.0	11.0	15.5	7.5	6.0	7.0
7	.5	.0	.5	2.5	.0	1.0	22.0	12.0	16.5	15.0	6.0	10.0
8	1.0	.0	.5	5.0	.0	2.5	15.5	8.5	12.0	10.0	8.5	9.5
9	1.0	.0	.5	6.0	.0	2.5	8.0	4.5	7.0	20.0	8.0	13.0
10	1.0	.0	.5	6.0	.0	2.5	15.5	3.0	8.5	20.5	11.0	15.5
11	.5	.0	.0	7.0	2.0	4.0	8.0	5.0	6.5	24.0	12.5	18.0
12	1.0	.0	.5	2.0	.5	1.5	5.0	1.5	3.5	23.5	14.0	19.0
13	1.0	.0	.5	4.5	.0	1.5	8.5	3.5	5.5	25.0	15.5	19.0
14	.5	.0	.0	8.0	.0	3.0	7.0	5.5	6.0	23.0	13.0	18.0
15	.0	.0	.0	8.0	.0	3.5	10.5	5.0	7.0	19.0	14.0	16.5
16	.5	.0	.0	4.5	2.5	3.5	14.0	5.0	9.0	19.0	15.0	16.5
17	.5	.0	.5	6.0	3.5	4.5	18.0	5.0	11.0	16.5	10.5	13.5
18	.5	.0	.5	7.0	3.5	5.0	10.0	8.0	9.5	10.5	8.5	9.5
19	.5	.0	.5	11.5	2.0	6.0	12.5	7.5	9.5	17.5	9.0	12.5
20	1.0	.0	.5	8.5	3.5	6.0	15.5	5.5	9.5	22.0	10.5	15.5
21	1.0	.0	.5	9.5	6.0	7.5	17.5	5.0	10.5	21.0	14.0	17.0
22	2.0	.0	.5	7.0	4.0	5.5	13.0	6.0	9.5	23.5	15.5	19.0
23	.5	.0	.0	4.5	3.5	4.0	11.0	7.0	8.5	19.5	16.0	17.5
24	.5	.0	.0	12.5	2.5	6.5	18.0	5.0	11.0	20.5	15.5	17.5
25	.5	.0	.0	11.0	3.5	7.5	17.5	8.5	12.0	17.0	15.0	16.0
26	.5	.0	.5	15.5	6.5	11.0	12.0	8.0	10.5	22.5	14.0	17.5
27	.5	.0	.5	11.0	3.5	8.5	19.0	10.5	13.5	25.5	14.5	19.5
28	1.0	.0	.5	6.0	.5	2.5	21.5	9.0	14.5	25.5	16.5	20.5
29	---	---	---	9.0	.0	3.5	16.0	12.0	14.0	26.0	16.5	20.5
30	---	---	---	8.0	.0	4.0	12.0	8.0	9.5	22.5	16.5	19.0
31	---	---	---	10.0	2.5	6.0	---	---	---	20.5	16.0	18.0
MONTH	2.0	.0	.3	15.5	.0	3.9	22.0	1.5	10.0	26.0	5.0	14.8
JUNE			JULY			AUGUST			SEPTEMBER			
1	20.5	16.5	18.0	28.5	19.5	23.0	25.0	16.0	20.0	23.5	14.5	18.5
2	26.0	15.5	20.0	27.0	18.0	22.5	19.5	17.5	18.5	24.0	14.5	19.0
3	26.5	16.5	21.0	22.5	18.0	20.0	20.5	16.0	18.0	24.0	16.5	20.0
4	24.0	14.5	18.5	23.5	16.5	19.5	24.0	13.5	18.5	22.5	12.5	17.0
5	24.0	13.5	18.5	28.5	16.5	22.0	24.0	13.5	18.5	16.0	12.5	14.5
6	25.0	13.5	19.0	29.5	19.0	23.5	16.5	14.5	15.5	24.0	12.0	17.0
7	25.0	14.0	19.0	23.0	18.0	20.5	17.5	14.5	16.0	22.0	16.0	19.0
8	25.0	14.0	19.5	24.0	15.5	19.5	17.5	15.0	16.5	18.5	16.5	17.5
9	26.5	16.5	21.0	25.5	15.0	19.5	24.5	13.0	18.0	26.0	17.5	21.0
10	24.0	17.0	19.5	28.5	16.5	22.0	24.5	14.0	19.0	19.0	15.5	17.5
11	---	---	---	27.0	17.5	22.0	25.5	14.5	19.5	16.0	13.5	14.5
12	---	---	---	27.0	19.0	21.5	25.0	15.5	20.0	18.0	15.0	16.5
13	27.0	18.0	22.0	25.5	18.0	21.0	25.5	15.0	20.0	19.5	15.5	17.0
14	27.0	18.0	21.5	27.5	14.5	20.5	26.0	16.0	20.5	20.0	17.0	18.0
15	22.0	17.5	19.5	28.0	15.5	21.5	22.0	16.0	19.0	21.5	16.5	18.5
16	26.5	14.0	20.0	29.5	18.0	23.5	19.0	16.5	17.5	18.0	13.0	15.0
17	27.5	15.0	21.0	22.5	18.5	21.0	25.5	16.0	20.0	16.0	11.5	14.0
18	28.0	16.5	22.0	29.5	17.0	22.5	22.0	16.0	18.5	12.5	9.0	10.0
19	28.0	17.5	22.5	30.5	20.0	24.5	24.0	13.5	18.0	11.0	7.5	9.5
20	26.0	18.0	21.5	22.5	20.0	21.0	21.5	13.0	17.0	16.5	6.0	10.5
21	20.0	16.0	19.0	27.0	19.0	22.0	26.0	15.5	20.0	17.0	7.0	12.0
22	21.5	14.0	17.0	27.5	19.5	22.5	25.5	16.0	20.5	15.0	10.0	12.5
23	25.0	13.0	18.5	26.0	16.5	21.0	22.0	17.0	19.0	15.5	8.0	11.5
24	25.5	15.5	20.5	24.5	15.5	20.0	23.5	15.5	19.0	12.0	10.0	11.0
25	28.0	17.0	22.0	24.0	14.5	19.0	25.0	17.0	20.5	14.5	9.0	11.0
26	30.0	19.0	24.0	25.0	13.5	19.0	28.0	18.0	22.5	14.5	7.0	10.5
27	31.0	21.0	25.5	17.5	15.0	16.0	28.0	18.0	22.5	14.5	6.0	9.5
28	31.0	21.5	25.5	18.5	14.5	16.0	27.0	18.0	22.0	15.5	6.0	10.5
29	30.5	21.0	25.5	20.5	14.5	17.0	25.0	19.0	21.5	15.5	7.5	11.0
30	27.0	20.0	23.0	25.5	14.0	19.0	27.5	18.0	22.0	16.0	10.5	12.5
31	---	---	---	26.5	16.5	21.0	25.0	16.5	20.0	---	---	---
MONTH	---	---	---	30.5	13.5	20.8	28.0	13.0	19.3	26.0	6.0	14.5

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN		MAX	MIN	MEAN
	OCTOBER				NOVEMBER				DECEMBER				JANUARY		
1	12.3	9.1	10.4		14.9	8.3	10.9		---	---	---		---	---	---
2	12.5	8.7	10.5		14.9	8.4	10.3		---	---	---		---	---	---
3	9.6	8.6	9.0		12.8	8.6	10.6		---	---	---		---	---	---
4	12.2	8.8	10.4		15.2	10.6	12.2		---	---	---		---	---	---
5	12.0	6.9	9.4		14.9	10.7	12.1		---	---	---		---	---	---
6	11.8	7.6	9.1		15.0	10.9	12.5		---	---	---		---	---	---
7	13.0	8.2	10.2		15.0	11.4	12.9		---	---	---		---	---	---
8	13.0	9.1	10.6		14.4	11.9	13.1		---	---	---		---	---	---
9	13.9	9.9	11.3		14.6	10.8	12.3		---	---	---		---	---	---
10	13.5	9.6	11.4		14.5	10.9	12.3		---	---	---		---	---	---
11	13.4	8.5	11.1		15.2	10.9	12.6		---	---	---		---	---	---
12	12.8	8.4	10.1		15.4	11.1	12.8		---	---	---		---	---	---
13	13.0	8.0	10.3		15.3	10.8	13.0		---	---	---		---	---	---
14	12.7	8.2	9.7		15.1	8.8	12.2		---	---	---		---	---	---
15	13.3	8.7	10.5		---	---	---		---	---	---		---	---	---
16	13.2	7.8	10.2		---	---	---		---	---	---		---	---	---
17	10.3	7.5	8.5		---	---	---		---	---	---		---	---	---
18	13.5	8.6	11.0		---	---	---		---	---	---		---	---	---
19	14.3	10.0	11.8		---	---	---		---	---	---		---	---	---
20	13.7	9.3	10.9		---	---	---		---	---	---		---	---	---
21	13.6	9.5	11.0		---	---	---		---	---	---		---	---	---
22	14.0	9.6	11.7		---	---	---		---	---	---		---	---	---
23	13.4	9.1	10.7		---	---	---		---	---	---		---	---	---
24	13.8	9.6	11.4		---	---	---		---	---	---		---	---	---
25	15.1	10.5	12.1		---	---	---		---	---	---		---	---	---
26	14.4	9.7	11.8		---	---	---		---	---	---		---	---	---
27	14.3	9.9	11.6		---	---	---		---	---	---		---	---	---
28	15.0	10.7	12.3		---	---	---		---	---	---		---	---	---
29	14.6	9.6	12.0		---	---	---		---	---	---		---	---	---
30	15.0	9.7	11.7		---	---	---		---	---	---		---	---	---
31	15.0	9.1	11.5		---	---	---		---	---	---		---	---	---
MONTH	15.1	6.9	10.8		---	---	---		---	---	---		---	---	---

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	11.7	9.8	10.8	10.8
3	---	---	---	---	---	---	---	---	11.5	10.2	10.8	10.8
4	---	---	---	---	---	---	---	---	11.3	10.4	10.8	10.8
5	---	---	---	---	---	---	---	---	11.0	10.4	10.7	10.7
6	---	---	---	---	---	---	---	---	11.6	10.8	11.3	11.3
7	---	---	---	---	---	---	---	---	11.7	9.9	11.0	11.0
8	---	---	---	---	---	---	---	---	11.3	8.6	10.9	10.9
9	---	---	---	---	---	---	---	---	11.6	9.2	10.5	10.5
10	---	---	---	---	---	---	---	---	11.3	9.0	10.1	10.1
11	---	---	---	---	---	---	---	---	11.5	8.4	10.0	10.0
12	---	---	---	---	---	---	---	---	11.9	8.2	9.9	9.9
13	---	---	---	---	---	---	---	---	11.7	8.1	9.7	9.7
14	---	---	---	---	---	---	---	---	12.0	8.1	10.0	10.0
15	---	---	---	---	---	---	---	---	12.0	8.3	9.9	9.9
16	---	---	---	---	---	---	---	---	9.0	6.9	8.4	8.4
17	---	---	---	---	---	---	---	---	10.6	8.7	9.9	9.9
18	---	---	---	---	---	---	13.9	10.5	11.8	11.4	10.7	11.1
19	---	---	---	---	---	---	14.1	10.7	11.9	11.7	9.7	10.9
20	---	---	---	---	---	---	14.7	10.3	12.5	11.4	8.8	10.1
21	---	---	---	---	---	---	14.7	9.8	12.3	11.0	8.8	9.8
22	---	---	---	---	---	---	15.0	10.2	12.2	11.1	8.3	9.5
23	---	---	---	---	---	---	14.9	10.6	12.4	10.9	8.8	9.7
24	---	---	---	---	---	---	15.0	9.4	12.3	12.3	9.3	10.4
25	---	---	---	---	---	---	14.9	9.3	11.6	12.7	9.5	10.7
26	---	---	---	---	---	---	15.8	9.6	11.3	12.9	9.2	10.9
27	---	---	---	---	---	---	11.2	8.7	9.8	13.3	8.8	10.9
28	---	---	---	---	---	---	12.7	8.0	10.3	10.2	8.3	9.3
29	---	---	---	---	---	---	9.5	5.9	8.3	12.1	7.9	9.7
30	---	---	---	---	---	---	---	---	---	11.7	8.3	9.8
31	---	---	---	---	---	---	---	---	---	10.0	7.8	8.8
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE			JULY			AUGUST			SEPTEMBER			
1	10.2	8.8	9.2	9.0	5.6	7.1	12.5	6.9	9.4	14.1	8.0	10.7
2	11.4	7.4	9.4	10.2	6.4	8.0	12.0	7.4	9.0	14.1	7.0	10.3
3	11.4	7.6	9.1	10.6	7.1	8.5	12.7	7.8	9.5	13.4	7.7	9.8
4	12.3	8.4	10.0	11.2	7.3	9.0	13.3	7.0	10.0	13.6	8.1	10.7
5	12.5	8.5	10.4	12.0	6.9	9.3	13.4	7.0	9.7	13.0	9.3	10.9
6	13.6	7.8	10.6	11.4	6.7	8.8	11.8	7.5	9.1	13.9	7.4	10.8
7	14.4	8.2	10.8	10.9	7.7	9.1	12.4	7.8	9.1	13.5	7.4	9.8
8	13.8	7.4	10.9	12.0	7.2	9.6	9.3	7.7	8.5	10.4	8.1	8.8
9	13.6	6.8	10.1	12.1	6.7	9.1	11.3	7.5	9.4	11.3	6.8	8.7
10	12.8	7.4	9.6	11.8	5.9	8.8	11.9	7.5	9.5	11.6	7.8	9.4
11	---	---	---	12.0	6.0	8.6	12.5	6.8	9.6	11.4	8.9	9.7
12	---	---	---	10.8	6.4	8.2	12.9	7.1	9.7	11.2	8.5	9.4
13	12.2	6.4	9.0	10.9	7.3	8.8	13.3	7.0	9.8	11.2	8.1	9.2
14	11.3	7.0	8.6	11.7	6.9	9.1	13.3	6.7	9.6	9.2	7.8	8.4
15	11.3	7.4	9.2	11.0	5.0	8.3	12.8	7.4	9.4	10.4	7.8	8.9
16	12.4	7.5	9.9	11.0	5.3	8.0	11.8	7.7	9.3	11.5	8.4	9.9
17	12.5	7.5	9.8	10.1	6.2	7.7	13.2	7.2	9.7	11.8	8.9	10.1
18	12.6	6.8	9.4	10.7	6.2	8.4	13.5	7.9	9.9	12.1	9.4	10.7
19	12.3	7.1	9.3	10.6	5.4	7.9	13.0	8.0	10.1	11.9	10.0	10.9
20	12.5	7.5	9.3	8.7	6.6	7.6	13.4	8.0	10.4	12.0	9.1	10.8
21	12.5	7.9	9.9	10.0	5.6	7.8	12.8	6.8	9.7	11.7	8.6	10.1
22	14.4	8.6	11.1	8.4	7.2	7.9	13.1	6.7	9.5	11.7	9.4	10.2
23	14.3	7.7	11.1	9.7	7.2	8.6	12.2	7.6	9.5	12.1	9.1	10.4
24	14.4	7.0	10.1	10.0	7.7	8.8	13.2	7.4	10.0	11.7	9.2	10.2
25	13.5	6.0	9.4	10.9	7.8	9.2	13.5	7.3	9.9	12.0	8.8	10.4
26	11.7	5.4	8.1	11.3	6.8	9.2	13.7	7.4	9.8	13.1	8.0	10.2
27	9.6	4.5	6.8	11.5	8.2	9.6	13.6	6.9	9.9	12.6	6.8	10.2
28	8.6	4.3	6.1	11.8	8.3	9.6	13.7	6.6	9.7	12.7	5.3	10.5
29	8.0	4.6	5.9	12.4	8.2	10.1	13.3	7.4	9.6	13.1	7.4	10.6
30	8.6	5.4	6.6	12.0	7.2	9.7	12.6	6.4	9.4	13.0	9.6	10.8
31	---	---	---	12.2	6.8	9.2	13.8	8.1	10.3	---	---	---
MONTH	---	---	---	12.4	5.0	8.7	13.8	6.4	9.6	14.1	5.3	10.0



## WAUMANDEE CREEK BASIN

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05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										.43	.38	1.8
2										.40	.38	1.6
3										.38	.52	1.3
4										.35	.37	1.2
5										.34	.32	1.0
6										.32	.30	.90
7										.69	.29	.81
8										2.4	.29	.69
9										1.7	.48	5.5
10										.94	.38	1.8
11										.62	.58	.86
12										.44	.44	.78
13										.37	.42	.69
14										.36	.34	2.4
15										.36	.32	.92
16										.33	.27	.71
17										.32	161	.58
18										.30	128	.77
19										.85	5.5	.83
20										.46	1.8	.57
21										.36	.95	.47
22										.35	.57	.39
23										.34	.37	.33
24										.33	1.9	.27
25										.31	1.9	.23
26										.30	766	.19
27										1.0	10	.16
28										5.4	3.8	.15
29										1.6	3.2	.15
30										.45	2.5	.15
31										.41	2.1	---
TOTAL										23.21	1095.67	28.20

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.05	.13	.16	.27	.50	.14	1.1	2.7	.31	.16	.11
2	.06	.05	.13	.15	.30	.71	.13	.78	.58	.29	.14	.12
3	.31	.05	.11	.14	.36	.48	.12	.99	.53	.29	.12	.14
4	.06	.05	.15	.15	.42	.44	.11	1.3	.47	.29	.09	.13
5	.05	.05	.15	.15	.42	.51	.11	27	.39	.29	.08	.13
6	.05	.05	.17	.15	.43	.64	.11	3.4	.35	.31	.07	.14
7	.05	.05	.18	.15	.44	.41	.10	.78	.34	.31	1.1	.15
8	.05	.04	.19	.15	.48	.42	.34	1.4	.32	.31	10	.86
9	.05	.04	.20	.14	.47	.41	.13	.45	.29	.30	.85	.20
10	.05	.05	.21	.15	.47	.40	.12	.39	.31	.30	.79	.17
11	.05	.05	.22	.16	.44	.48	.11	.38	.26	.27	.79	.86
12	.05	.05	.23	.17	.43	.38	.13	.39	.22	2.06	.77	.20
13	.05	.05	.22	.18	.47	.33	.13	.47	.21	.24	.74	.18
14	.05	.06	.21	.19	.56	.34	.42	.41	.24	.23	.74	2.5
15	.05	.06	.22	.19	.47	.33	.15	1.5	.81	.22	.61	.20
16	.05	.06	.22	.20	.44	.30	.14	383	.20	.22	.56	.18
17	.05	.07	.22	.20	.53	.29	.13	8.3	.17	1.7	.48	.17
18	.06	.07	.22	.21	.52	.29	.14	3.6	.16	.24	.40	.17
19	.05	.07	.22	.22	.54	.29	.57	2.7	.15	.20	.34	.17
20	.05	.08	.19	.22	.55	.28	.15	2.1	.16	2.1	.30	.16
21	.06	.08	.20	.20	.62	.42	.15	1.8	.17	21	.26	.16
22	.05	.08	.18	.20	.62	1.30	.16	1.4	.18	6.4	.20	.15
23	.05	.09	.16	.24	.54	.46	.17	1.3	.18	.92	.13	.14
24	.05	.09	.15	.21	.49	.28	.14	1.1	.18	.69	.11	.16
25	.05	.10	.16	.20	.42	.24	.13	.89	.20	.52	.11	.16
26	.05	.10	.15	.21	.40	.21	.14	.81	.22	.42	.09	.15
27	.05	.10	.14	.26	.40	3.29	1.13	.63	.25	.36	.09	.15
28	.05	.11	.15	.25	.38	.20	.16	1.8	.26	.38	.10	.15
29	.05	.11	.17	.24	---	.18	846	.48	.27	.28	.11	.15
30	.05	.12	.16	.25	---	.16	4.5	.41	.29	.23	.11	.15
31	.05	---	.16	.26	---	.16	---	38	---	.19	.12	---
TOTAL	1.86	2.08	5.57	5.95	12.88	15.13	856.16	489.06	11.06	41.87	20.56	8.46

WTR YR 1991 TOTAL 1470.64

## WAUMANDEE CREEK BASIN

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										.99	.88	1.4
2										.90	.90	1.3
3										.85	1.2	1.1
4										.78	.90	1.1
5										.73	.80	.94
6										.69	.75	.88
7										.90	.74	.83
8										1.9	.73	.74
9										1.6	2.6	26
10										1.2	1.3	26
11										1.0	1.8	6.7
12										.95	1.0	2.8
13										.87	.99	1.1
14										.86	.83	6.9
15										.86	.79	1.3
16										.82	.68	1.2
17										.80	397	1.1
18										.75	499	1.1
19										7.9	12	1.1
20										1.9	1.7	.96
21										.82	1.3	.91
22										.79	1.1	.87
23										.74	.96	.83
24										.69	1.4	.80
25										.64	1.5	.77
26										.61	1950	.72
27										3.1	32	.68
28										22	2.4	.65
29										5.3	2.1	.62
30										1.0	1.8	.60
31										.95	1.5	---
TOTAL										63.89	2922.65	92.00

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.44	.29	.32	.53	.55	.84	1.0	4.1	6.60	1.9	1.1	.87
2	.44	.28	.32	.51	.58	1.2	1.0	2.7	4.0	1.7	1.0	.92
3	1.2	.28	.26	.49	.68	.89	.97	2.5	3.1	1.7	.85	.98
4	.45	.28	.34	.53	.77	.86	.96	2.5	2.4	1.7	.71	.93
5	.41	.26	.35	.57	.76	1.1	.91	73	1.7	1.7	.60	.91
6	.41	.25	.37	.58	.74	1.42	.88	13	1.6	1.8	.59	.93
7	.38	.24	.39	.59	.74	.93	.84	3.3	1.5	1.8	2.7	.97
8	.38	.23	.39	.60	.78	.98	1.30	5.8	1.5	1.8	35	1.3
9	.39	.22	.40	.61	.75	1.0	1.0	2.4	1.4	1.7	3.9	3.20
10	.38	.23	.40	.62	.71	1.0	.92	2.0	1.5	1.7	3.3	1.1
11	.38	.23	.41	.65	.65	1.3	.86	1.8	1.4	1.5	2.9	3.90
12	.38	.23	.42	.68	.62	1.1	.99	1.8	1.2	7.90	2.6	1.3
13	.38	.24	.39	.68	.65	.97	.97	1.9	1.2	1.3	2.2	1.2
14	.38	.25	.39	.70	.75	1.1	1.60	1.7	1.4	1.2	2.1	9.20
15	.35	.25	.41	.69	.62	1.1	1.0	4.6	2.85	1.2	1.8	1.3
16	.35	.26	.42	.68	.55	1.0	.93	832	1.2	1.2	1.8	1.2
17	.36	.26	.45	.67	.65	1.1	.87	40	1.1	6.71	1.7	1.2
18	.43	.27	.46	.67	.62	1.1	.92	17	.99	1.3	1.6	1.1
19	.37	.27	.47	.69	.62	1.1	1.3	12	.96	1.1	1.5	1.1
20	.37	.28	.43	.66	.62	1.2	.99	9.7	1.0	8.07	1.4	1.1
21	.42	.28	.46	.58	.71	1.4	.97	7.9	1.1	55	1.4	1.1
22	.38	.28	.42	.55	.75	4.50	1.0	6.4	1.1	19	1.1	1.1
23	.38	.28	.38	.65	.68	10.3	1.0	5.8	1.1	4.2	.83	1.0
24	.36	.28	.39	.55	.65	1.4	.89	4.8	1.1	3.3	.77	1.2
25	.36	.29	.42	.52	.58	1.2	.80	3.8	1.2	2.6	.83	1.2
26	.35	.29	.40	.52	.58	1.2	.89	3.7	1.4	2.2	.80	1.1
27	.34	.30	.38	.62	.62	3.10	3.86	2.7	1.5	1.9	.77	1.1
28	.32	.31	.44	.58	.62	1.2	.99	5.93	1.6	2.1	.85	1.1
29	.32	.31	.51	.55	---	1.1	1520	2.0	1.6	1.7	.88	1.1
30	.31	.32	.49	.55	---	1.1	12	1.7	1.7	1.4	.88	1.1
31	.30	---	.50	.55	---	1.1	---	82	---	1.2	.89	---
TOTAL	12.47	8.04	12.58	18.62	18.60	48.89	1562.61	1160.53	52.00	143.58	79.35	45.81

WTR YR 1991 TOTAL 3163.08

05378183 JOOS VALLEY CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 12, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 4, 5, 14, 15, 17, 18, 23, Jan. 5, 22, and Feb. 13, 14, 18, 28.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.79 in., Apr. 29.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.00	.00	.00	.00	.24	.00	.00	.18	.22	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
3	.69	.24	.00	.00	.00	.00	.00	.07	.00	.27	.00	.03
4	.00	.00	.00	.00	.00	.00	.00	.03	.00	.13	.00	.00
5	.00	.00	.00	.00	.00	.12	.00	1.32	.00	.01	.00	.00
6	.00	.01	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	1.04	.00
8	.04	.00	.00	.00	.00	.03	.83	.30	.00	.00	.77	.61
9	.00	.00	.00	.00	.00	.00	.00	.00	.06	.04	.00	.22
10	.00	.00	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.01	.70	.00	.57
12	.00	.00	.00	.00	.00	.00	.24	.00	.00	.21	.00	.00
13	.05	.00	.00	.00	.00	.00	.00	.16	.23	.05	.00	.00
14	.00	.00	.00	.00	.00	.00	.29	.00	.22	.00	.00	.69
15	.00	.00	.00	.00	.00	.00	.02	.42	.84	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	1.19	.00	.00	.23	.00
17	.14	.00	.00	.00	.00	.00	.00	.04	.00	.99	.02	.04
18	.20	.00	.00	.00	.00	.00	.31	.19	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.17	.00	.00	.07	.00	.00
20	.20	.00	.00	.00	.00	.16	.00	.00	.00	.77	.01	.00
21	.10	.00	.00	.00	.00	.03	.00	.00	.00	1.59	.00	.00
22	.01	.00	.00	.00	.00	.67	.35	.11	.00	.33	.00	.00
23	.02	.00	.00	.00	.00	.14	.00	.14	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34
25	.00	.00	.00	.00	.00	.00	.00	.24	.00	.00	.00	.03
26	.00	.01	.00	.00	.00	.00	.35	.04	.00	.00	.00	.00
27	.00	.05	.00	.00	.00	.38	.55	.00	.00	.28	.00	.00
28	.00	.00	.00	.00	.00	.02	.00	.43	.00	.19	.00	.00
29	.00	.00	.00	.00	---	.00	1.79	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.04	.08	.05	.00	.01	.00	.00
31	.00	---	.00	.00	---	.01	---	.45	---	.00	.00	---
TOTAL	1.48	0.31	0.00	0.00	0.00	1.84	4.98	5.22	1.78	5.94	2.13	2.53

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI

LOCATION.--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<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 770 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 1-11 and July 29 to Aug. 8, 1990; Oct. 25 to Nov. 1, 1990, Mar. 24, 25, and June 11, 12, 1991; and ice periods listed in the rating tables below. Records good except those for estimated daily discharges, which are poor. Gage-height telemeter at station.

## EXTREMES FOR CURRENT PERIOD.--

JULY TO SEPTEMBER 1990: Maximum discharge, 919 ft<sup>3</sup>/s, Aug. 26, gage height, 9.02 ft, from rating curve extended above 70 ft<sup>3</sup>/s on basis of step-backwater method; minimum discharge, 5.5 ft<sup>3</sup>/s, July 24-26.

WATER YEAR 1991: Maximum discharge, 467 ft<sup>3</sup>/s, May 16, gage height, 7.04 ft, from rating curve extended above 70 ft<sup>3</sup>/s on basis of step-backwater method; minimum discharge, 1.7 ft<sup>3</sup>/s, Dec. 3, result of freezeup.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4, 5, Dec. 22 to Jan. 8, Jan. 21 to Feb. 1, and Feb. 12-17, 24-27.)

July 1, 1990 to May 16, 1991

May 16 to Sept. 30, 1991

2.4	2.5	3.5	41	2.5	5.5	3.5	41
2.6	6.1	4.0	73	2.7	9.2	4.0	73
2.8	11	5.0	164	3.0	18	4.5	114
3.0	18						

DISCHARGE, CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										7.0	6.4	9.1
2										6.8	7.4	8.5
3										6.6	11	8.6
4										6.4	8.0	8.6
5										6.4	6.8	8.0
6										6.4	6.6	7.9
7										8.2	6.4	7.5
8										14	6.2	7.2
9										9.4	6.9	8.9
10										8.4	7.2	12
11										8.0	7.7	7.8
12										7.7	6.5	7.4
13										7.1	6.2	7.0
14										6.8	6.0	9.7
15										6.7	8.4	7.8
16										6.4	6.6	7.0
17										6.3	68	6.8
18										5.9	64	7.3
19										7.7	19	8.3
20										6.4	14	7.0
21										5.8	12	7.0
22										5.7	9.9	6.8
23										5.9	9.0	6.7
24										5.6	11	6.5
25										5.6	13	6.5
26										5.7	124	6.2
27										7.4	18	6.3
28										17	14	6.3
29										8.0	12	6.0
30										7.2	10	6.1
31										6.6	9.5	---
TOTAL										229.1	521.7	226.8
MEAN										7.39	16.8	7.56
MAX										17	124	12
MIN										5.6	6.0	6.0
CFSM										.52	1.18	.53
IN.										.60	1.36	.59

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	5.9	5.0	4.9	4.4	5.3	7.7	15	15	7.3	6.7	5.6
2	5.9	6.0	4.8	4.6	4.7	7.5	7.3	13	12	6.8	6.8	5.6
3	11	5.9	3.9	4.5	5.3	5.2	7.2	11	11	6.8	6.9	5.6
4	7.9	6.2	4.5	4.7	5.6	5.0	7.0	11	10	7.1	6.6	5.5
5	6.8	6.1	5.2	4.9	5.6	6.5	6.7	25	9.5	6.9	6.3	5.5
6	6.7	5.9	5.4	4.7	5.5	9.2	6.5	19	9.3	6.7	6.3	5.6
7	6.3	5.8	5.3	4.7	5.5	5.9	6.4	14	9.0	6.6	7.4	5.6
8	6.2	5.6	5.1	4.7	5.7	5.8	12	15	8.8	6.6	19	6.9
9	6.3	5.9	5.1	4.8	5.7	5.8	9.9	14	8.5	6.5	9.0	6.8
10	6.2	5.9	5.1	4.7	5.4	5.9	8.9	12	9.0	6.5	8.0	6.1
11	6.2	5.9	5.2	4.7	5.1	8.1	8.2	11	8.4	6.6	7.5	7.3
12	5.9	5.9	5.1	4.8	4.9	7.0	10	10	8.1	8.7	7.2	7.1
13	5.8	5.7	4.8	4.8	5.0	6.0	10	11	8.0	6.9	6.8	6.3
14	6.1	5.7	5.0	4.9	5.0	6.4	13	10	9.5	6.5	6.6	9.0
15	5.9	5.7	5.2	4.9	4.9	6.7	12	11	14	6.4	6.5	7.2
16	5.9	5.6	5.2	4.9	4.7	6.4	9.9	76	8.9	6.4	6.7	6.6
17	5.9	5.3	5.3	4.9	4.9	6.4	9.4	21	8.3	8.4	7.0	6.3
18	7.1	5.4	5.3	4.8	4.9	7.0	9.2	19	8.0	8.1	6.5	6.3
19	6.5	5.5	5.3	4.9	4.8	7.2	13	17	7.8	7.3	6.3	6.3
20	6.4	5.5	5.1	5.2	5.1	7.5	11	15	7.7	10	6.1	6.2
21	7.2	5.4	5.2	5.0	5.5	9.5	9.2	14	7.6	24	6.1	6.0
22	6.7	5.3	5.0	4.5	5.9	12	9.9	14	7.5	16	6.0	6.1
23	6.5	5.2	4.5	5.0	5.2	18	11	14	7.2	8.9	6.0	6.1
24	6.1	5.1	4.5	4.5	5.0	11	8.8	13	7.2	8.0	6.0	6.6
25	6.1	5.1	4.6	4.1	4.5	9.9	7.1	13	7.2	7.5	6.0	6.6
26	6.0	5.1	4.4	4.2	4.6	9.1	7.8	14	7.1	7.2	6.0	6.2
27	6.0	5.5	4.3	4.5	4.6	12	15	12	6.9	7.1	6.0	6.3
28	6.0	5.4	4.5	4.9	4.6	9.7	9.0	18	6.8	8.3	6.0	6.0
29	6.0	5.0	4.8	4.4	---	9.1	62	12	6.8	7.5	6.0	6.0
30	6.0	4.9	4.7	4.3	---	8.1	21	13	6.8	7.2	5.9	6.0
31	6.0	---	4.6	4.3	---	8.1	---	21	---	7.0	5.8	---
TOTAL	199.7	167.4	152.0	145.7	142.6	247.3	346.1	508	261.9	251.8	216.0	189.3
MEAN	6.44	5.58	4.90	4.70	5.09	7.98	11.5	16.4	8.73	8.12	6.97	6.31
MAX	11	6.2	5.4	5.2	5.9	18	62	76	15	24	19	9.0
MIN	5.8	4.9	3.9	4.1	4.4	5.0	6.4	10	6.8	6.4	5.8	5.5
CFSM	.45	.39	.34	.33	.36	.56	.81	1.15	.61	.57	.49	.44
IN.	.52	.44	.40	.38	.37	.64	.90	1.32	.68	.66	.56	.49

WTR YR 1991 TOTAL 2827.8 MEAN 7.75 MAX 76 MIN 3.9 CFSM .54 IN. 7.36

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1990 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1990 to current year.

DISSOLVED OXYGEN: July 1990 to current year.

SUSPENDED-SOLIDS DISCHARGE: July 1990 to current year.

TOTAL-PHOSPHORUS DISCHARGE: July 1990 to current year.

INSTRUMENTATION.--Water-quality sampler July 1990 to current year; continuous water-temperature recorder July 1990 to current year; dissolved-oxygen recorder July 1990 to current year.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Suspended-sediment and particle-size analyses by U.S. Geological Survey Laboratory. Samples are point samples unless otherwise indicated.

EXTREMES FOR CURRENT PERIOD.--

JULY TO SEPTEMBER 1990:

WATER TEMPERATURE: Maximum observed, 24.5°C, July 18, Aug. 25, 27; minimum observed, 8.0°C, Sept. 24.

DISSOLVED OXYGEN: Maximum observed, 12.0 mg/L, Sept. 23; minimum observed, 5.2 mg/L, Aug. 9.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 2,010 tons, Aug. 26; minimum daily, 0.10 ton, Sept. 29-30.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,170 lb, Aug. 26; minimum daily, 2.3 lb., Aug. 8.

WATER YEAR 1991:

WATER TEMPERATURE: Maximum observed, 27.5°C, June 27-28; minimum observed, 0.0°C, Nov. 29, Dec. 2-8, 13-15, 20-31, Jan. 1-8, 18, 20-31, Feb. 1-2, 11-12, 14-17, 20, 23-28, Mar. 3-4, 7.

DISSOLVED OXYGEN: Maximum observed, 13.7 mg/L, Nov. 8, 13; minimum observed, 4.3 mg/L, July 21.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 3,170 tons, May 16; minimum daily, 0.10 ton, Oct. 24-27.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,680 lb, May 16; minimum daily, 0.74 lb., Jan. 25.

## WATER-QUALITY DATA, AUGUST TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
AUG 1990							
*08...	1223	6.2	--	1.5	--	--	14
15...	0510	--	15	6.4	--	--	682
17...	1940	--	16	--	--	--	470
17...	2000	--	--	--	--	--	4310
17...	2020	--	90	--	--	--	6860
17...	2035	--	192	--	--	--	9890
17...	2045	--	299	--	--	--	9900
17...	2050	--	341	--	--	--	12400
17...	2115	--	432	--	--	--	--
17...	2155	--	550	--	--	--	--
17...	2355	--	214	--	--	--	--
18...	0045	--	91	--	--	--	4010
18...	0520	--	22	--	--	--	1290
18...	1750	--	89	--	--	--	5020
*23...	1311	--	9.0	1.5	--	--	52
25...	0510	--	18	--	--	--	406
26...	0645	--	32	--	--	--	1710
26...	0710	--	108	--	--	--	--
26...	0720	--	240	--	--	--	7500
26...	0725	--	344	--	--	--	9190
26...	0740	--	548	--	--	--	10800
26...	0755	--	658	--	--	--	--
26...	0805	--	815	--	--	--	9880
26...	0820	--	919	--	--	--	--
26...	0925	--	699	--	--	--	--
26...	1025	--	369	--	--	--	4220
26...	1145	--	146	--	--	--	2750
27...	0700	--	18	--	--	--	240
SEP							
*06...	1615	--	7.7	3.1	--	--	26
*27...	1350	--	6.3	--	1000	140	7

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, AUGUST TO SEPTEMBER 1990

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
AUG 1990							
08...	344	82	12	2	0.820	0.040	0.070
15...	992	124	626	56	0.780	0.060	0.620
17...	752	128	418	52	0.760	0.090	0.600
17...	--	--	--	--	--	--	--
17...	6970	552	6340	520	0.600	0.560	5.78
17...	10200	812	9140	750	0.640	0.560	9.53
17...	--	--	--	--	--	--	--
17...	11000	978	11300	1100	0.510	0.470	10.7
17...	7450	778	--	760	0.580	0.400	--
17...	7040	722	--	680	0.470	0.450	8.06
17...	4770	516	--	--	0.680	0.320	6.10
18...	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--
18...	5240	430	--	--	0.860	0.220	5.89
23...	414	122	45	7	1.37	0.040	--
25...	--	--	--	--	--	--	--
26...	2030	205	1570	138	1.40	0.190	2.03
26...	6110	465	--	408	0.880	0.460	6.36
26...	--	--	--	--	--	--	--
26...	9210	665	8550	644	0.750	0.380	8.44
26...	--	--	--	--	--	--	--
26...	7400	645	--	--	0.580	0.290	7.51
26...	--	--	--	--	--	--	--
26...	10100	810	--	--	0.580	0.380	8.32
26...	7140	640	--	--	0.610	0.400	7.90
26...	4310	425	3800	420	0.810	0.280	5.25
26...	--	--	--	--	--	--	--
27...	605	135	208	32	1.86	0.130	0.480
SEP							
06...	358	108	22	4	1.09	0.120	--
27...	326	124	--	<2	0.830	<0.020	--

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDIMENT, SUS- PENDE (MG/L) (80154)	SEDIMENT, SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
AUG 1990					
17...	2115	432		7050	98
17...	2155	550		6470	98
17...	2355	214		4420	99
18...	1750	89		4850	96
SEP					
*20...	0810	7.0		32	85

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCOCCI, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)
OCT 1990							
*11...	1320	--	6.3	--	--	--	8
*25...	1230	6.1	--	2.1	3900	790	6
NOV							
*09...	0845	--	5.9	<1.0	600	250	9
DEC							
*13...	1105	--	--	1.2	50	60	14
JAN 1991							
*09...	1225	--	4.9	<1.0	20	<10	10
FEB							
*20...	1400	--	5.1	1.2	<10	30	13
APR							
*04...	1300	--	7.0	<1.0	50	30	14
*17...	1415	--	9.3	1.8	160	150	54
19...	1055	--	13	--	--	--	182
19...	2255	--	12	--	--	--	125
22...	2155	--	13	--	--	--	310
*24...	1335	--	7.7	<1.0	30	80	60
27...	1720	--	12	--	--	--	244
29...	0420	--	17	--	--	--	732
29...	0845	--	32	--	--	--	2020
29...	0945	--	51	--	--	--	4300
29...	1000	--	73	--	--	--	8040
29...	1020	--	146	--	--	--	14900
29...	1030	--	178	--	--	--	24100
29...	1140	--	252	--	--	--	20000
29...	1230	--	185	--	--	--	18000
29...	1255	--	224	--	--	--	21300
29...	1330	--	171	--	--	--	18200
29...	1355	--	113	--	--	--	14300
29...	1450	--	66	--	--	--	10000
29...	1915	--	44	--	--	--	3480
30...	0255	--	23	4.6	--	--	2270
*30...	1317	--	18	2.2	--	--	318
MAY							
01...	2305	--	13	--	--	--	175
04...	0630	--	12	--	--	--	127
05...	0925	--	15	--	--	--	336
05...	1105	--	25	--	--	--	1370
05...	1305	--	37	--	--	--	2300
05...	1355	--	53	--	--	--	3380
05...	1850	--	31	--	--	--	1230
06...	0650	--	20	--	--	--	378
08...	0650	--	13	--	--	--	190
08...	1530	--	17	2.2	--	--	227
09...	0325	--	16	2.5	--	--	145
09...	1525	--	13	2.2	--	--	147
11...	1525	--	11	3.1	--	--	116
16...	0145	--	30	18	--	--	5390
16...	0215	--	42	4.0	--	--	2320
*16...	1300	--	16	4.6	40000	10000	402
16...	1515	--	30	15	--	--	2440
16...	1550	--	52	17	--	--	4450
16...	1555	--	94	26	52000	49000	14800
16...	1600	--	137	--	--	--	--
16...	1810	--	386	--	--	--	--
16...	1815	--	373	--	--	--	--
16...	1835	--	310	--	160000	140000	--
16...	1945	--	134	--	--	--	--
*17...	0920	--	21	3.3	27000	20000	496
28...	0535	--	32	8.3	--	--	2310
*30...	1328	--	11	1.8	3900	380	108
31...	0950	--	22	E8.9	--	--	4160
31...	1035	--	38	E8.6	--	--	3380
31...	1045	--	62	E5.8	--	--	--
31...	1415	--	34	E3.4	--	--	--
JUN							
*05...	0934	--	9.9	1.8	1500	470	69
15...	0425	--	25	12	--	--	1920
*18...	1353	--	8.2	1.5	2400	270	36

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.



05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)
OCT 1990							
11...	342	92	6	2	1.03	0.040	--
25...	344	106	2	4	1.06	0.030	0.050
NOV							
09...	342	82	7	2	1.10	<0.100	0.040
DEC							
13...	346	84	11	3	--	--	--
JAN 1991							
09...	332	78	7	3	1.16	0.020	0.030
FEB							
20...	336	102	--	<2	1.02	0.021	0.040
APR							
04...	350	90	11	3	1.06	0.041	0.060
17...	398	84	48	6	1.18	0.044	0.110
19...	518	90	162	20	1.46	0.131	0.310
19...	468	90	113	12	1.50	0.059	0.170
22...	612	94	282	28	1.09	0.094	0.310
24...	396	86	51	9	1.29	0.024	0.080
27...	544	92	220	24	1.59	0.138	0.390
29...	1030	124	656	76	1.19	0.120	0.880
29...	2180	188	1790	--	1.16	0.245	2.49
29...	4340	370	3880	--	1.12	0.477	4.22
29...	8400	412	--	--	1.05	0.392	6.32
29...	15100	856	13880	--	0.760	0.770	17.8
29...	24400	1280	22460	--	0.758	0.697	15.5
29...	19900	1230	18500	--	0.826	0.642	19.8
29...	18600	1240	16450	--	0.946	0.716	16.0
29...	22000	1420	19150	--	0.820	1.01	18.0
29...	18600	1310	16550	--	0.933	0.782	18.2
29...	15000	1060	12900	--	1.08	0.583	13.3
29...	9890	788	9060	--	1.26	0.441	11.1
29...	3460	300	3120	--	1.58	0.351	3.75
30...	2400	204	2020	--	1.88	0.175	1.52
30...	656	98	286	32	2.12	0.122	0.430
MAY							
01...	512	90	163	12	2.01	0.058	0.200
04...	456	86	117	10	1.79	0.067	0.160
05...	664	100	310	26	1.66	0.142	0.430
05...	1710	160	1280	92	1.56	0.216	1.42
05...	2610	216	2130	170	1.32	0.219	2.14
05...	3620	244	3180	200	1.16	0.215	2.88
05...	1640	170	1130	100	1.45	0.258	1.52
06...	690	108	350	28	2.12	0.163	0.560
08...	530	90	174	16	1.97	0.060	0.200
08...	554	94	209	18	1.80	0.081	0.310
09...	488	92	132	13	2.01	0.063	0.190
09...	488	86	137	10	1.84	0.018	0.160
11...	456	92	106	10	1.51	0.027	0.160
16...	5730	420	5060	328	0.804	0.248	4.90
16...	2580	184	2190	132	0.996	0.111	1.74
16...	712	112	362	40	1.38	0.129	0.620
16...	2750	272	2210	230	1.30	0.318	3.12
16...	4520	336	4130	320	1.07	0.378	4.90
16...	15400	586	14190	--	0.914	0.379	9.62
16...	31000	1560	31500	1520	0.706	0.631	18.0
16...	19700	1180	19320	1180	0.629	0.487	16.2
16...	12800	850	12660	--	0.666	0.482	12.0
16...	17600	1010	16920	--	0.597	0.552	14.1
16...	10900	774	10320	--	0.681	0.447	10.6
17...	824	124	446	50	1.93	0.225	0.830
28...	2550	194	2070	--	1.30	0.157	1.52
30...	476	94	99	9	1.49	0.029	0.150
31...	4200	440	3660	--	1.46	0.165	5.45
31...	3580	220	3140	--	1.32	0.184	2.45
31...	11300	486	10820	--	1.34	0.169	4.76
31...	7800	626	7620	--	1.44	0.268	5.50
JUN							
05...	430	104	58	11	1.46	0.032	0.120
15...	2120	196	1740	180	1.38	0.167	1.70
18...	358	88	30	6	1.22	0.028	0.090

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
JUL 1991							
*02...	1250	7.0	1.5	1300	250	31	364
*17...	1345	6.8	2.2	6500	1100	51	372
21...	1820	26	15	--	--	2440	2760
21...	1855	59	17	--	--	5090	5240
21...	1910	80	18	--	--	4650	5100
21...	1945	130	19	--	--	6590	7440
21...	2120	78	14	--	--	4110	4610
21...	2310	28	15	--	--	1940	2110
*22...	1352	12	2.5	8600	7500	276	592
AUG							
*05...	1330	6.5	1.8	1000	260	20	338
08...	0130	24	11	100000	56000	1940	2070
08...	0250	36	14	100000	100000	3110	2970
*08...	1422	13	3.1	47000	42000	194	498
*14...	1600	6.5	2.2	8500	3000	45	352
*26...	1420	6.2	1.6	4700	1300	170	496
SEP							
11...	1315	6.3	1.6	4900	860	44	378
*24...	1210	6.9	2.2	5400	1400	86	416

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
JUL 1991						
02...	92	25	6	1.01	0.039	0.090
17...	94	43	8	0.797	0.034	0.120
21...	234	2200	240	1.05	0.234	2.95
21...	340	4740	--	1.26	0.388	4.63
21...	350	4310	340	1.20	0.446	5.03
21...	506	6110	480	1.04	0.518	6.23
21...	366	3770	340	1.20	0.291	4.02
21...	250	1710	230	1.34	0.361	2.51
22...	124	246	30	1.45	0.138	0.510
AUG						
05...	92	16	4	0.860	0.019	0.070
08...	192	1810	128	0.863	0.224	1.58
08...	240	2680	430	0.773	0.241	2.27
08...	116	172	22	1.15	0.094	0.390
14...	96	38	7	0.785	0.023	0.110
26...	108	152	18	0.822	0.048	0.190
SEP						
11...	86	36	8	1.02	0.040	0.110
24...	86	75	11	1.04	0.027	0.150

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1990			
**09...	0855	5.9	165
MAR 1991			
11...	1710	13	839
11...	1745	13	598
11...	1910	13	839
11...	1945	13	910
11...	2010	12	596
22...	2125	24	567
23...	0925	17	515
23...	2125	14	520
27...	1325	17	493
APR			
**29...	0930	38	3180
**29...	1020	146	13600
**29...	1101	205	19600
**29...	1135	237	21100
**29...	1325	181	14800
*29...	1855	47	2480
**29...	1905	46	2570
MAY			
**16...	1750	434	20900
**16...	1830	330	14300
JUL			
**21...	1805	20	1370
**21...	1850	51	4530
**21...	1934	116	6250

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. TOTAL, FALL DIAM. % FINER THAN .062 MM (80186)	SED. TOTAL, FALL DIAM. % FINER THAN .125 MM (80187)	SED. TOTAL, FALL DIAM. % FINER THAN .250 MM (80188)	SED. TOTAL, FALL DIAM. % FINER THAN .500 MM (80189)	SED. TOTAL, FALL DIAM. % FINER THAN 1.00 MM (80190)
APR 1991							
**29...	1101	205	84	91	97	100	--
**29...	1135	237	88	93	97	99	99
*29...	1855	47	93	98	100	--	--
MAY							
**16...	1750	434	92	95	98	100	--

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.  
 \*\* SINGLE VERTICAL SAMPLE.

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1				---	---	---	22.0	13.5	17.5	21.0	16.0	18.5
2				---	---	---	22.0	14.5	18.5	21.0	15.5	18.0
3				---	---	---	23.0	18.0	20.5	19.5	15.5	17.0
4				---	---	---	21.5	17.0	19.0	23.5	16.5	19.5
5				---	---	---	22.0	14.5	18.0	21.5	17.0	19.0
6				---	---	---	22.0	13.5	17.5	24.0	17.0	20.0
7				---	---	---	23.0	14.0	18.5	20.5	17.5	18.5
8				---	---	---	22.5	14.5	18.5	18.5	16.0	17.5
9				---	---	---	23.0	14.5	18.5	20.5	15.5	17.5
10				---	---	---	24.0	16.5	19.5	21.0	16.0	18.0
11				---	---	---	20.0	16.5	18.5	21.5	15.0	18.0
12				21.0	14.5	17.5	20.0	14.5	17.0	23.0	16.5	19.5
13				22.0	13.0	17.5	20.5	13.5	17.0	22.5	16.5	19.5
14				20.5	14.0	17.0	22.0	15.0	18.5	20.0	14.5	17.5
15				20.5	14.0	17.5	20.5	17.0	19.0	17.5	13.0	15.0
16				23.0	14.5	18.5	24.0	16.0	20.0	15.0	12.5	14.0
17				23.0	16.5	19.5	21.5	17.5	19.5	15.0	11.0	13.0
18				24.5	17.0	20.5	24.0	18.5	20.5	13.0	11.5	12.0
19				22.0	17.5	19.5	20.5	16.0	18.0	17.5	12.0	14.0
20				24.0	16.5	20.0	16.0	15.0	15.5	17.5	11.0	14.0
21				21.0	15.5	18.5	21.0	14.5	17.0	16.0	13.0	14.5
22				21.0	15.0	18.0	22.0	15.0	18.0	13.0	10.5	11.0
23				21.5	13.5	17.5	19.5	15.5	17.5	14.0	8.5	11.0
24				22.5	13.5	18.0	23.0	17.0	19.5	16.0	8.0	12.0
25				22.0	15.5	18.5	24.5	18.0	21.0	18.0	11.0	14.0
26				19.0	16.5	18.0	23.5	19.0	20.5	17.0	10.5	14.0
27				18.0	16.0	17.0	24.5	18.5	21.0	15.5	11.5	13.5
28				22.5	17.0	19.5	23.5	19.5	21.0	17.0	11.5	14.0
29				22.5	18.5	20.0	23.0	17.0	19.5	15.0	11.5	13.0
30				21.5	15.5	18.5	23.0	15.5	19.0	15.0	9.0	12.0
31				21.5	14.0	17.5	20.0	16.5	18.0	---	---	---
MONTH				---	---	---	24.5	13.5	18.8	24.0	8.0	15.6

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.5	11.0	13.0	---	---	---	4.5	2.0	3.0	.0	.0	.0
2	15.0	8.5	12.0	12.5	10.0	11.5	2.0	.0	1.0	.0	.0	.0
3	14.5	11.5	14.0	11.0	6.5	8.5	1.0	.0	.0	.0	.0	.0
4	14.0	9.5	11.5	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0
5	16.5	10.0	13.0	6.5	4.5	5.5	.5	.0	.0	.0	.0	.0
6	16.5	12.5	14.0	5.5	4.0	4.5	1.5	.0	.5	.0	.0	.0
7	13.5	10.0	12.0	5.0	2.5	3.5	2.5	.0	1.5	.0	.0	.0
8	11.0	9.0	9.5	3.0	1.0	2.0	2.5	.0	1.0	1.0	.0	.5
9	11.0	7.5	9.0	6.5	3.0	4.5	2.5	.5	1.5	1.0	.5	.5
10	10.5	6.0	8.0	6.0	3.0	4.5	3.0	.5	2.0	1.0	.5	.5
11	12.0	5.5	8.5	6.0	2.0	4.0	3.0	1.0	2.0	1.5	.5	1.0
12	13.0	9.0	10.5	6.0	3.0	4.0	2.5	1.0	1.5	2.0	.5	1.5
13	12.5	7.0	9.5	5.0	2.0	3.5	2.0	.0	1.0	1.0	.5	.5
14	13.0	9.5	11.0	8.5	2.5	5.5	1.0	.0	.5	2.5	1.0	1.5
15	11.5	7.5	9.5	10.5	7.5	9.0	1.5	.0	1.0	2.0	1.0	1.5
16	12.5	8.0	10.5	9.5	5.5	7.5	2.0	1.0	1.5	2.0	1.0	1.5
17	14.0	11.0	13.0	6.0	3.0	4.5	2.0	1.0	1.5	2.5	1.0	1.5
18	11.0	6.0	8.0	7.0	4.5	5.5	2.5	1.5	1.5	2.0	.0	1.0
19	9.0	5.0	7.0	6.5	4.0	5.5	1.5	1.0	1.5	2.5	1.0	1.5
20	10.0	6.5	8.0	8.0	4.5	6.0	2.0	.0	1.5	1.5	.0	.5
21	10.0	7.0	9.0	12.5	8.0	10.5	.0	.0	.0	.0	.0	.0
22	9.5	5.0	7.0	8.5	4.5	6.0	.0	.0	.0	.0	.0	.0
23	12.0	8.0	9.5	6.0	2.5	4.0	.0	.0	.0	.0	.0	.0
24	9.5	6.5	8.5	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0
25	---	---	---	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0
26	---	---	---	4.5	1.0	2.5	.0	.0	.0	.0	.0	.0
27	---	---	---	5.0	4.5	5.0	.0	.0	.0	.5	.0	.0
28	---	---	---	4.5	1.0	2.5	.0	.0	.0	1.0	.0	.5
29	---	---	---	2.0	.0	1.0	.5	.0	.0	.5	.0	.0
30	---	---	---	4.0	1.0	2.5	.0	.0	.0	.0	.0	.0
31	---	---	---	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	---	---	---	---	---	---	4.5	.0	.8	2.5	.0	.5

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.5	.0	.0	2.5	1.5	2.0	12.5	3.0	7.0	9.0	7.5	8.0
2	1.5	.0	1.0	3.5	.5	1.5	12.5	3.5	7.5	13.0	5.5	9.0
3	2.5	1.0	1.5	3.5	.0	1.0	14.0	5.5	9.5	11.5	7.0	9.0
4	3.0	1.0	2.0	5.0	.0	2.0	14.5	9.0	11.5	10.0	8.0	9.0
5	3.5	.5	2.0	5.0	1.0	3.0	17.5	7.5	12.5	9.5	8.0	8.5
6	3.5	.5	2.0	3.5	.5	2.0	19.5	10.5	15.0	8.0	6.5	7.0
7	4.0	1.0	2.0	4.0	.0	1.5	21.0	12.0	16.0	13.5	6.5	9.5
8	4.0	.5	2.0	5.5	1.0	3.0	15.0	8.5	12.0	10.5	8.5	9.5
9	4.0	1.0	2.0	6.0	1.5	3.5	---	---	---	18.0	8.0	12.0
10	3.0	.5	1.5	6.0	.5	3.5	14.5	4.0	8.5	18.5	10.5	14.5
11	1.5	.0	.5	6.5	2.5	4.0	8.0	6.0	7.0	21.5	11.5	16.0
12	2.5	.0	1.0	3.0	1.5	2.5	6.0	3.0	4.5	21.5	13.0	17.0
13	3.0	1.5	2.0	5.0	1.0	2.5	8.5	4.5	6.0	22.0	14.0	17.5
14	1.5	.0	.5	7.5	1.0	3.5	7.5	6.5	7.0	20.5	11.5	16.0
15	.5	.0	.0	7.5	1.0	4.0	10.5	5.5	8.0	17.5	13.0	15.0
16	.5	.0	.0	5.0	3.0	4.0	---	---	---	18.5	14.0	16.0
17	1.5	.0	1.0	6.0	4.0	5.0	---	---	---	16.0	10.5	13.0
18	1.5	1.0	1.5	7.0	4.0	5.5	---	---	---	10.0	8.5	9.5
19	2.5	.5	1.5	10.5	2.5	6.0	---	---	---	15.5	9.0	11.5
20	3.5	.0	1.5	8.0	4.0	6.0	---	---	---	19.5	10.0	14.5
21	4.0	1.0	2.0	8.5	6.0	7.0	---	---	---	18.5	13.5	16.0
22	4.0	.5	2.0	7.0	4.5	6.0	---	---	---	21.5	14.5	17.5
23	1.0	.0	.5	5.0	4.0	4.5	---	---	---	18.0	15.5	16.5
24	2.5	.0	.5	---	---	---	---	---	---	18.5	15.0	16.0
25	1.5	.0	.5	---	---	---	---	---	---	15.5	14.0	15.0
26	2.5	.0	1.0	14.5	6.5	10.5	---	---	---	20.0	13.5	16.5
27	2.5	.0	1.0	11.0	4.5	9.0	---	---	---	22.5	13.5	18.0
28	3.5	.0	1.5	6.5	2.0	3.5	---	---	---	22.5	16.0	19.0
29	---	---	---	8.5	1.0	4.0	---	---	---	23.5	15.5	19.0
30	---	---	---	8.0	1.0	4.5	12.0	8.5	10.0	20.0	15.5	17.5
31	---	---	---	10.0	3.5	6.5	---	---	---	18.5	14.5	16.5
MONTH	4.0	.0	1.2	---	---	---	---	---	---	23.5	5.5	13.9
JUNE			JULY			AUGUST			SEPTEMBER			
1	18.5	15.0	16.5	25.0	18.0	21.0	22.0	15.0	18.0	20.5	13.5	16.5
2	22.5	14.0	18.0	24.5	16.5	20.5	18.5	16.5	17.0	21.0	13.0	17.0
3	23.5	15.5	19.0	20.0	16.0	18.0	18.5	15.5	17.0	21.0	15.5	18.0
4	21.0	13.5	17.0	21.0	15.5	18.0	21.5	13.0	17.0	20.0	11.5	15.5
5	21.5	12.5	16.5	25.0	15.0	19.5	21.5	13.0	17.0	15.0	12.0	13.5
6	22.0	12.5	17.0	25.5	17.0	21.0	16.0	14.0	15.0	21.0	11.5	15.5
7	21.5	13.0	17.0	20.0	16.5	18.5	16.0	14.0	15.0	20.0	15.0	17.5
8	22.5	13.5	17.5	22.0	14.5	18.0	17.0	15.0	16.5	17.5	15.5	16.5
9	24.0	15.5	19.0	22.5	14.0	18.0	21.5	13.5	17.0	23.5	17.0	19.5
10	21.5	16.0	18.0	25.0	15.5	19.5	22.0	14.0	17.5	18.0	15.0	16.5
11	---	---	---	24.0	16.0	19.5	23.0	14.5	18.5	15.0	13.0	14.0
12	---	---	---	23.5	17.5	20.0	23.0	15.0	18.5	16.5	15.0	15.5
13	24.0	17.0	20.0	23.0	16.5	19.0	23.0	15.0	18.5	17.5	15.0	16.0
14	23.5	17.0	19.5	23.5	13.5	18.5	24.0	15.5	19.5	19.0	16.0	17.0
15	20.0	16.5	18.5	24.5	14.5	19.5	20.5	16.0	18.0	20.0	15.5	17.5
16	23.5	13.5	18.0	26.0	16.5	21.0	18.0	16.0	17.0	17.5	13.0	15.0
17	24.5	14.0	19.0	21.5	18.0	19.5	23.0	16.0	19.0	14.5	11.0	13.0
18	25.0	15.0	19.5	26.0	16.5	20.5	20.0	15.5	17.5	12.5	9.0	10.0
19	25.0	16.0	20.5	26.5	18.0	22.0	21.0	13.5	17.0	10.5	8.0	9.0
20	23.0	17.0	20.0	21.0	18.5	19.5	19.5	12.5	16.0	14.0	6.5	10.0
21	18.5	15.5	17.5	24.0	17.5	20.5	23.0	14.5	18.5	15.0	7.5	11.0
22	19.0	13.5	16.0	24.5	19.0	21.0	22.5	15.0	18.5	14.5	10.5	12.5
23	22.0	12.0	17.0	23.0	16.0	19.0	19.5	15.5	17.5	14.0	8.5	11.0
24	22.5	14.5	18.5	22.0	14.5	18.0	21.0	14.5	17.5	11.5	9.5	10.5
25	25.0	16.0	20.0	21.0	13.5	17.0	22.5	15.5	18.5	13.5	9.0	11.0
26	26.5	17.5	22.0	21.5	13.0	17.0	24.5	17.0	20.5	13.0	7.5	10.0
27	27.5	19.5	23.0	16.5	14.0	15.0	24.5	16.5	20.0	12.5	6.0	9.0
28	27.5	19.5	23.0	16.5	14.0	15.0	24.0	16.5	20.0	13.5	6.0	9.5
29	27.0	19.5	23.0	18.5	14.0	16.0	22.0	17.0	19.5	14.0	8.0	10.5
30	23.5	18.0	20.5	22.0	13.5	17.5	24.0	16.5	20.0	14.5	10.5	12.0
31	---	---	---	23.5	15.5	19.0	22.0	15.0	18.0	---	---	---
MONTH	---	---	---	26.5	13.0	18.9	24.5	12.5	17.9	23.5	6.0	13.7

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK. AT COUNTY HIGHWAY G. NEAR FOUNTAIN CITY. WI--CONTINUED

OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[illegible]

OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

## WAUMANDEE CREEK BASIN

243

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	11.1	10.6	10.8	
2	---	---	---	---	---	---	---	---	11.7	10.0	10.8	
3	---	---	---	---	---	---	---	---	11.5	10.2	10.8	
4	---	---	---	---	---	---	---	---	11.0	10.3	10.6	
5	---	---	---	---	---	---	---	---	10.6	10.2	10.4	
6	---	---	---	---	---	---	---	---	11.3	10.6	10.9	
7	---	---	---	---	---	---	---	---	11.4	9.8	10.7	
8	---	---	---	---	---	---	---	---	10.9	10.3	10.6	
9	---	---	---	---	---	---	---	---	11.0	9.0	10.1	
10	---	---	---	---	---	---	---	---	10.7	8.9	9.8	
11	---	---	---	---	---	---	---	---	10.4	8.4	9.5	
12	---	---	---	---	---	---	---	---	10.4	8.3	9.3	
13	---	---	---	---	---	---	---	---	10.3	8.3	9.3	
14	---	---	---	---	---	---	---	---	10.9	8.6	9.7	
15	---	---	---	---	---	---	---	---	10.8	8.7	9.8	
16	---	---	---	---	---	---	---	---	9.2	5.4	8.3	
17	---	---	---	---	---	---	---	---	10.3	8.3	9.6	
18	---	---	---	---	---	---	---	---	11.1	10.4	10.8	
19	---	---	---	---	---	---	---	---	11.2	9.5	10.5	
20	---	---	---	---	---	---	---	---	11.0	8.8	9.9	
21	---	---	---	---	---	---	---	---	10.3	9.2	9.7	
22	---	---	---	---	---	---	---	---	10.1	8.8	9.4	
23	---	---	---	---	---	---	---	---	9.9	9.2	9.5	
24	---	---	---	---	---	---	---	---	10.3	9.2	9.7	
25	---	---	---	---	---	---	---	---	10.4	9.4	9.9	
26	---	---	---	---	---	---	---	---	10.1	8.6	9.5	
27	---	---	---	---	---	---	---	---	10.3	8.2	9.2	
28	---	---	---	---	---	---	---	---	9.2	7.6	8.4	
29	---	---	---	---	---	---	---	---	9.7	7.9	8.8	
30	---	---	---	---	---	---	---	---	9.8	7.9	8.9	
31	---	---	---	---	---	---	---	---	9.4	7.1	8.4	
MONTH	---	---	---	---	---	---	---	---	11.7	5.4	9.8	
JUNE			JULY			AUGUST			SEPTEMBER			
1	9.0	8.2	8.7	9.3	6.9	8.0	10.8	8.4	9.6	11.1	8.6	9.8
2	9.4	7.5	8.6	9.7	7.3	8.3	10.8	8.7	9.7	10.7	8.0	9.4
3	9.4	7.9	8.7	9.8	7.8	8.6	11.3	9.4	10.1	9.7	8.5	8.9
4	10.3	8.8	9.3	9.9	8.0	8.8	11.8	9.1	10.4	10.8	8.6	9.8
5	10.6	8.7	9.6	10.0	7.2	8.7	12.0	8.5	10.2	10.7	9.4	10.1
6	10.7	8.7	9.7	9.7	7.1	8.3	10.9	9.0	9.9	10.9	8.3	9.8
7	10.9	8.8	9.8	9.6	7.9	8.7	10.9	8.6	9.7	10.2	8.3	9.2
8	10.8	8.7	9.8	10.4	8.2	9.2	9.2	7.7	8.6	9.6	8.4	8.9
9	---	---	---	10.6	8.4	9.3	10.4	8.3	9.4	9.4	7.6	8.4
10	10.3	8.0	9.2	10.4	7.8	9.1	10.6	8.5	9.5	10.2	8.3	9.2
11	---	---	---	10.3	7.6	9.0	10.6	8.4	9.4	10.4	8.9	9.6
12	---	---	---	9.4	7.5	8.3	10.6	7.9	9.3	9.7	8.8	9.2
13	---	---	---	10.1	8.1	9.1	10.6	8.1	9.2	9.9	8.7	9.2
14	13.5	8.0	9.1	10.6	8.0	9.4	10.2	7.6	8.9	8.9	8.0	8.4
15	8.8	7.4	8.3	10.4	7.7	9.1	9.9	8.0	8.8	9.2	8.2	8.7
16	9.9	7.6	8.9	9.7	7.2	8.4	9.1	7.7	8.4	10.1	8.3	9.4
17	10.0	7.5	8.7	8.9	7.3	8.1	9.0	6.8	7.9	10.4	9.2	9.8
18	10.0	7.7	8.7	9.0	7.1	8.1	8.9	7.4	7.9	11.1	9.7	10.5
19	10.1	7.7	8.8	9.1	7.1	8.1	9.2	7.3	8.1	11.4	10.7	11.0
20	10.4	7.8	9.0	8.4	7.6	7.9	9.6	7.4	8.4	11.8	9.9	10.9
21	10.4	8.4	9.4	8.9	4.3	7.7	9.3	6.8	8.3	11.5	9.5	10.6
22	11.9	8.9	10.2	7.7	6.6	7.2	10.5	8.1	9.1	10.8	10.1	10.3
23	11.3	8.2	9.9	8.8	7.5	8.2	10.3	8.5	9.3	11.6	10.0	10.8
24	11.2	7.8	9.4	9.4	8.1	8.8	11.0	8.4	9.6	11.2	10.6	10.8
25	11.0	7.4	9.0	9.9	8.4	9.2	10.6	8.1	9.3	11.1	10.2	10.7
26	10.3	6.9	8.3	10.4	8.3	9.5	9.5	8.0	8.8	11.9	10.5	11.1
27	9.4	6.5	7.8	10.3	9.3	9.9	10.1	7.9	9.1	12.6	10.6	11.6
28	8.8	6.3	7.4	10.5	9.4	9.9	10.6	7.5	9.2	12.5	10.4	11.5
29	8.6	6.3	7.2	10.4	9.0	9.8	10.3	8.1	9.1	12.4	10.2	11.4
30	9.2	7.0	7.9	10.4	8.2	9.4	10.3	7.4	9.0	11.6	10.4	11.0
31	---	---	---	10.2	8.3	9.2	10.6	8.5	9.5	---	---	---
MONTH	---	---	---	10.6	4.3	8.8	12.0	6.8	9.2	12.6	7.6	10.0

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										.37	.31	1.9
2										.34	.73	1.5
3										.31	1.3	1.2
4										.28	.53	.97
5										.26	.39	.72
6										.25	.33	.58
7										2.4	.28	.49
8										10	.24	.44
9										1.7	1.3	5.3
10										.45	.48	7.6
11										.41	.67	.69
12										.38	.39	.54
13										.34	.31	.43
14										.31	.25	1.4
15										.29	2.5	.61
16										.27	.40	.39
17										.25	1630	.27
18										.23	569	.34
19										.89	10	.70
20										.41	3.1	.44
21										.34	2.3	.37
22										.31	1.6	.30
23										.29	1.3	.25
24										.26	2.7	.21
25										.24	4.3	.18
26										.27	2010	.14
27										.57	13	.12
28										14	7.0	.11
29										.67	4.8	.10
30										.50	3.4	.10
31										.38	2.5	---
TOTAL										37.97	4275.41	28.39

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.12	.15	.18	.14	.19	.29	8.8	12	.61	.77	1.6
2	.13	.12	.14	.16	.15	.17	.27	5.5	7.1	.58	.65	1.4
3	3.8	.12	.12	.15	.17	.26	.27	4.3	4.3	.59	.55	1.3
4	1.2	.13	.14	.15	.18	.23	.27	3.9	2.7	.63	.44	1.2
5	.15	.13	.16	.15	.18	.58	.28	65	1.8	.64	.35	1.1
6	.14	.13	.17	.14	.18	.20	.30	21	1.7	.64	.34	1.0
7	.14	.13	.16	.14	.18	.21	.33	9.6	1.5	.65	2.0	.95
8	.13	.13	.16	.13	.19	.21	5.2	13	1.4	.67	62	1.5
9	.14	.14	.16	.13	.19	.21	.63	5.6	1.3	.69	3.5	.97
10	.13	.14	.16	.13	.18	.21	.62	4.3	1.4	.71	2.5	.80
11	.13	.15	.17	.13	.17	1.3	.64	3.7	1.2	.75	1.9	1.9
12	.12	.15	.16	.13	.16	.25	.86	3.3	1.1	3.8	1.4	.89
13	.12	.14	.16	.13	.17	.22	.98	3.5	1.1	.83	1.1	.83
14	.12	.14	.16	.14	.17	.23	6.9	3.2	3.7	.81	.85	4.3
15	.12	.15	.17	.14	.17	.24	1.4	4.9	18	.82	.87	1.0
16	.11	.14	.17	.14	.16	.23	1.3	3170	1.1	.85	.99	1.0
17	.11	.14	.18	.14	.17	.24	1.3	34	.93	3.2	1.2	1.0
18	.80	.14	.18	.14	.17	.26	3.8	21	.80	1.1	1.2	1.1
19	.12	.14	.18	.14	.17	.27	8.9	17	.75	1.0	1.3	1.1
20	.11	.15	.18	.15	.18	.28	3.1	13	.73	5.9	1.4	1.2
21	.84	.14	.18	.15	.19	2.2	2.1	11	.72	218	1.6	1.2
22	.12	.14	.18	.13	.21	5.2	3.0	9.0	.70	22	1.7	1.3
23	.11	.14	.16	.15	.18	22	5.3	7.9	.66	5.6	2.0	1.3
24	.10	.14	.16	.13	.18	.41	1.8	6.5	.65	4.2	2.2	1.5
25	.10	.14	.17	.12	.16	.37	1.7	5.4	.65	3.2	2.4	1.5
26	.10	.14	.16	.13	.16	.34	3.1	5.2	.63	2.6	2.7	1.5
27	.10	.15	.16	.14	.16	.45	11.5	3.9	.61	2.1	2.6	1.5
28	.11	.15	.17	.15	.16	5.2	3.2	57	.60	2.0	2.3	1.4
29	.11	.14	.18	.13	---	.34	2090	7.2	.59	1.5	2.1	1.4
30	.11	.14	.18	.13	---	.30	52	6.9	.58	1.2	1.9	1.4
31	.11	---	.17	.13	---	.30	---	255	---	.98	1.7	---
TOTAL	9.86	4.15	5.10	4.33	4.83	43.90	2211.34	3789.6	71.00	288.85	108.51	40.14

WTR YR 1991 TOTAL 6581.61



05378185 EAGLE CREEK, AT COUNTY HIGHWAY G, NEAR FOUNTAIN CITY, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										3.7	4.0	12
2										3.5	4.3	9.7
3										3.2	6.0	8.6
4										3.0	4.0	7.6
5										2.9	3.2	6.1
6										2.8	2.9	5.3
7										18	2.6	4.4
8										44	2.3	3.7
9										13	4.4	19
10										6.5	4.6	34
11										5.7	4.4	4.7
12										5.1	3.0	3.9
13										4.3	2.6	3.3
14										3.8	2.4	10
15										3.5	9.9	4.7
16										3.0	4.4	3.8
17										2.7	2650	3.3
18										2.4	1770	4.2
19										6.0	75	5.6
20										3.4	33	3.7
21										3.0	22	3.6
22										2.8	14	3.5
23										2.8	9.9	3.4
24										2.6	18	3.2
25										2.5	29	3.2
26										2.9	4170	2.9
27										4.7	48	2.9
28										98	31	2.9
29										6.2	23	2.7
30										5.2	18	2.7
31										4.4	14	---
TOTAL										275.6	8989.9	188.6

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	1.4	1.1	1.0	.83	1.3	2.4	21	76.4	3.5	4.5	4.7
2	1.6	1.4	1.0	.93	.89	1.8	2.3	13	17	3.3	3.9	4.6
3	8.8	1.4	.84	.88	1.0	1.3	2.3	11	12	3.4	3.5	4.4
4	2.3	1.4	.97	.89	1.1	1.2	2.3	9.9	8.3	3.6	2.9	4.1
5	2.0	1.4	1.1	.90	1.1	1.6	2.3	221	6.3	3.6	2.5	4.0
6	2.0	1.3	1.2	.84	1.1	2.3	2.3	56	6.0	3.5	2.4	4.0
7	1.9	1.3	1.2	.81	1.1	1.5	2.4	23	5.8	3.5	6.6	3.9
8	2.0	1.2	1.1	.79	1.1	1.5	4.5	27	5.7	3.6	142	4.6
9	2.0	1.3	1.1	.78	1.1	1.5	6.0	13	5.5	3.6	14	4.4
10	2.0	1.3	1.1	.76	1.1	1.5	3.8	10	5.8	3.7	11	3.8
11	2.1	1.3	1.1	.77	1.0	2.1	3.7	9.8	5.4	3.8	8.2	5.7
12	1.9	1.3	1.1	.79	1.0	1.8	4.7	8.9	5.2	10.4	6.5	5.1
13	1.9	1.2	1.0	.80	1.0	1.6	5.0	9.3	5.2	4.1	5.1	3.9
14	1.9	1.2	1.1	.81	1.0	1.7	16.0	8.3	16	4.0	4.1	11.8
15	1.9	1.2	1.1	.82	1.0	1.8	6.3	12	98	4.0	4.0	4.7
16	1.8	1.2	1.1	.83	.99	1.7	5.6	4680	27	4.0	4.3	4.4
17	1.8	1.1	1.2	.83	1.0	1.8	5.5	90	11	9.4	4.7	4.3
18	2.1	1.2	1.2	.83	1.0	1.9	7.3	20	4.6	8.2	4.6	4.4
19	1.9	1.2	1.1	.86	1.0	2.0	25	14	3.8	4.7	4.7	4.5
20	1.9	1.2	1.1	.91	1.1	2.1	9.0	13	3.7	17.2	4.7	4.5
21	2.1	1.2	1.1	.88	1.2	2.7	6.6	12	3.7	436	5.0	4.5
22	1.9	1.1	1.1	.80	1.3	12	8.4	12	3.6	59	5.1	4.7
23	1.8	1.1	.97	.89	1.1	51.4	11	12	3.5	22	5.4	4.8
24	1.7	1.1	.97	.81	1.1	3.2	4.6	11	3.5	17	5.6	5.3
25	1.6	1.1	.99	.74	1.0	2.9	4.9	10	3.5	14	5.8	5.3
26	1.6	1.1	.95	.76	1.1	2.7	9.2	11	3.5	11	6.1	5.1
27	1.6	1.2	.93	.82	1.1	12.0	26.8	9.7	3.4	9.7	6.0	5.1
28	1.5	1.2	.97	.90	1.1	2.9	9.2	46	3.3	9.9	5.8	4.8
29	1.5	1.1	1.0	.82	---	2.8	3820	9.9	3.3	7.7	5.5	4.8
30	1.5	1.1	1.0	.80	---	2.5	90	10	3.3	6.4	5.3	4.8
31	1.5	---	.99	.81	---	2.5	---	287	---	5.4	5.0	---
TOTAL	63.8	36.8	32.78	25.86	29.51	131.6	4109.4	5700.8	363.3	703.2	304.8	145.0

WTR YR 1991 TOTAL 11646.85

## WAUMANDEE CREEK BASIN

05378185 EAGLE CREEK NEAR FOUNTAIN CITY, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on July 12, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Dec. 4, 14, 15, 17, 21, 29, Jan. 5, 11, and Feb. 13, 28.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.85 in., July 21.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.00	.00	.00	.00	.27	.00	.00	---	.27	.00	.00
2	.01	.00	.00	.00	.00	.01	.00	.00	---	.00	.08	.00
3	.81	.24	.00	.00	.00	.00	.00	.09	---	.32	.00	.03
4	.00	.00	.00	.00	.00	.00	.00	.04	---	.08	.00	.00
5	.00	.00	.00	.00	.00	.19	.00	1.36	---	.01	.00	.00
6	.00	.02	.00	.00	.00	.00	.00	.05	---	.00	.00	.01
7	.00	.00	.00	.00	.00	.00	.00	.00	---	.09	1.07	.00
8	.05	.00	.00	.00	.00	.04	.95	.34	---	.00	.84	.65
9	.00	.00	.00	.00	.00	.00	.01	.00	---	.05	.01	.22
10	.01	.00	.00	.00	.00	.00	.00	.00	---	.00	.01	.00
11	.00	.02	.00	.00	.00	.00	.00	.00	---	.80	.00	.69
12	.00	.00	.00	.00	.00	.02	.49	.00	---	.22	.00	.00
13	.06	.00	.00	.00	.00	.00	.01	.12	---	.02	.00	.01
14	.00	.00	.00	.00	.00	.00	.33	.00	---	.00	.00	.70
15	.00	.00	.00	.00	.00	.00	.03	.39	---	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	1.03	---	.00	.25	.00
17	.18	.00	.00	.00	.00	.00	.00	.03	---	1.36	.03	.05
18	.28	.00	.00	.00	---	.00	.31	.30	---	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.17	.00	---	.06	.00	.00
20	.22	.00	.00	.00	.00	.19	.00	.00	---	.78	.00	.00
21	.13	.00	.00	.00	.00	.03	.00	.00	.00	1.85	.00	.00
22	.00	.00	.00	.00	.00	.78	.40	.20	.00	.34	.00	.00
23	.02	.00	.00	.00	.00	.17	.00	.14	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.39
25	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.03
26	---	.00	.00	.00	.00	.00	.35	.14	.00	.00	.00	.00
27	---	.08	.00	.00	.00	.42	.54	.00	.00	.31	.00	.00
28	---	.00	.00	.00	.00	.02	.00	.38	.00	.19	.00	.00
29	---	.00	.00	.00	---	.00	1.79	---	.00	.00	.00	.00
30	---	.00	.00	.00	---	.02	.06	---	.00	.01	.00	.00
31	---	---	.00	.00	---	.00	---	---	---	.00	.00	---
TOTAL	---	0.36	0.00	0.00	---	2.16	5.44	---	---	6.76	2.29	2.78

## MISSISSIPPI RIVER MAIN STEM

247

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 mi<sup>2</sup>, 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 National Geodetic Vertical Datum of 1929. June 10, 1928, to Apr. 15, 1931, nonrecording 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.--No estimated daily discharges. Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

AVERAGE DISCHARGE.--63 years, 27,810 ft<sup>3</sup>/s, 6.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 268,000 ft<sup>3</sup>/s, Apr. 19, 1965, gage height, 20.77 ft, from floodmark; minimum, 1,940 ft<sup>3</sup>/s, Dec. 12, 1980, gage height, 3.96 ft, result of ice jam; 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 ft<sup>3</sup>/s, from information by U.S. Army Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 92,900 ft<sup>3</sup>/s, May 14, gage height, 10.99 ft; minimum daily discharge, 8,400 ft<sup>3</sup>/s, Dec. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18300	26800	15700	12400	10500	12300	80100	55500	71400	56600	35800	20800
2	17900	26000	14400	12300	10700	12600	78500	54200	75100	55800	35800	17900
3	15600	25200	14300	12300	10800	13800	73400	53300	79500	56400	35800	15600
4	15900	24200	14700	12700	10900	12600	67500	53300	83600	57500	36000	13800
5	18400	23100	14100	12600	10900	12600	64500	56100	87400	58500	36500	14100
6	19500	21200	13800	12500	11000	12400	59500	61500	89800	59300	36100	16000
7	22200	20500	13700	12400	10700	12400	54800	64600	88400	60400	36100	19300
8	23900	19100	12900	12400	10800	12800	51400	68500	83500	61700	39300	21200
9	23600	18400	12800	12400	11200	14800	50300	73100	78400	61800	38900	22800
10	22500	19100	12900	12300	11700	15500	49500	78900	74600	60400	38200	25800
11	22400	20300	12700	12300	12400	14900	49400	84800	71400	58100	39100	31100
12	21800	22100	13200	12200	12200	14100	50700	89200	70500	56700	36800	39000
13	21800	21600	15000	12200	11900	14600	51700	92000	68400	55500	35300	45100
14	21000	19800	15500	12100	12100	16700	55000	92800	66400	54900	35500	49900
15	20800	17700	14400	12100	12900	19200	56300	92000	69600	52700	36400	51900
16	20000	18400	14300	12100	13200	19700	54900	91300	70300	50100	38200	53400
17	18400	18100	14200	12000	13100	20100	55400	89100	69600	50200	38200	54600
18	17100	16200	14300	12000	13000	19600	60100	85100	67900	52500	36500	56000
19	19100	15100	14000	12000	12900	19000	64100	80500	67000	51600	34500	57700
20	20500	15800	13900	12100	12800	19300	65500	77900	66500	50700	32200	57400
21	24600	15500	12100	12100	12700	20700	65600	76000	65100	50700	30500	56500
22	26700	16500	11400	12000	12700	25700	66300	72800	63200	55700	30300	55900
23	29600	20000	9000	11900	13000	34100	66200	68900	60200	54100	29800	54500
24	35000	21000	8400	11000	13100	39000	65200	65000	59500	50600	28100	51800
25	36900	20400	8800	10800	12900	43800	63300	61000	63300	47600	26900	48900
26	35100	17600	8900	10200	12700	52900	60800	58500	64200	44600	26000	47500
27	33200	15100	9000	10400	12500	63100	59600	56400	63000	42600	25200	45600
28	31200	14400	9400	10500	12200	69600	58400	57100	62300	41800	24500	42200
29	29300	15200	10300	10500	---	74500	59100	60400	60400	40300	23500	40600
30	26500	14400	10600	10500	---	77600	57400	63700	58800	37900	22400	37100
31	27300	---	12200	10500	---	79400	---	66700	---	36200	20700	---
TOTAL	736100	578800	390900	365800	337500	889400	1814500	2200200	2119300	1623500	1019100	1164000
MEAN	23750	19290	12610	11800	12050	28690	60480	70970	70640	52370	32870	38800
MAX	36900	26800	15700	12700	13200	79400	80100	92800	89800	61800	39300	57700
MIN	15600	14400	8400	10200	10500	12300	49400	53300	58800	36200	20700	13800
CFSM	.40	.33	.21	.20	.20	.48	1.02	1.20	1.19	.88	.56	.66
IN.	.46	.36	.25	.23	.21	.56	1.14	1.38	1.33	1.02	.64	.73

CAL YR 1990 TOTAL 9827800 MEAN 26930 MAX 74300 MIN 8400 CFSM .45 IN. 6.18  
WTR YR 1991 TOTAL 13239100 MEAN 36270 MAX 92800 MIN 8400 CFSM .61 IN. 8.32

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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 period listed in rating table below. Records good except those for ice-affected period, which is fair. Gage-height telemeter and data-collection platform at station.

AVERAGE DISCHARGE.--62 years (1915-19, 1935-91), 432 ft<sup>3</sup>/s, 9.12 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft<sup>3</sup>/s, Apr. 4, 1956, gage height, 10.35 ft; minimum daily, 98 ft<sup>3</sup>/s, Jan. 10, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
May 30	0500	*1,380	6.61	Dec. 24	0400	ice jam	*6.75

Minimum daily discharge, 230 ft<sup>3</sup>/s, Jan. 26.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Sept. 21-30; stage-discharge relation affected by ice Dec. 3 to Mar. 14.)

2.9	228	6.0	1,140
3.5	386	7.0	1,540
4.0	530		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	285	300	298	250	260	370	514	825	1110	359	339	276
2	284	300	281	260	270	400	487	684	1060	371	333	272
3	310	299	270	260	270	420	459	584	917	355	340	273
4	429	310	270	250	280	400	437	541	791	349	340	289
5	435	313	260	250	290	410	421	603	723	346	326	281
6	388	316	270	250	310	500	409	998	721	344	316	281
7	342	309	280	240	320	660	392	1130	643	330	312	273
8	317	301	280	240	320	620	395	952	572	330	642	287
9	315	301	280	240	330	600	590	833	537	323	770	338
10	311	302	290	250	340	600	663	769	549	318	608	330
11	308	301	290	250	320	600	549	677	606	316	471	329
12	304	309	290	260	310	720	491	602	557	364	404	395
13	301	303	280	260	310	680	508	562	510	384	368	389
14	301	302	260	270	320	560	550	529	518	359	333	487
15	302	305	270	270	310	495	678	491	668	333	333	701
16	299	301	280	270	290	521	670	756	657	313	333	706
17	299	299	290	270	290	523	573	1030	562	325	344	551
18	319	297	280	270	290	513	498	1110	497	458	340	461
19	336	291	270	280	300	558	557	964	460	395	329	404
20	343	290	280	280	300	648	682	772	441	403	318	376
21	352	298	290	270	300	765	624	650	436	568	301	357
22	373	333	270	250	320	799	535	590	437	793	302	344
23	353	331	260	250	360	979	518	570	424	649	302	332
24	312	313	250	260	340	1100	541	549	415	500	306	333
25	300	301	240	240	320	959	503	513	397	413	305	352
26	314	289	250	230	320	766	458	655	390	369	300	350
27	313	294	240	240	340	683	519	1040	377	346	295	339
28	305	304	250	250	360	782	579	1120	363	370	288	317
29	302	303	260	250	---	712	689	1270	352	400	286	312
30	303	307	250	240	---	595	918	1310	342	383	284	310
31	302	---	250	250	---	544	---	1090	---	358	280	---
TOTAL	10057	9122	8379	7900	8690	19482	16407	24769	17032	12224	11148	11045
MEAN	324	304	270	255	310	628	547	799	568	394	360	368
MAX	435	333	298	280	360	1100	918	1310	1110	793	770	706
MIN	284	289	240	230	260	370	392	491	342	313	280	272
CFSM	.50	.47	.42	.40	.48	.98	.85	1.24	.88	.61	.56	.57
IN.	.58	.53	.48	.46	.50	1.13	.95	1.43	.99	.71	.64	.64
CAL YR 1990	TOTAL 176802	MEAN 484	MAX 5810	MIN 220	CFSM .75	IN. 10.23						
WTR YR 1991	TOTAL 156255	MEAN 428	MAX 1310	MIN 230	CFSM .67	IN. 9.04						

## BLACK RIVER BASIN

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## 05381000 BLACK RIVER AT NEILLSVILLE, WI

LOCATION.--Lat 44°33'34", long 90°36'52", in sec.15, T.24 N., R.2 W., Clark County, Hydrologic Unit 07040007, on right bank at downstream side of bridge on U.S. Highway 10 in Neillsville, 1.0 mi downstream from O'Neill Creek, and 2.6 mi upstream from Cunningham Creek.

DRAINAGE AREA.--749 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1905 to March 1909, October 1913 to current year. Monthly discharge only 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. Datum of gage is 962.34 ft above National Geodetic Vertical Datum of 1929. 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 periods listed in rating table below. Records good except those for ice-affected periods, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--81 years (1906-8, 1914-91), 596 ft<sup>3</sup>/s, 10.81 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,800 ft<sup>3</sup>/s, Sept. 10, 1938, gage height, 23.8 ft; minimum, 0.6 ft<sup>3</sup>/s, Aug. 15, 1936, gage height, 1.84 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 23	1315	*10,700	*12.40	May 28	1830	6,470	10.15
				May 31	1715	5,150	9.29

Minimum, 53 ft<sup>3</sup>/s, Sept. 1-3, gage height, 2.69 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 1-10 and Dec. 13 to Mar. 21.)

2.6	41	5.0	850	9.0	4,740
3.0	104	6.0	1,500	11.0	7,940
3.5	224	7.0	2,370	13.0	12,000
4.0	392				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199	255	270	74	56	90	1300	747	3610	177	173	55
2	200	241	220	68	56	100	982	956	3150	188	186	53
3	275	231	180	68	64	110	823	855	3520	229	285	68
4	564	231	210	68	62	120	741	671	3520	253	325	126
5	707	229	240	68	72	140	722	582	2080	250	491	136
6	746	222	240	66	90	170	740	954	1130	221	462	100
7	575	221	220	66	98	200	737	1090	657	208	345	116
8	436	213	220	66	96	230	792	1080	471	182	304	219
9	353	205	220	68	100	220	2390	975	378	161	307	302
10	292	199	210	74	110	200	2860	808	326	146	285	544
11	255	194	215	74	110	200	2370	683	294	131	248	672
12	230	187	203	72	110	210	1740	569	267	127	212	578
13	209	181	210	72	98	220	1330	479	234	146	180	483
14	207	178	200	72	94	250	1830	408	268	478	150	789
15	210	180	200	74	90	440	2660	350	235	497	129	3110
16	224	180	200	74	82	720	2310	365	203	434	115	1810
17	236	177	210	76	82	840	1640	783	184	1000	108	1040
18	256	180	200	78	84	900	1160	781	178	2060	100	681
19	261	183	210	80	84	2000	1310	733	167	2060	97	473
20	301	183	190	80	82	3000	984	538	172	1450	95	354
21	378	187	130	74	82	4500	773	450	504	1310	91	284
22	496	216	160	74	82	5240	638	372	3880	935	89	246
23	675	277	130	76	86	9130	660	313	3640	613	86	212
24	632	374	110	70	84	9080	592	276	1730	431	83	185
25	529	358	90	66	82	6670	511	262	796	335	81	169
26	441	301	100	62	80	5170	448	690	477	269	78	160
27	382	267	90	58	80	4550	411	1240	341	226	76	149
28	337	285	80	58	84	4610	374	4110	263	210	70	142
29	302	268	84	62	---	3560	360	4720	221	193	67	139
30	282	249	80	62	---	2460	554	3270	186	178	64	134
31	265	---	76	60	---	1710	---	3340	---	170	60	---
TOTAL	11455	6852	5398	2160	2380	67040	34742	33450	33082	15268	5442	13529
MEAN	370	228	174	69.7	85.0	2163	1158	1079	1103	493	176	451
MAX	746	374	270	80	110	9130	2860	4720	3880	2060	491	3110
MIN	199	177	76	58	56	90	360	262	167	127	60	53
CFSM	.49	.30	.23	.09	.11	2.89	1.55	1.44	1.47	.66	.23	.60
IN.	.57	.34	.27	.11	.12	3.33	1.73	1.66	.76	.27	.27	.67

CAL YR 1990 TOTAL 256141 MEAN 702 MAX 12800 MIN 31 CFSM .94 IN. 12.72  
WTR YR 1991 TOTAL 230798 MEAN 632 MAX 9130 MIN 53 CFSM .84 IN. 11.46

## BLACK RIVER BASIN

05382000 BLACK RIVER NEAR GALESVILLE, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929. 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: July 17-29 and ice period listed in rating table below. Records good except for those for estimated daily discharges, which are poor. Flow partly regulated by Hatfield Dam Powerplant where drainage area is 1,290 mi<sup>2</sup> and storage capacity is 272,000,000 ft<sup>3</sup>. Water diverted periodically from basin into Lemonweir River basin for cranberry culture. Gage-height telemeter and data-collection platform at station.

AVERAGE DISCHARGE.--59 years, 1,739 ft<sup>3</sup>/s, 11.35 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,500 ft<sup>3</sup>/s, Apr. 1, 1967, gage height, 14.63 ft; maximum gage height, 15.46 ft, Sept. 23, 1980; minimum observed, 180 ft<sup>3</sup>/s, Dec. 20, 1931.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 26	0700	*18,300	*12.77	No other peak greater than base discharge.			

Minimum discharge, 416 ft<sup>3</sup>/s, Sept. 7.

RATING TABLE (gage-height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used June 15-23 and June 26 to Sept. 30; stage-discharge relation affected by ice Dec. 3 to Mar. 15.)

1.8	394	7.0	4,880
2.0	503	9.0	7,850
3.0	1,120	11.0	12,100
5.0	2,710	13.0	19,200

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	823	915	1030	600	520	660	4470	1930	7010	823	849	470
2	817	917	987	580	520	740	3520	2430	6100	783	812	443
3	972	915	980	580	500	680	3190	2720	6850	722	776	454
4	891	889	940	580	540	700	2780	2740	6440	678	784	449
5	1090	907	780	560	560	760	2550	2480	6110	694	775	456
6	1340	882	780	560	580	840	2300	2280	5620	727	819	444
7	1350	906	800	560	600	780	2250	2790	3750	742	937	430
8	1340	903	820	560	640	820	2180	3290	2540	725	1220	448
9	1230	891	860	560	680	880	2180	3210	2000	689	1230	491
10	1060	900	900	560	700	900	3060	3240	1790	654	1120	536
11	1030	875	880	560	700	840	4430	2990	1560	612	1020	667
12	967	860	820	580	700	820	4780	2640	1380	652	965	885
13	884	874	780	580	720	880	4460	2240	1310	618	918	1220
14	864	871	660	580	740	1000	3740	1980	1260	590	788	1080
15	885	860	680	560	680	1100	3750	1710	1200	587	759	1140
16	838	901	700	560	640	1260	4840	1590	1150	653	725	2010
17	875	862	740	560	640	1380	5630	1570	1130	800	693	3030
18	889	827	700	580	660	1660	5440	2000	1040	900	677	2290
19	849	826	700	580	660	1990	4330	2220	975	1500	650	1580
20	898	815	740	600	660	2020	3840	2090	919	2600	617	1360
21	961	823	700	620	680	3010	4020	1830	827	2900	618	895
22	1090	831	660	640	680	4340	3480	1580	824	3000	583	859
23	1090	856	620	620	660	6250	2980	1470	1870	2800	580	864
24	1230	872	600	600	640	8720	2700	1320	3530	1900	559	830
25	1360	932	620	560	640	13800	2610	1250	3080	1400	573	813
26	1320	1000	600	580	640	17400	2360	1370	1910	1200	528	761
27	1210	1040	580	540	660	13600	2080	1840	1370	1100	546	729
28	1080	1020	580	560	680	10400	1830	3300	1130	1100	516	698
29	1060	1010	580	560	---	8410	1940	4010	943	960	509	656
30	1020	1040	600	520	---	7780	1820	5740	836	931	497	641
31	897	---	600	520	---	6300	---	8000	---	892	483	---
TOTAL	32210	27020	23017	17760	17920	120720	99540	79850	76454	34932	23126	27629
MEAN	1039	901	742	573	640	3894	3318	2576	2548	1127	746	921
MAX	1360	1040	1030	640	740	17400	5630	8000	7010	3000	1230	3030
MIN	817	815	580	520	500	660	1820	1250	824	587	483	430
CFSM	.50	.43	.36	.28	.31	1.87	1.60	1.24	1.23	.54	.36	.44
IN.	.58	.48	.41	.32	.32	2.16	1.78	1.43	1.37	.62	.41	.49
CAL YR 1990	TOTAL 668677	MEAN 1832	MAX 17800	MIN 380	CFSM .88	IN. 11.96						
WTR YR 1991	TOTAL 580178	MEAN 1590	MAX 17400	MIN 430	CFSM .76	IN. 10.38						

## BLACK RIVER BASIN

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05382000 BLACK RIVER NEAR GALESVILLE, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year. National Stream-Quality Accounting Network data collection began in March 1979.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (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, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCHI, FECAL, KF AGAR PER (COLS./100 ML) (31673)
NOV 1990											
16...	0900	932	130	7.6	6.0	3.6	11.2	758	90	64	63
JAN 1991											
08...	1440	557	156	7.3	0.0	4.3	11.1	775	75	39	54
FEB											
19...	1400	668	161	7.5	0.0	4.5	12.4	770	84	45	60
APR											
08...	1350	2070	93	7.5	13.0	5.2	9.8	764	93	K70	33
JUN											
04...	1230	6230	94	7.5	20.5	20	6.0	775	66	K1400	K3000
AUG											
06...	0815	790	134	7.8	19.0	5.5	8.2	778	87	660	130

DATE	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)	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 (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)
NOV 1990											
16...	55	13	5.4	3.5	2.0	55	45	8.7	6.8	<0.10	8.3
JAN 1991											
08...	59	14	5.8	3.6	2.0	--	E50	8.6	6.5	<0.10	11
FEB											
19...	63	15	6.1	4.4	1.9	58	48	9.9	7.8	<0.10	14
APR											
08...	35	8.4	3.5	2.7	2.5	29	24	7.4	6.0	0.20	8.2
JUN											
04...	38	9.4	3.5	2.6	3.4	35	28	2.9	4.5	<0.10	7.3
AUG											
06...	58	14	5.5	3.2	2.7	52	43	7.5	6.2	0.10	8.3

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)
NOV 1990										
16...	80	78	<0.010	0.600	0.060	0.040	0.50	0.080	0.040	0.040
JAN 1991										
08...	98	85	<0.010	0.800	0.130	0.120	0.40	0.030	0.030	0.030
FEB										
19...	82	92	<0.010	0.910	0.110	0.120	0.70	0.070	0.040	0.030
APR										
08...	48	56	0.010	0.420	0.060	0.070	0.80	0.120	0.050	0.030
JUN										
04...	75	53	0.030	0.410	0.130	0.110	1.4	0.250	0.120	0.090
AUG										
06...	75	76	0.010	0.570	<0.010	<0.010	0.70	0.190	0.090	0.080

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## BLACK RIVER BASIN

05382000 BLACK RIVER NEAR GALESVILLE, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
NOV 1990 16...	0900	932	10	<1	15	<0.5	<1.0	1	<3	3	360
FEB 1991 19...	1400	668	40	<1	28	<0.5	<1.0	<1	<3	7	410
APR 08...	1350	2070	50	<1	20	<0.5	<1.0	2	<3	5	320
AUG 06...	0815	790	20	<1	28	<0.5	<1.0	<1	<3	4	260

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
NOV 1990 16...	<1	<4	30	<0.1	<10	2	<1	32	<6	7
FEB 1991 19...	1	<4	55	<0.1	<10	1	<1	35	<6	<3
APR 08...	2	<4	15	<0.1	<10	<1	<1	25	<6	7
AUG 06...	<1	<4	15	<0.1	<10	1	<1	36	<6	4

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	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 1990 03...	1635	1020		125	15.5	--	--
NOV 16...	0900	932		130	6.0	10	25
JAN 1991 08...	1440	557		156	0.0	7	11
FEB 19...	1400	668		161	0.0	4	7.2
APR 08...	1350	2070		93	13.0	27	151
MAY 21...	1120	1840		100	19.0	--	--
JUN 04...	1230	6230		94	20.5	59	992
JUL 29...	1255	953		134	19.5	--	--
AUG 06...	0815	790		134	19.0	64	137



## MISSISSIPPI RIVER MAIN STEM

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05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'29", long 91°10'21", in SE 1/4 SE 1/4 sec.22, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank in city park at east end of Main Street in McGregor, 2.6 mi upstream from Wisconsin River, 4.3 mi downstream from Yellow River, and at mile 633.4 upstream from Ohio River.

DRAINAGE AREA.--67,500 mi<sup>2</sup>, approximately.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1936 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 604.84 ft above National Geodetic Vertical Datum. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937 to June 1, 1939, auxiliary nonrecording gage 14.1 mi upstream in tailwater of dam 9, at datum 5.30 ft lower.

REMARKS.--Estimated daily discharges: Nov. 30 to Dec. 2, and Dec. 4 to Mar. 11. Records good except those for estimated daily discharges and for discharges less than 10,000 ft<sup>3</sup>/s, which are fair. Stage-discharge relation affected by backwater from Wisconsin River and Lock and Dam No. 10. Minor flow regulation caused by navigation dams. U.S. Army Corps of Engineers data collection platform at station.

AVERAGE DISCHARGE.--55 years, 35,320 ft<sup>3</sup>/s, 7.10 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 276,000 ft<sup>3</sup>/s, Apr. 24, 1965; maximum gage height, 25.38 ft, Apr. 24, 1965; minimum daily discharge, 6,200 ft<sup>3</sup>/s, Dec. 9, 1936; minimum gage height, -0.86 ft, Aug. 18, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1828, that of Apr. 24, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 104,000 ft<sup>3</sup>/s, May 18, 19; maximum gage height, 14.89 ft, June 9, 10; minimum daily discharge, 9,100 ft<sup>3</sup>/s, Dec. 29-31; minimum gage height, 6.33 ft, Dec. 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21300	31000	14800	10700	10800	13000	93900	74000	77300	65400	38500	21900
2	20300	29200	16100	11700	10800	13200	94100	73900	80800	63500	37600	20200
3	18000	28500	17000	12400	10800	12800	93100	72200	85200	60900	37100	18700
4	20000	28600	16800	12400	10700	12200	92500	68900	89600	58200	36900	16700
5	22100	28400	17500	13300	10700	13400	90500	67500	92900	55600	37100	16900
6	22800	27400	18100	13100	10800	14000	88200	69200	95900	55600	37200	17100
7	24500	25600	16900	13000	10900	13900	84400	70200	97800	56900	37300	17800
8	26400	23900	16000	12900	11000	14800	79200	73200	99000	58900	40200	20200
9	26600	21900	15900	12900	11600	15900	74200	77100	99000	60400	42900	22700
10	26400	20800	16000	12800	12500	15900	65900	80700	97600	62400	44700	30300
11	25500	21500	15900	12400	12500	18000	58300	84900	95400	62800	46100	35200
12	24300	22900	15900	12800	12500	20900	56200	89700	92000	63800	46600	39400
13	23800	23700	16300	12800	12700	21700	60300	94600	87900	62100	45200	43600
14	22800	23500	16100	12700	13800	24200	64700	98400	84300	60100	41900	47700
15	22800	23000	17100	12700	14000	25500	69300	101000	81600	58000	38300	52800
16	22700	22300	17800	12700	14100	25400	71200	102000	80800	55000	37800	56800
17	21400	22500	17700	12700	14200	25200	71800	103000	80200	51700	38000	60000
18	19700	21000	17800	12600	14200	25200	72000	104000	79300	51800	38200	61700
19	19600	19600	17700	12600	14100	25200	72800	104000	77800	53200	38400	61900
20	19400	19100	17500	12600	13900	24700	76200	102000	76100	54600	37900	61500
21	22400	18800	17500	12500	13800	26000	79900	99300	74900	55600	36400	61600
22	26600	19400	15300	12400	13900	29500	82200	96000	73400	56500	34900	60900
23	30300	20900	12100	11700	13700	35600	82800	92700	70600	58300	33200	60200
24	33700	21600	10400	10800	13700	43500	82000	89900	68400	60500	31200	58100
25	37400	23000	9900	10200	13600	51300	80900	85600	66100	61100	30200	55000
26	40400	23700	9900	10100	13500	58700	79100	83000	64500	58600	29100	52800
27	41500	24100	9900	10000	13600	69200	77400	79700	66300	53100	28600	50100
28	40800	23700	9700	10800	13600	77500	75600	75800	69700	47700	27600	47800
29	38600	20500	9100	10900	---	83000	73500	72400	69600	44100	26300	45600
30	35700	15300	9100	10800	---	87600	73900	72500	67900	41200	24800	42100
31	34100	---	9100	10700	---	91700	---	74100	---	40100	23000	---
TOTAL	831900	695400	456900	372700	356000	1028700	2316100	2631500	2441900	1747700	1123200	1257300
MEAN	26840	23180	14740	12020	12710	33180	77200	84890	81400	56380	36230	41910
MAX	41500	31000	18100	13300	14200	91700	94100	104000	99000	65400	46600	61900
MIN	18000	15300	9100	10000	10700	12200	56200	67500	64500	40100	23000	16700
CFSM	.40	.34	.22	.18	.19	.49	1.14	1.26	1.21	.84	.54	.62
IN.	.46	.38	.25	.21	.20	.57	1.28	1.45	1.35	.96	.62	.69

CAL YR 1990 TOTAL 11847700 MEAN 32460 MAX 98800 MIN 9100 CFSM .48 IN. 6.53  
WTR YR 1991 TOTAL 15259300 MEAN 41810 MAX 104000 MIN 9100 CFSM .62 IN. 8.41

## MISSISSIPPI RIVER MAIN STEM

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

## WATER-QUALITY RECORDS

LOCATION.--Samples collected by boat 1.5 mi downstream from discharge station. Prior to April 1981, at bridge on U.S. Highway 18, 1.2 mi upstream from gage.

PERIOD OF RECORD.--Water years 1975 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1975 to current year.

WATER TEMPERATURES: 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 time of analysis.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,350 mg/L, Mar. 19, 1986; minimum daily mean, 1 mg/L, Dec. 23-25, 1976, Dec. 20, 28, 1977, Feb. 13-17, 23, Mar. 5-9, 1986, Dec. 2, 6, 8-11, 1987, Dec. 26, 1988 to Jan. 4, 1989, Jan. 9-11, and Feb. 20, 21, 1989, Jan. 5, 6, 1990.

SEDIMENT LOADS: Maximum daily, 363,000 tons, Mar. 19, 1986; minimum daily, 31 tons, Dec. 25, 1976.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 361 mg/L, Oct. 5; minimum daily mean, 2 mg/L, Dec. 28-30.

SEDIMENT LOADS: Maximum daily, 26,700 tons, Sept. 19; minimum daily, 49 tons Dec. 29, 30.

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	397	---	---	---	446	---	311	---	---	---	---	---
2	---	---	351	---	---	---	---	---	---	474	---	486
3	---	---	---	---	---	---	331	---	416	---	---	---
4	410	---	---	406	444	438	---	410	---	---	---	---
5	---	364	353	---	---	---	---	---	---	---	466	---
6	---	---	---	---	---	---	357	---	---	504	---	490
7	---	362	---	408	---	---	---	422	394	---	---	---
8	---	---	366	---	458	436	---	---	---	---	---	---
9	356	---	---	---	---	---	372	---	---	500	---	---
10	---	---	---	412	---	---	---	414	---	---	454	---
11	---	374	---	---	446	436	---	---	398	---	---	512
12	---	---	---	---	---	---	358	---	---	501	454	---
13	---	---	339	401	---	---	---	395	414	---	---	516
14	370	---	---	---	---	---	---	---	---	---	---	---
15	---	356	---	---	430	416	---	---	---	497	428	---
16	336	---	---	---	---	---	---	---	---	---	---	475
17	---	---	368	---	---	---	346	410	432	---	---	---
18	---	---	---	392	434	404	339	---	---	496	---	---
19	364	350	---	---	---	---	---	---	429	---	452	438
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	362	406	---	---	335	410	---	---	---	---
22	368	---	---	---	441	401	---	---	---	457	---	---
23	---	---	---	---	---	---	---	---	---	---	466	403
24	---	355	382	---	---	418	---	---	472	---	---	---
25	376	---	---	432	434	---	359	---	---	---	474	---
26	---	356	---	---	---	---	---	406	---	---	---	406
27	---	---	---	---	---	---	---	---	478	463	---	---
28	---	---	396	424	444	---	---	---	---	---	---	---
29	336	---	---	---	---	361	410	434	---	440	---	---
30	---	348	---	---	---	---	---	438	---	---	477	---
31	348	---	392	---	---	---	---	---	---	444	---	---

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

## WATER-QUALITY RECORDS

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	---	---	---	.0	---	7.0	---	---	---	---	---
2	---	---	2.0	---	---	---	---	---	---	26.0	---	24.0
3	---	---	---	---	---	---	8.0	---	18.0	---	---	---
4	14.0	---	---	.0	.0	2.0	---	14.0	---	---	---	---
5	---	6.0	2.0	---	---	---	---	---	---	---	26.0	---
6	---	---	---	---	---	---	10.0	---	---	26.0	---	22.0
7	---	6.0	---	.0	---	---	---	11.0	19.0	---	---	---
8	---	---	1.0	---	.0	3.0	---	---	---	---	---	---
9	13.0	---	---	---	---	---	13.0	---	---	25.0	---	---
10	---	---	---	.0	---	---	---	11.0	---	---	27.0	---
11	---	5.0	---	---	.0	3.0	---	---	24.0	---	---	24.0
12	---	---	---	---	---	---	12.0	---	---	26.0	---	---
13	---	---	1.0	.0	---	---	---	16.0	24.0	---	26.0	24.0
14	10.0	---	---	---	---	---	---	---	---	---	---	---
15	---	4.0	---	---	.0	4.0	---	---	---	23.0	24.0	---
16	10.0	---	---	---	---	---	---	---	---	---	---	24.0
17	---	---	.0	---	---	---	8.0	14.0	24.0	---	---	---
18	---	---	---	.0	.0	5.0	9.0	---	---	26.0	---	---
19	10.0	6.0	---	---	---	---	---	---	24.0	---	24.0	22.0
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	1.0	.0	---	---	12.0	16.0	---	---	---	---
22	10.0	---	---	---	.0	6.0	---	---	---	27.0	---	---
23	---	---	---	---	---	---	---	---	---	---	22.0	22.0
24	---	6.0	.0	---	---	6.0	---	---	25.0	---	---	---
25	8.0	---	---	.0	.0	---	10.0	---	---	---	26.0	---
26	---	5.0	---	---	---	---	---	14.0	---	---	---	17.0
27	---	---	---	---	---	---	---	---	26.0	28.0	---	---
28	---	---	.0	.0	2.0	---	---	---	---	---	---	---
29	8.0	---	---	---	---	6.0	---	15.0	---	28.0	---	---
30	---	4.0	---	---	---	---	11.0	20.0	---	---	24.0	---
31	8.0	---	.0	---	---	---	---	---	---	29.0	---	---

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	56	3230	33	2740	18	719	3	87	4	117	8	281
2	48	2640	32	2490	17	739	3	95	4	117	8	285
3	50	2430	34	2650	16	734	3	100	4	117	7	242
4	204	11400	39	3040	14	635	3	100	7	202	7	231
5	361	21600	45	3420	14	661	3	108	9	260	7	253
6	197	12100	42	3120	29	1420	3	106	8	233	8	302
7	88	5790	35	2390	38	1730	4	140	6	177	8	300
8	62	4420	30	1910	31	1340	5	174	4	119	8	320
9	52	3770	27	1600	25	1070	5	174	4	125	7	301
10	52	3680	26	1460	18	778	4	138	4	135	7	301
11	51	3480	26	1520	14	601	4	134	4	135	6	292
12	50	3300	26	1630	13	558	5	173	4	135	6	332
13	50	3180	25	1590	13	572	5	173	4	137	7	386
14	48	2990	22	1410	13	565	5	171	4	149	8	552
15	43	2670	19	1180	14	646	5	171	4	151	11	736
16	35	2130	18	1070	16	769	4	137	4	152	12	819
17	33	1900	17	1050	17	812	4	137	4	153	12	818
18	37	1960	17	975	16	769	4	136	4	153	11	781
19	42	2240	17	925	12	573	4	136	4	152	11	737
20	57	3030	18	919	6	283	4	136	4	150	10	687
21	93	5690	18	916	3	142	4	135	5	186	13	933
22	127	9190	18	968	3	124	4	134	5	188	21	1710
23	107	8770	19	1090	3	98	4	126	5	185	28	2740
24	77	6970	20	1190	3	84	4	117	4	148	32	3740
25	69	7010	20	1270	3	80	4	110	5	184	33	4640
26	65	7090	20	1260	3	80	3	82	7	255	34	5330
27	60	6730	19	1250	3	80	4	108	7	257	32	5950
28	56	6150	19	1220	2	52	4	117	8	294	29	6070
29	51	5280	19	1050	2	49	4	118	---	---	26	5730
30	44	4240	19	785	2	49	3	87	---	---	21	5050
31	36	3340	---	---	3	74	4	116	---	---	17	4250
TOTAL	---	168400	---	48088	---	16886	---	3976	---	4766	---	55099

## MISSISSIPPI RIVER MAIN STEM

05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--Continued

## WATER-QUALITY RECORDS

## SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

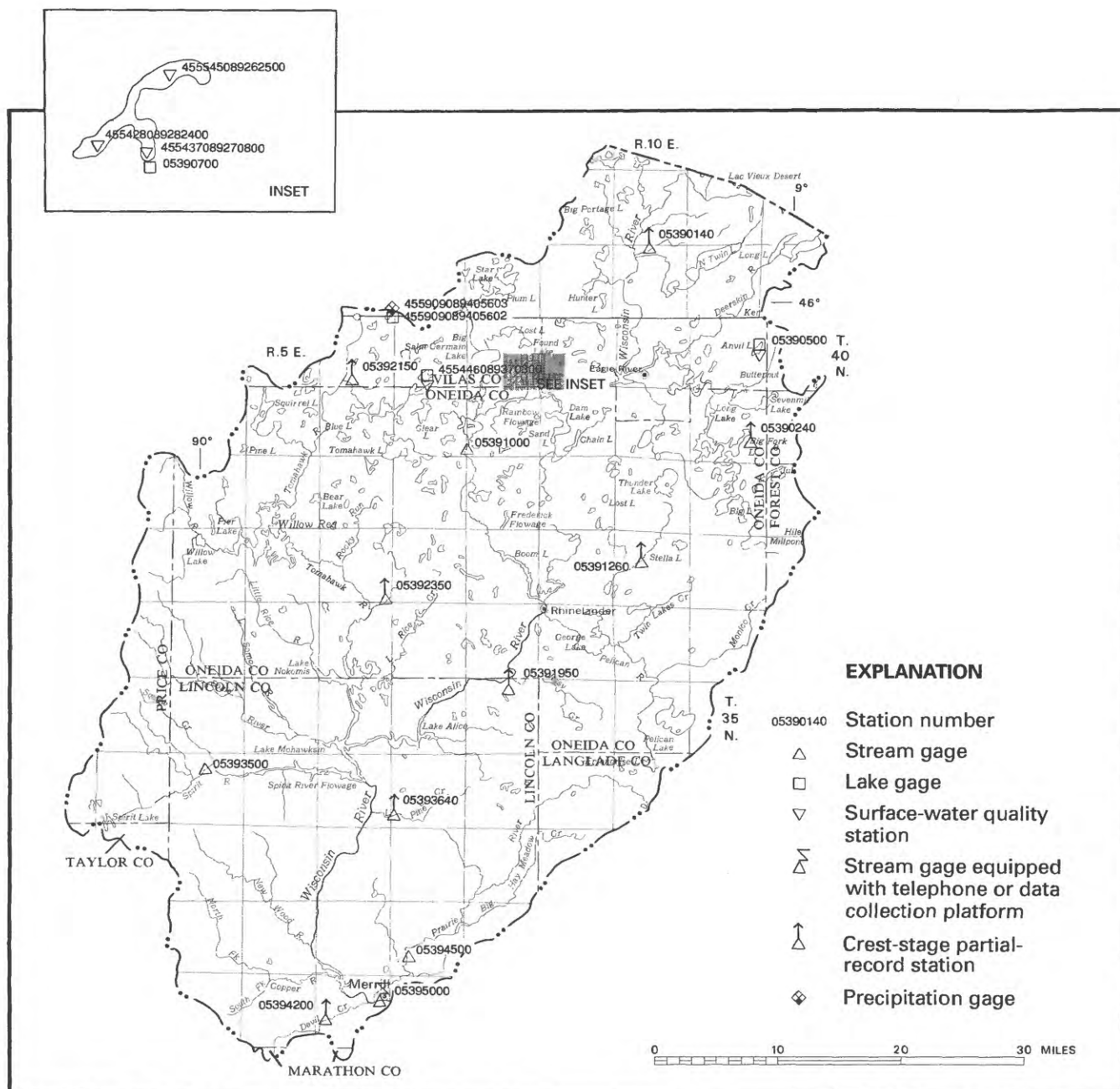
DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	18	4540	74	14700	46	9660	52	9220	64	6630	57	3380
2	28	7080	84	16800	49	10600	50	8650	67	6750	54	2950
3	18	4540	68	13300	49	11300	45	7460	98	9860	51	2570
4	14	3610	60	11100	48	11600	40	6250	133	13200	47	2110
5	17	4230	50	9210	46	11700	34	5140	128	12800	43	1950
6	22	5280	42	7850	45	11800	33	5030	103	10300	39	1790
7	28	6290	36	6760	45	11800	68	10400	83	8340	37	1780
8	33	7020	35	6840	44	11800	110	17500	72	7860	90	5040
9	38	7580	39	8180	43	11600	143	23300	67	7760	175	10800
10	40	7020	45	9890	43	11200	128	21500	64	7670	141	11500
11	37	5790	45	10300	42	10800	86	14600	68	8510	109	10400
12	32	4850	37	8940	43	10600	69	11900	76	9570	86	9130
13	30	4950	26	6580	43	10300	71	11900	76	9280	67	7860
14	30	5250	23	6200	46	10500	83	13400	70	7890	60	7760
15	30	5550	28	7540	70	15300	94	14800	62	6370	58	8320
16	29	5660	34	9260	57	12400	92	13700	56	5700	72	11200
17	29	5530	35	9820	52	11200	84	11700	61	6230	102	16500
18	25	4920	35	9900	50	10700	73	10200	91	9380	131	21800
19	24	4720	38	10500	50	10500	63	9100	118	12200	160	26700
20	25	5090	41	11400	49	10200	57	8410	107	11000	152	25300
21	25	5350	45	12200	49	9910	52	7840	93	9140	101	16700
22	24	5350	50	12900	54	10600	49	7510	81	7660	65	10600
23	25	5610	54	13600	65	12400	49	7640	72	6480	57	9280
24	28	6160	58	14000	71	13200	48	7860	69	5830	56	8780
25	31	6750	61	14000	67	12000	48	7870	67	5460	57	8430
26	33	6980	62	13800	62	10900	51	8080	65	5100	60	8500
27	33	6960	63	13400	58	10400	61	8730	64	4950	74	9980
28	33	6830	61	12600	56	10500	87	11200	64	4740	99	12800
29	34	6720	55	10800	54	10200	95	11300	63	4460	123	15200
30	43	8510	42	8250	53	9760	79	8780	62	4120	122	13900
31	---	---	43	8650	---	---	68	7330	60	3720	---	---
TOTAL	---	174720	---	329270	---	335430	---	328300	---	238960	---	303010
YEAR	2006905											

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	TEMPER- ATURE WATER (DEG C) (00010)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR						
02...	1530	7.5	90200	30	7310	93
MAY						
10...	1300	--	74800	46	9290	97
JUL						
31...	1130	24.0	40700	67	7360	99

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	NUMBER OF SAM- PLING POINTS (COUNT) (00063)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM (80164)	BED MAT. SIEVE DIAM. % FINER THAN .125 MM (80165)	BED MAT. SIEVE DIAM. % FINER THAN .250 MM (80166)	BED MAT. SIEVE DIAM. % FINER THAN .500 MM (80167)	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)
OCT											
25...	1220	3	1	3	20	80	92	97	99	100	--
APR											
02...	1530	3	1	5	32	88	95	97	98	100	--
JUL											
31...	1130	3	1	2	20	82	96	99	99	99	100



Base from U.S. Geological Survey  
State base map, 1968

## UPPER WISCONSIN RIVER BASIN

05390500 ANVIL LAKE NEAR EAGLE RIVER, WI

## LAKE-STAGE RECORDS

LOCATION.--Lat 45°57'07", long 89°03'26", in NW 1/4 NE 1/4 sec.13, T.40 N., R.11 E., Vilas County, Hydrologic Unit 07070001, 9.6 mi east of Eagle River.

DRAINAGE AREA.--4.11 mi<sup>2</sup>. Area of Anvil Lake, 380 acres.

PERIOD OF RECORD.--August 1936 to September 1981 (fragmentary), June 1985 to current year.

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

GAGE.--Nonrecording gage. Datum of gage is 90.00 ft above datum assumed by Wisconsin Department of Natural Resources; gage readings have been reduced to elevations above this datum. Prior to Aug. 13, 1950, staff gage 0.3 mi southeast at same datum; Aug. 14 to Sept. 30, 1981, staff gage 0.2 mi east at same datum. Gage read by James Sachse through October 1988, and Albert Korecky thereafter.

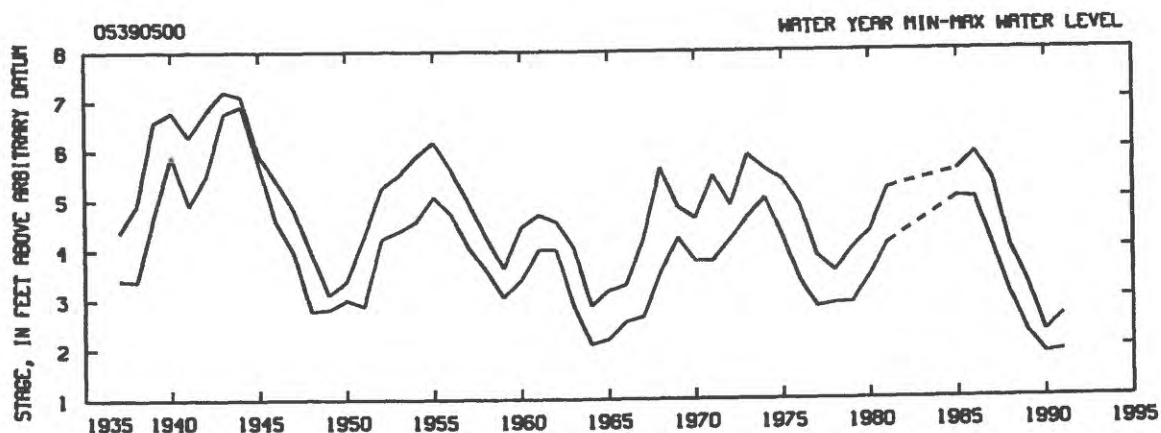
REMARKS.--Add 90 ft to obtain elevation above datum assumed for this lake by Wisconsin Department of Natural Resources. Lake has no surface outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 7.20 ft, May 3, 7, 17, 21, 24, 28, June 20 and 24, 1943; minimum observed, 1.87 ft Sept. 1, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 2.64 ft, May 30 and June 4; minimum observed, 1.91 ft, Oct. 9 and 14.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	2.50	2.29	2.01
2	---	---	---	---	---	---	---	2.56	---	2.50	---	1.99
3	---	---	---	---	---	---	---	---	---	2.50	2.27	2.03
4	---	---	---	---	---	---	---	2.56	2.64	2.50	2.25	2.01
5	---	---	---	---	---	---	---	2.56	2.62	2.50	---	2.01
6	---	---	---	---	---	---	---	2.58	2.61	2.50	2.23	2.01
7	---	---	---	---	---	---	---	2.58	---	2.48	2.23	2.03
8	---	---	---	---	---	---	---	2.60	2.58	2.48	2.19	2.03
9	1.91	---	---	---	---	---	---	---	2.57	---	2.19	2.08
10	---	---	---	---	---	---	---	2.58	2.56	2.46	2.17	2.05
11	---	---	---	---	---	---	---	---	2.56	2.43	---	2.03
12	---	---	---	---	---	---	---	---	2.52	2.42	2.13	2.03
13	---	---	---	---	---	---	---	---	---	2.41	2.11	2.03
14	1.91	---	---	---	---	---	---	2.55	2.56	2.40	2.11	2.07
15	---	---	---	---	---	---	---	2.55	2.56	2.39	2.11	2.07
16	---	---	---	---	---	---	2.43	2.56	2.56	2.38	2.11	2.07
17	---	---	---	---	---	---	---	---	---	2.40	2.21	2.05
18	---	---	---	---	---	---	---	---	2.53	---	2.19	2.05
19	---	---	---	---	---	---	2.42	---	2.52	2.36	2.17	2.03
20	---	---	---	---	---	---	---	---	2.52	2.34	2.17	2.03
21	---	---	---	---	---	---	---	2.52	2.52	2.34	2.13	---
22	---	---	---	---	---	---	2.41	---	---	2.33	2.11	---
23	---	---	---	---	---	---	2.42	2.50	2.50	2.31	2.11	---
24	---	---	---	---	---	---	---	2.50	2.50	2.29	---	1.95
25	---	---	---	---	---	---	---	2.50	2.50	2.29	---	1.95
26	---	---	---	---	---	---	---	2.56	2.48	2.27	2.07	---
27	---	---	---	---	---	---	---	2.58	2.48	2.25	2.07	1.95
28	---	---	---	---	---	---	---	2.58	---	---	---	1.95
29	---	---	---	---	---	---	---	2.62	2.50	---	---	1.94
30	---	---	---	---	---	---	2.50	2.64	2.50	2.31	2.05	1.93
31	---	---	---	---	---	---	---	---	---	2.31	2.01	---



05390500 ANVIL LAKE NEAR EAGLE RIVER, WI--CONTINUED

## WATER-QUALITY RECORDS

LOCATION.--Lat 45°56'39", long 89°03'44", in NE 1/4 SW 1/4 sec.13, T.40 N., R.11 E., Vilas County, Hydrologic Unit 07070001, near center of lake, and 9.2 mi east of Eagle River.

PERIOD OF RECORD.--June 1985 to current year.

REMARKS.--Secchi-disc readings made by Albert Korecky.

## SECCHI-DISC TRANSPARENCY (IN METERS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SECCHI DISC (M) (00078)	DATE	TIME	SECCHI DISC (M) (00078)
OCT 1990			JUL 1991		
09...	1100	3.0	02...	1115	5.8
14...	1100	4.3	10...	1050	4.0
MAY 1991			17...	1115	2.6
08...	1046	3.0	31...	1005	2.7
15...	0950	5.1	AUG		
23...	1002	5.6	07...	1040	3.2
28...	1056	6.6	22...	1003	2.7
JUN			27...	1015	2.4
05...	1059	6.9	SEP		
12...	1012	5.6	04...	1015	2.4
19...	1110	5.6	17...	1030	1.6
24...	1050	3.3	24...	1050	1.4

## WISCONSIN RIVER BASIN

455545089262500 LITTLE ST. GERMAIN LAKE, NORTHEAST BAY, NEAR ST. GERMAIN, WI

LOCATION.--Lat 45°55'45", long 89°26'25", in SW 1/4 SE 1/4 sec.24, T.40 N., R.8 E., Vilas County, Hydrologic Unit 07070001, near St. Germain.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in northeast bay at a lake depth of about 12 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 24 TO AUGUST 13, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 24	June 12	July 15	Aug. 13
Depth of sample (ft)	1.5	3.0	2.0	2.0
Lake stage (ft)	13.74	13.74	13.70	13.68
Specific conductance (μS/cm)	74	67	73	75
pH (units)	7.3	7.4	8.4	8.6
Water temperature (°C)	8.4	22.8	23.9	23.7
Secchi-depth (meters)	1.1	1.6	0.6	0.8
Dissolved oxygen	11.7	8.3	9.7	11.6
Phosphorus, total (as P)	---	0.041	0.066	0.052
Phosphorus, ortho, dissolved (as P)	0.01	---	---	---
Chlorophyll a, phytoplankton (μg/L)	22	19	95	24



455428089282400 LITTLE ST. GERMAIN LAKE, WEST BAY, AT ST. GERMAIN, WI

LOCATION.--Lat 45°54'28", long 89°28'24", in SW 1/4 NE 1/4 sec.34, T.40 N., R.8 E., Vilas County, Hydrologic Unit 07070001, at St. Germain.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in west bay at a lake depth of about 53 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 24 TO AUGUST 13, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 24		June 12		July 15		Aug. 13	
Depth of sample (ft)	1.5	50.0	4.0	49.0	4.0	44.0	4.0	44.0
Lake stage (ft)	13.74		13.74		13.70		13.68	
Specific conductance (μS/cm)	68	115	68	92	68	92	69	100
pH (units)	6.0	6.6	7.5	7.2	7.8	7.5	8.0	7.2
Water temperature (°C)	5.2	4.0	22.4	6.8	23.9	7.1	23.4	7.3
Color (Pt-Co. scale)	10	15	---	---	---	---	---	---
Turbidity (NTU)	0.7	1.7	---	---	---	---	---	---
Secchi-depth (meters)	2.5		3.5		3.0		3.2	
Dissolved oxygen	12.30	0.30	8.50	0.17	8.40	0.17	8.90	0.20
Hardness, as CaCO <sub>3</sub>	30	36	---	---	---	---	---	---
Calcium, dissolved (Ca)	7.6	9.0	---	---	---	---	---	---
Magnesium, dissolved (Mg)	3.0	3.0	---	---	---	---	---	---
Sodium, dissolved (Na)	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	0.51	0.63	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	31	37	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	<0.05	0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	<1.0	<1.0	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	5.7	8.7	---	---	---	---	---	---
Solids, dissolved, at 180°C	82	68	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.064	0.226	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	<0.013	0.057	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.40	0.40	---	---	---	---	---	---
Phosphorus, total (as P)	0.011	0.017	0.011	0.370	0.011	0.073	0.008	0.061
Phosphorus, ortho, dissolved (as P)	0.005	0.007	---	---	---	---	---	---
Iron, dissolved (Fe) μg/L	<50	210	---	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	<40	110	---	---	---	---	---	---
Chlorophyll a, phytoplankton (μg/L)	9.0	---	3.0	---	4.0	---	2.0	---

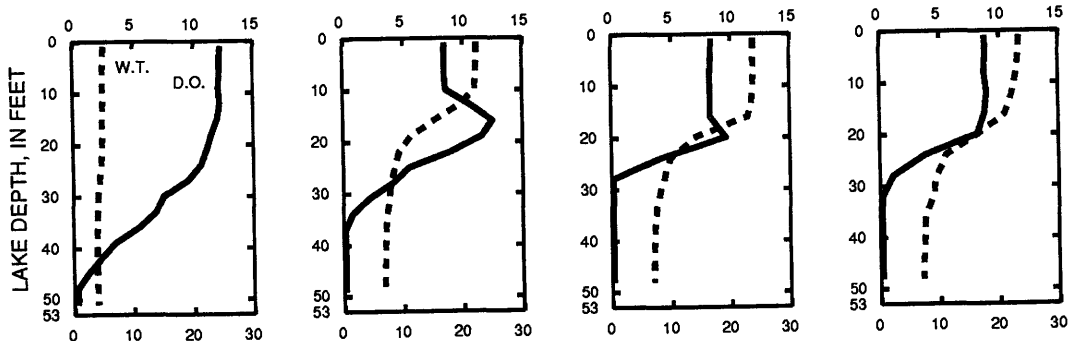
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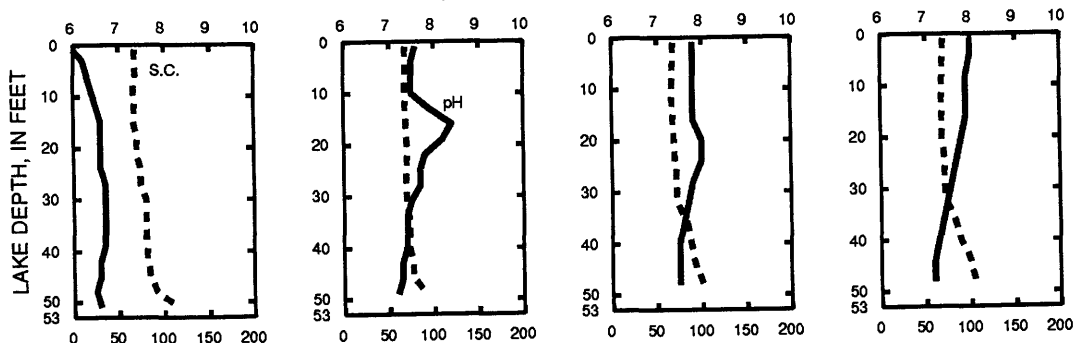
8-13-91

## 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

455437089270800 LITTLE ST. GERMAIN LAKE, SOUTH BAY, NEAR ST. GERMAIN, WI

LOCATION.--Lat 45°54'37", long 89°27'08", in NW 1/4 NE 1/4 sec.35, T.40 N., R.8 E., Vilas County, Hydrologic Unit 07070001, 1.7 mi east of St. Germain.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in south bay at a lake depth of about 22 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 24 TO AUGUST 13, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 24		June 12		July 15		Aug. 13	
Depth of sample (ft)	1.5	20.0	2.0	19.0	2.0	18.0	3.0	18.0
Lake stage (ft)	13.74		13.74		13.70		13.68	
Specific conductance (μS/cm)	75	95	66	74	69	83	69	82
pH (units)	7.1	6.7	7.6	7.2	8.5	7.6	8.3	7.6
Water temperature (°C)	7.9	5.0	22.6	10.7	24.1	14.9	23.7	16.5
Color (Pt-Co. scale)	30	40	---	---	---	---	---	---
Turbidity (NTU)	2.0	3.4	---	---	---	---	---	---
Secchi-depth (meters)		1.6	3.1		1.3		1.6	
Dissolved oxygen	11.30	0.40	8.30	0.33	9.30	0.15	9.50	0.30
Hardness, as CaCO <sub>3</sub>	36	39	---	---	---	---	---	---
Calcium, dissolved (Ca)	9.6	10.0	---	---	---	---	---	---
Magnesium, dissolved (Mg)	3.0	3.0	---	---	---	---	---	---
Sodium, dissolved (Na)	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	0.60	0.64	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	35	40	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	<0.05	0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	1.0	1.0	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	7.4	9.2	---	---	---	---	---	---
Solids, dissolved, at 180°C	74	82	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.015	<0.015	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	<0.013	0.064	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.50	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	0.035	0.037	0.014	0.023	0.070	0.065	0.023	0.031
Phosphorus, ortho, dissolved (as P)	0.008	0.008	---	---	---	---	---	---
Iron, dissolved (Fe) μg/L	590	900	---	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	77	200	---	---	---	---	---	---
Chlorophyll a, phytoplankton (μg/L)	21	---	6	---	18	---	8	---

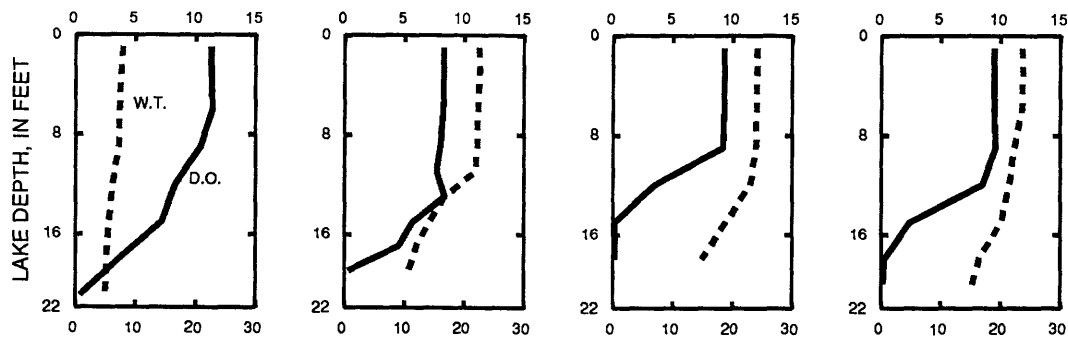
4-24-91

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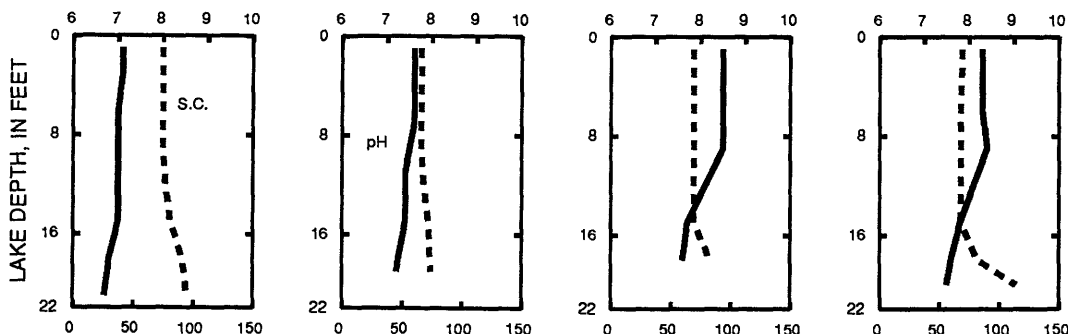
8-13-91

## 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

## WISCONSIN RIVER BASIN

263

05390700 LITTLE ST. GERMAIN LAKE NEAR EAGLE RIVER, WI

LOCATION.--Lat 45°53'55", long 89°27'00", in SW 1/4 SE 1/4 sec.35, T.40 N., R.8 E., Vilas County, Hydrologic Unit 07070001, 9.6 mi west of Eagle River.

DRAINAGE AREA.--19.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to September 1991.

GAGE.--Staff gage mounted on the dam wall at lake outlet. Datum of gage is 1,600 ft, above National Geodetic Vertical Datum of 1929.

REMARKS.--Lake level controlled at the dam outlet.

COOPERATION.--Gage readings furnished by Wisconsin Valley Improvement Company.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 13.84 ft, May 27, 28, and June 21; minimum observed, 12.56 ft, Feb. 28.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.66	13.64	13.52	13.16	---	---	13.34	13.78	13.72	13.70	13.74	13.64
2	13.66	13.64	13.52	13.14	---	---	13.34	13.70	13.74	13.72	13.72	13.62
3	13.66	13.64	13.52	13.12	12.72	---	13.16	13.76	13.72	13.72	13.72	13.68
4	13.66	13.66	13.52	13.10	12.72	---	13.18	13.74	13.72	13.78	13.72	13.70
5	13.66	13.66	13.50	13.08	---	---	13.20	13.74	13.70	13.70	13.72	13.68
6	13.66	13.66	13.48	13.06	---	12.60	13.20	13.78	13.72	13.70	13.70	13.72
7	13.66	13.66	13.46	13.06	12.70	---	13.22	13.76	13.72	13.70	13.72	13.76
8	13.66	13.66	13.44	13.04	---	---	13.42	13.70	13.74	13.72	13.72	13.78
9	13.66	13.66	13.42	13.00	---	---	13.56	13.76	13.70	13.70	13.70	13.82
10	13.66	13.66	13.42	12.98	---	---	13.58	13.78	13.74	13.70	13.70	13.78
11	13.66	13.66	13.42	12.96	12.66	---	13.62	13.78	13.70	13.70	13.70	13.70
12	13.68	13.66	13.40	12.96	---	12.62	13.62	13.74	13.74	13.72	13.70	13.72
13	13.66	13.66	13.38	12.96	---	---	13.66	13.72	13.70	13.72	13.68	13.74
14	13.72	13.66	13.38	12.96	12.64	---	13.64	13.74	13.70	13.70	13.68	13.74
15	13.74	13.66	13.36	12.94	---	---	13.76	13.72	13.74	13.70	13.68	13.82
16	13.74	13.66	13.34	12.92	---	---	13.78	13.78	13.72	13.68	13.66	13.76
17	13.80	13.66	13.34	12.90	---	---	13.80	13.78	13.70	13.74	13.76	13.72
18	13.80	13.66	13.34	12.88	12.61	---	13.76	13.70	13.70	13.74	13.68	13.76
19	13.72	13.60	13.32	12.86	---	12.65	13.74	13.70	13.70	13.72	13.68	13.76
20	13.60	13.60	13.32	12.84	---	---	13.74	13.70	13.70	13.70	13.68	13.74
21	13.60	13.60	13.30	12.84	12.60	---	13.72	13.70	13.84	13.74	13.66	13.74
22	13.66	13.60	13.30	12.84	---	12.78	13.72	13.70	13.70	13.72	13.64	13.74
23	13.66	13.60	13.30	12.82	---	---	13.76	13.72	13.72	13.70	13.64	13.74
24	13.66	13.60	13.20	12.82	---	---	13.74	13.74	13.70	13.68	13.66	13.74
25	13.66	13.58	13.26	12.80	12.60	12.90	13.74	13.70	13.70	13.70	13.66	13.74
26	13.70	13.58	13.24	12.80	---	---	13.68	13.82	13.70	13.70	13.66	13.78
27	13.72	13.58	13.22	12.80	---	---	13.72	13.84	13.70	13.68	13.64	13.74
28	13.72	13.56	13.22	---	12.56	13.10	13.78	13.84	13.80	13.74	13.64	13.74
29	13.64	13.54	13.20	---	---	---	13.80	13.82	13.82	13.78	13.64	13.72
30	13.64	13.54	13.18	---	---	---	13.82	13.74	13.70	13.78	13.64	13.74
31	13.64	---	13.18	---	---	---	---	13.80	---	13.74	13.64	---
MAX	13.80	13.66	13.52	---	---	---	13.82	13.84	13.84	13.78	13.76	13.82
MIN	13.60	13.54	13.18	---	---	---	13.16	13.70	13.70	13.68	13.64	13.62

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929 (levels by Wisconsin Valley Improvement Co.).

REMARKS.--No estimated daily discharges. Record good. Flow regulated by Rainbow Lake and 12 smaller reservoirs upstream from station.

AVERAGE DISCHARGE.--55 years, 687 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,570 ft<sup>3</sup>/s, Sept. 5, 1941, gage height, 7.59 ft; minimum, 17 ft<sup>3</sup>/s, Oct. 10-12, 1940; minimum daily, 35 ft<sup>3</sup>/s, Apr. 6, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,100 ft<sup>3</sup>/s, May 31, gage height, 5.37 ft; minimum daily, 212 ft<sup>3</sup>/s, Mar. 30.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

0.7	196	3.0	889
1.0	261	4.0	1,350
2.0	515	6.0	2,480

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	530	717	724	740	669	669	232	1240	2000	746	426	679
2	530	716	735	730	666	655	230	1290	1730	1010	529	680
3	533	723	713	718	668	655	234	1380	1590	1140	589	657
4	559	733	712	717	663	653	243	1420	1620	1130	586	646
5	567	733	715	716	657	644	251	1410	1430	1120	568	676
6	540	733	712	710	696	630	252	1420	1170	1140	618	695
7	540	746	712	710	760	624	253	1290	963	1130	679	692
8	542	761	711	712	757	616	263	1200	877	1020	691	687
9	540	763	710	708	753	605	274	1200	876	968	693	605
10	538	765	704	710	746	597	258	1200	756	901	689	471
11	539	754	698	709	745	588	242	1200	677	691	682	605
12	499	739	698	706	744	632	250	1140	700	832	685	695
13	473	736	734	706	740	667	257	933	684	719	693	687
14	486	735	780	706	731	650	261	820	655	718	670	686
15	440	755	780	702	726	628	273	818	673	719	709	687
16	357	755	779	699	725	615	285	863	637	713	688	624
17	547	732	778	696	722	612	286	906	601	717	617	576
18	1030	733	775	696	717	611	288	820	592	555	520	617
19	1330	741	773	695	714	608	281	723	594	457	521	646
20	1330	744	772	687	709	601	273	688	598	481	609	644
21	1330	751	764	689	704	419	305	661	646	581	648	644
22	1320	748	761	693	696	267	614	621	682	632	644	638
23	1260	739	760	688	697	276	859	608	638	625	634	631
24	1190	736	761	687	690	287	890	649	821	599	658	629
25	1200	727	756	685	687	270	849	676	801	572	645	635
26	1080	722	756	676	683	261	774	826	637	582	609	588
27	998	728	754	675	678	247	756	925	594	587	648	599
28	997	739	751	671	674	224	777	1020	607	602	565	639
29	1000	737	745	669	---	213	935	1530	631	656	685	650
30	999	729	742	673	---	212	1110	1930	630	552	674	642
31	829	---	744	670	---	226	---	2030	---	444	681	---
TOTAL	24653	22170	23009	21649	19817	15462	13055	33437	26110	23339	19553	19250
MEAN	795	739	742	698	708	499	435	1079	870	753	631	642
MAX	1330	765	780	740	760	669	1110	2030	2000	1140	709	695
MIN	357	716	698	669	657	212	230	608	592	444	426	471

CAL YR 1990	TOTAL 173282	MEAN 475	MAX 1330	MIN 200
WTR YR 1991	TOTAL 261504	MEAN 716	MAX 2030	MIN 212

## WISCONSIN RIVER BASIN

265

455446089370300 LITTLE ARBOR VITAE LAKE NEAR WOODRUFF, WI

LOCATION.--Lat 45°54'46", long 89°37'03", in SW 1/4 SE 1/4 sec.28, T.40 N., R.7 E., Vilas County, Hydrologic Unit 07070001, 4 mi northeast of Woodruff.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--February to September 1991.

GAGE.--Nonrecording gage. Staff read by Glyn A. Roberts. Elevation of lake is 1,603 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 7.88 ft, May 29 and 31; minimum observed, 7.72 ft, Feb. 28 and June 12.

GAGE HEIGHT, FEET, FEBRUARY 1991 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	7.84	---	---
2	---	---	---	---	---	---	7.78	7.78	---	---	---	7.80
3	---	---	---	---	---	---	---	---	7.80	---	---	---
4	---	---	---	---	---	---	7.78	---	---	---	7.82	---
5	---	---	---	---	---	---	---	---	---	7.82	---	7.80
6	---	---	---	---	---	---	---	7.78	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	7.82	7.82
9	---	---	---	---	---	---	---	---	7.74	7.80	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	7.76	7.78	---	---	---	---
12	---	---	---	---	---	---	---	---	7.72	---	7.82	---
13	---	---	---	---	---	---	7.78	---	7.74	---	7.76	7.84
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	7.78	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	7.76	7.78	---	---	7.86	---
18	---	---	---	---	---	---	---	---	---	7.83	---	7.85
19	---	---	---	---	---	---	---	---	---	---	---	7.85
20	---	---	---	---	---	---	7.80	---	7.76	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	7.80	---	7.83	7.80	---
23	---	---	---	---	---	---	7.78	---	---	7.83	---	7.80
24	---	---	---	---	---	---	7.78	7.78	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	7.78
27	---	---	---	---	---	---	---	---	7.76	---	---	---
28	---	---	---	---	7.72	---	7.78	---	7.80	---	7.80	---
29	---	---	---	---	---	---	---	7.88	---	7.86	---	---
30	---	---	---	---	---	---	7.78	---	---	---	---	7.78
31	---	---	---	---	---	---	---	7.88	---	---	---	---

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled at deep hole in lake at a lake depth of about 32 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 28 TO AUGUST 13, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 28		Apr. 23		June 12		July 15		Aug. 13	
Depth of sample (ft)	2.0	23.0	1.5	30.0	3.0	30.0	3.0	27.0	3.0	27.0
Lake stage (ft)	---	---	---	7.78	---	7.72	---	7.78	---	7.76
Specific conductance ( $\mu\text{S}/\text{cm}$ )	130	148	111	116	104	141	107	197	110	252
pH (units)	8.5	7.8	7.7	7.5	8.0	7.3	8.4	7.4	8.7	7.2
Water temperature ( $^{\circ}\text{C}$ )	1.2	5.0	7.6	5.7	23.3	13.0	24.2	14.4	24.5	15.7
Color (Pt-Co. scale)	---	---	15	15	---	---	---	---	---	---
Turbidity (NTU)	---	---	2.2	3.2	---	---	---	---	---	---
Secchi-depth (meters)	---	---	---	1.5	---	1.9	---	1.8	---	1.2
Dissolved oxygen	10.90	0.20	10.40	7.50	8.60	0.12	9.10	0.11	11.40	0.10
Hardness, as $\text{CaCO}_3$	---	---	51	52	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	14	14	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	4.0	4.0	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	2.0	2.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	0.65	0.67	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	51	53	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	<5.0	<5.0	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.08	0.09	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	2.0	2.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	9.7	10.0	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	84	110	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.108	0.113	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.032	0.080	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.40	0.50	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.047	0.050	0.020	0.117	0.036	0.220	0.038	0.079
Phosphorus, ortho, dissolved (as P)	---	---	0.008	0.009	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	80	120	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	140	200	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	11	---	6	---	11	---	14	---

2-28-91

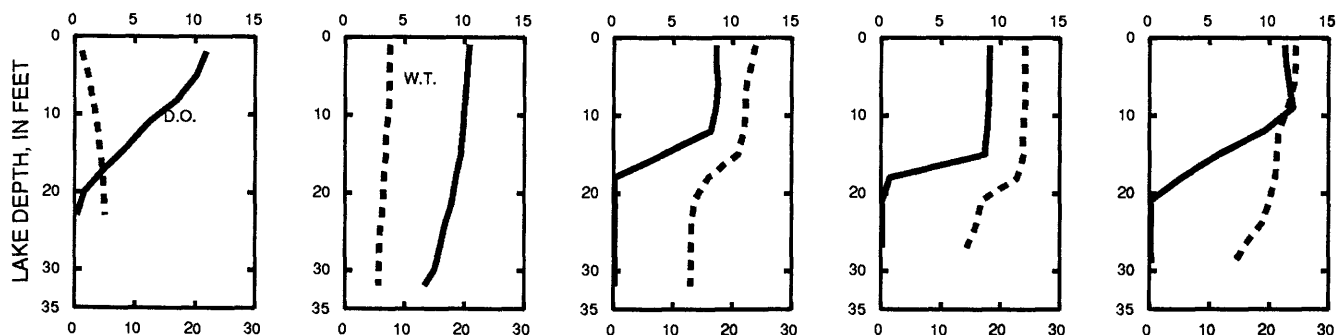
4-23-91

6-12-91

7-15-91

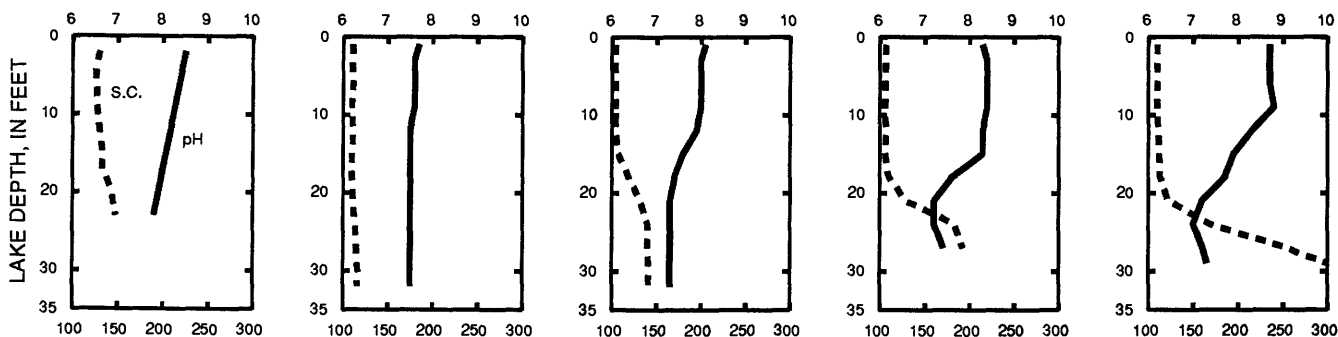
8-13-91

## 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

455909089405602 VANDERCOOK LAKE NEAR WOODRUFF, WI

LOCATION.--Lat 45°59'09", long 89°40'56", in SW 1/4 NE 1/4 SE 1/4 sec.36, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07070001, at north end of lake on dirt road off County Trunk Highway M, 6.1 mi north of Woodruff.

DRAINAGE AREA.--1.11 mi<sup>2</sup>. Area of lake, 0.17 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,600.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for periods of missing record, Feb. 11-26 and Feb. 28 to Mar. 19. Lake does not have surface inlet or outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed gage height, 32.26 ft, Apr. 8-10, 1986; minimum observed gage height, 28.97 ft, Oct. 28, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum observed gage height, 30.12 ft, May 31, July 17, 31; minimum observed gage height, 29.30 ft, Nov. 19.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.39	29.44	29.36	29.40	29.41	---	29.69	29.93	30.11	30.03	30.10	29.82
2	29.39	29.43	29.34	29.39	29.40	---	29.68	29.92	30.11	30.03	30.08	29.81
3	29.39	29.42	29.36	29.39	29.37	---	29.68	29.91	30.10	30.04	30.08	29.83
4	29.39	29.42	29.38	29.38	29.37	---	29.68	29.91	30.07	30.06	30.07	29.83
5	29.40	29.41	29.38	29.38	29.37	---	29.68	29.92	30.05	30.05	30.06	29.82
6	29.40	29.41	29.38	29.37	29.37	---	29.69	29.96	30.04	30.04	30.04	29.84
7	29.40	29.40	29.37	29.36	29.37	---	29.69	29.96	30.03	30.03	30.02	29.88
8	29.40	29.39	29.37	29.35	29.37	---	29.77	29.95	30.02	30.04	30.01	29.90
9	29.40	29.38	29.37	29.35	29.37	---	29.84	29.95	30.00	30.02	29.99	29.94
10	29.41	29.37	29.36	29.36	29.36	---	29.85	29.95	29.99	30.01	29.98	29.97
11	29.41	29.37	29.36	29.36	---	---	29.84	29.95	29.98	30.01	29.97	29.95
12	29.41	29.35	29.37	29.37	---	---	29.84	29.95	30.00	30.08	29.95	29.95
13	29.41	29.34	29.36	29.37	---	---	29.85	29.94	29.98	30.08	29.94	29.95
14	29.41	29.35	29.35	29.39	---	---	29.86	29.93	29.99	30.06	29.93	29.99
15	29.42	29.35	29.36	29.39	---	---	29.88	29.92	30.02	30.05	29.92	30.01
16	29.42	29.34	29.37	29.39	---	---	29.89	29.98	30.01	30.04	29.93	29.99
17	29.43	29.31	29.37	29.39	---	---	29.88	29.96	30.00	30.12	30.00	29.98
18	29.48	29.32	29.37	29.39	---	---	29.88	29.94	29.99	30.11	29.98	29.97
19	29.47	29.30	29.37	29.39	---	---	29.87	29.93	29.98	30.10	29.96	29.95
20	29.47	29.31	29.39	29.39	---	29.42	29.86	29.92	29.99	30.10	29.94	29.95
21	29.49	29.36	29.39	29.38	---	29.45	29.85	29.91	30.08	30.11	29.93	29.93
22	29.49	29.37	29.40	29.37	---	29.47	29.84	29.91	30.07	30.10	29.92	29.91
23	29.49	29.37	29.39	29.38	---	29.54	29.88	29.91	30.05	30.07	29.91	29.90
24	29.48	29.34	29.40	29.36	---	29.55	29.90	29.90	30.04	30.06	29.90	29.89
25	29.47	29.34	29.39	29.36	---	29.56	29.90	29.90	30.03	30.05	29.91	29.90
26	29.46	29.34	29.39	29.37	---	29.58	29.88	29.98	30.02	30.03	29.91	29.91
27	29.46	29.35	29.39	29.38	29.43	29.63	29.89	30.02	30.01	30.01	29.90	29.89
28	29.45	29.37	29.40	29.40	---	29.70	29.89	30.05	30.03	30.07	29.89	29.88
29	29.44	29.36	29.41	29.40	---	29.70	29.90	30.10	30.06	30.11	29.89	29.88
30	29.44	29.37	29.40	29.40	---	29.69	29.94	30.11	30.05	30.11	29.88	29.88
31	29.43	---	29.40	29.41	---	29.69	---	30.12	---	30.12	29.84	---
MEAN	29.43	29.37	29.38	29.38	---	---	29.83	29.96	30.03	30.06	29.96	29.91
MAX	29.49	29.44	29.41	29.41	---	---	29.94	30.12	30.11	30.12	30.10	30.01
MIN	29.39	29.30	29.34	29.35	---	---	29.68	29.90	29.98	30.01	29.84	29.81

## WISCONSIN RIVER BASIN

455909089405603 VANDERCOOK LAKE RAIN GAGE NEAR WOODRUFF, WI

LOCATION.--Lat 45°59'09", long 89°40'56", in SW 1/4 NE 1/4 SE 1/4 sec.36, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07070001, at north end of lake on dirt road off County Trunk Highway M, 6.1 mi north of Woodruff.

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Standard 8-inch collector above a 3-inch stand pipe with water-stage recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.98 in., Aug. 10, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.11 in., Oct. 17.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.00	---	---	---	---	---	.01	.00	.16	.00	.00
2	.00	.00	---	---	---	---	---	.01	.00	.04	.12	.00
3	.46	.00	---	---	---	---	---	.00	.00	.53	.04	.57
4	.00	.08	---	---	---	---	---	.19	.00	.06	.00	.00
5	.00	.09	---	---	---	---	---	.45	.00	.00	.00	.38
6	.01	.04	---	---	---	---	---	.32	.00	.00	.00	.00
7	.04	.02	---	---	---	---	---	.02	.00	.27	.00	.79
8	.00	.00	---	---	---	---	---	.00	.00	.01	.00	.17
9	.00	.06	---	---	---	---	---	.01	.02	.00	.00	.86
10	.03	.02	---	---	---	---	---	.01	.01	.00	.00	.00
11	.17	.00	---	---	---	---	---	.00	.52	1.24	.00	.01
12	.09	.01	---	---	---	---	---	.00	.00	.21	.00	.04
13	.18	.00	---	---	---	---	---	.00	.00	.03	.00	.00
14	.47	.00	---	---	---	---	---	.00	.82	.00	.00	.47
15	.01	.00	---	---	---	---	---	.63	.08	.00	.00	.00
16	.22	---	---	---	---	---	---	.31	.01	.00	.99	.01
17	2.11	---	---	---	---	---	---	.00	.00	1.37	.01	.13
18	.03	---	---	---	---	---	---	.00	.01	.00	.00	.17
19	.25	---	---	---	---	---	---	.00	.00	.05	.00	.03
20	.40	---	---	---	---	---	---	.00	.93	.24	.00	.00
21	.07	---	---	---	---	---	---	.00	.86	.00	.00	.00
22	.02	---	---	---	---	---	---	.05	.00	.03	.00	.00
23	.00	---	---	---	---	---	---	.03	.00	.00	.10	.03
24	.03	---	---	---	---	---	---	.06	.00	.27	.01	.00
25	.00	---	---	---	---	---	---	.05	.00	.00	.15	.37
26	.00	---	---	---	---	---	.00	1.50	.00	.00	.00	.01
27	.07	---	---	---	---	---	.03	.55	.32	.37	.00	.00
28	.01	---	---	---	---	---	.01	.29	.01	1.34	.00	.00
29	.00	---	---	---	---	---	.68	.59	.82	.03	.00	.00
30	.00	---	---	---	---	---	.07	.27	.00	.00	.00	.04
31	.00	---	---	---	---	---	---	.08	---	.00	.00	---
TOTAL	4.89	---	---	---	---	---	---	5.43	4.41	6.25	1.42	4.08



## 05393500 SPIRIT RIVER AT SPIRIT FALLS, WI

LOCATION.--Lat 45°26'58", long 89°58'47", in NW 1/4 sec.10, T.34 N., R.4 E., Lincoln County, Hydrologic Unit 07070001, on right bank 40 ft downstream of bridge 0.2 mi south of Spirit Falls, 0.6 mi upstream from Squaw Creek, and 2.0 mi downstream from Richie Creek.

DRAINAGE AREA.--81.6 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1982, nonrecording gage 40 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--49 years, 86.4 ft<sup>3</sup>/s, 14.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,180 ft<sup>3</sup>/s, Sept. 18, 1942, gage height, 10.00 ft, from rating curve extended above 2,500 ft<sup>3</sup>/s; minimum observed, 1.0 ft<sup>3</sup>/s, Aug. 11, 1964, gage height, 0.85 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 24	1300	(a)1,000	(b)*6.68	May 27	0100	959	4.96
Mar. 27	2200	*1,340	5.62	May 29	1000	1,240	5.46
Apr. 9	1400	820	4.68	June 2	1200	1,000	5.04

(a) Estimated daily mean.

(b) Ice jam.

Minimum discharge, 9.7 ft<sup>3</sup>/s, Sept. 2, gage height, 1.31 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 10-13 and Nov. 24 to Mar. 24.)

1.3	10	2.5	126
1.4	14	3.0	225
1.7	31	4.0	531
2.0	58	5.0	980
		6.0	1,580

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	64	44	16	16	18	292	253	737	44	57	11
2	76	62	36	16	16	18	247	219	929	58	69	10
3	106	59	32	16	17	19	239	165	602	46	139	11
4	271	58	31	16	18	20	271	139	330	42	100	12
5	196	55	30	16	19	21	285	142	201	41	71	11
6	127	53	31	17	19	21	270	247	141	37	53	11
7	98	49	32	16	20	20	254	314	108	33	45	27
8	80	45	31	16	21	20	329	252	86	32	48	41
9	67	43	30	16	22	21	732	195	74	28	46	74
10	60	42	30	16	22	21	626	158	67	25	39	157
11	55	39	30	16	21	21	445	129	56	22	33	96
12	51	37	30	16	20	21	322	115	48	21	29	78
13	47	36	27	16	19	21	264	94	41	26	26	72
14	71	38	24	16	19	21	333	77	50	24	23	110
15	88	41	24	16	18	22	455	64	81	19	22	238
16	73	43	24	16	18	22	396	124	71	17	22	157
17	89	41	24	17	18	23	299	419	55	155	32	103
18	147	39	24	17	18	24	226	302	45	296	33	81
19	174	39	22	18	18	27	187	182	38	147	29	68
20	182	38	21	18	18	37	158	127	37	106	25	58
21	329	52	21	18	19	150	132	98	262	113	22	49
22	329	68	18	17	19	300	112	85	345	90	20	43
23	221	62	17	16	18	600	116	87	167	73	19	43
24	165	48	16	16	17	1000	120	87	99	57	21	39
25	131	44	17	16	17	883	105	147	70	54	21	34
26	113	40	17	16	17	956	94	603	52	44	20	43
27	98	50	17	16	17	1260	87	748	44	37	17	40
28	89	64	18	17	17	1240	85	568	48	42	15	35
29	81	60	19	17	---	809	79	1150	51	119	14	31
30	73	56	18	16	---	545	173	942	43	113	13	27
31	68	---	17	16	---	393	---	673	---	79	11	---
TOTAL	3825	1465	772	508	518	8574	7733	8905	4978	2040	1134	1810
MEAN	123	48.8	24.9	16.4	18.5	277	258	287	166	65.8	36.6	60.3
MAX	329	68	44	18	22	1260	732	1150	929	296	139	238
MIN	47	36	16	16	16	18	79	64	37	17	11	10
CFSM	1.51	.60	.31	.20	.23	3.39	3.16	3.52	2.03	.81	.45	.74
IN.	1.74	.67	.35	.23	.24	3.91	3.53	4.06	2.27	.93	.52	.83

CAL YR 1990 TOTAL 40059.2 MEAN 110 MAX 1460 MIN 8.4 CFSM 1.34 IN. 18.26  
WTR YR 1991 TOTAL 42262 MEAN 116 MAX 1260 MIN 10 CFSM 1.42 IN. 19.27

## WISCONSIN RIVER BASIN

05394500 PRAIRIE RIVER NEAR MERRILL, WI

LOCATION.--Lat 45°14'09", long 89°38'59", on line between secs.20 and 29, 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 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1914 to September 1931, August 1939 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1968, nonrecording gage 40 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Ice periods listed in table below. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--69 years (1915-31, 1940-91), 180 ft<sup>3</sup>/s, 13.28 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,800 ft<sup>3</sup>/s, Aug. 31, 1941, gage height, 9.45 ft, from flood marks, based on rating curve extended above 2,200 ft<sup>3</sup>/s; minimum observed, 34 ft<sup>3</sup>/s, Oct. 26, 1947, gage height, 1.39 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 710 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 23	2400	1,040	5.01	Apr. 9	1915	1,260	5.32
Mar. 28	0200	1,250	5.31	June 2	1215	*1,790	*6.18

Minimum daily, 79 ft<sup>3</sup>/s, Sept. 1, 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 24-26; stage-discharge relation affected by ice Dec. 5-8, 14-19, and Dec. 22 to Mar. 23.)

1.9	67	3.0	296
2.0	81	4.0	626
2.5	171	5.0	1,080
		7.0	2,400

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	148	211	98	84	96	400	530	1240	137	133	79
2	150	146	151	96	86	98	351	477	1710	137	160	79
3	195	145	131	90	88	98	333	385	1380	129	290	92
4	313	146	128	92	90	94	369	319	912	141	248	96
5	289	140	140	94	92	96	413	284	607	181	182	90
6	230	135	140	96	92	94	432	319	439	161	142	91
7	193	132	140	94	88	94	431	354	330	137	123	103
8	165	126	140	94	92	96	594	339	252	129	169	114
9	146	129	145	94	90	96	1200	316	219	122	168	115
10	135	127	142	92	88	94	1160	283	214	114	132	120
11	154	123	140	94	86	96	880	251	194	108	115	113
12	199	124	146	94	86	100	671	223	174	120	107	120
13	196	133	125	94	86	100	528	202	164	126	103	116
14	237	131	120	98	86	94	516	183	164	118	96	129
15	280	130	130	90	84	94	595	164	179	109	94	168
16	248	140	120	90	86	94	558	175	175	99	93	154
17	225	142	120	90	86	96	476	392	164	181	103	133
18	247	136	120	90	86	100	416	349	147	219	106	123
19	276	128	120	92	86	110	388	258	134	177	98	119
20	278	133	135	90	86	120	353	204	133	162	93	113
21	313	191	124	88	90	250	321	176	328	170	90	113
22	339	241	110	86	88	400	268	168	478	161	93	96
23	307	223	110	86	86	720	267	196	402	152	89	93
24	268	181	100	86	86	929	271	183	304	139	94	90
25	236	168	100	84	86	713	246	169	213	135	92	97
26	218	148	98	86	86	868	225	324	170	124	90	106
27	197	182	100	88	88	1110	215	460	149	114	88	105
28	188	266	100	86	90	1160	233	444	156	127	86	103
29	169	267	110	84	---	919	314	676	147	190	87	99
30	160	225	100	82	---	631	488	787	137	191	85	98
31	152	---	96	84	---	501	---	959	---	156	80	---
TOTAL	6844	4786	3892	2802	2448	10161	13912	10549	11415	4466	3729	3267
MEAN	221	160	126	90.4	87.4	328	464	340	380	144	120	109
MAX	339	267	211	98	92	1160	1200	959	1710	219	290	168
MIN	135	123	96	82	84	94	215	164	133	99	80	79
CFSM	1.20	.87	.68	.49	.48	1.78	2.52	1.85	2.07	.78	.65	.59
IN.	1.38	.97	.79	.57	.49	2.05	2.81	2.13	2.31	.90	.75	.66

CAL YR 1990 TOTAL 65459 MEAN 179 MAX 1660 MIN 58 CFSM .97 IN. 13.23  
WTR YR 1991 TOTAL 78271 MEAN 214 MAX 1710 MIN 79 CFSM 1.17 IN. 15.82

## WISCONSIN RIVER BASIN

271

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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 periods listed in rating table below. Records for Nov. 30 to Dec. 21 and Mar. 28 to Apr. 22 were furnished by Wisconsin Valley Improvement Company. Records good. Flow regulated by 20 reservoirs and 9 powerplants upstream from station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--88 years, 2,657 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,400 ft<sup>3</sup>/s, Aug. 31, 1941, gage height, 18.26 ft from rating curve extended above 20,000 ft<sup>3</sup>/s; minimum, about 90 ft<sup>3</sup>/s, Sept. 26, 1908, gage height, 2.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,600 ft<sup>3</sup>/s, June 2, gage height, 11.50 ft; minimum daily, 1,610 ft<sup>3</sup>/s, June 19.

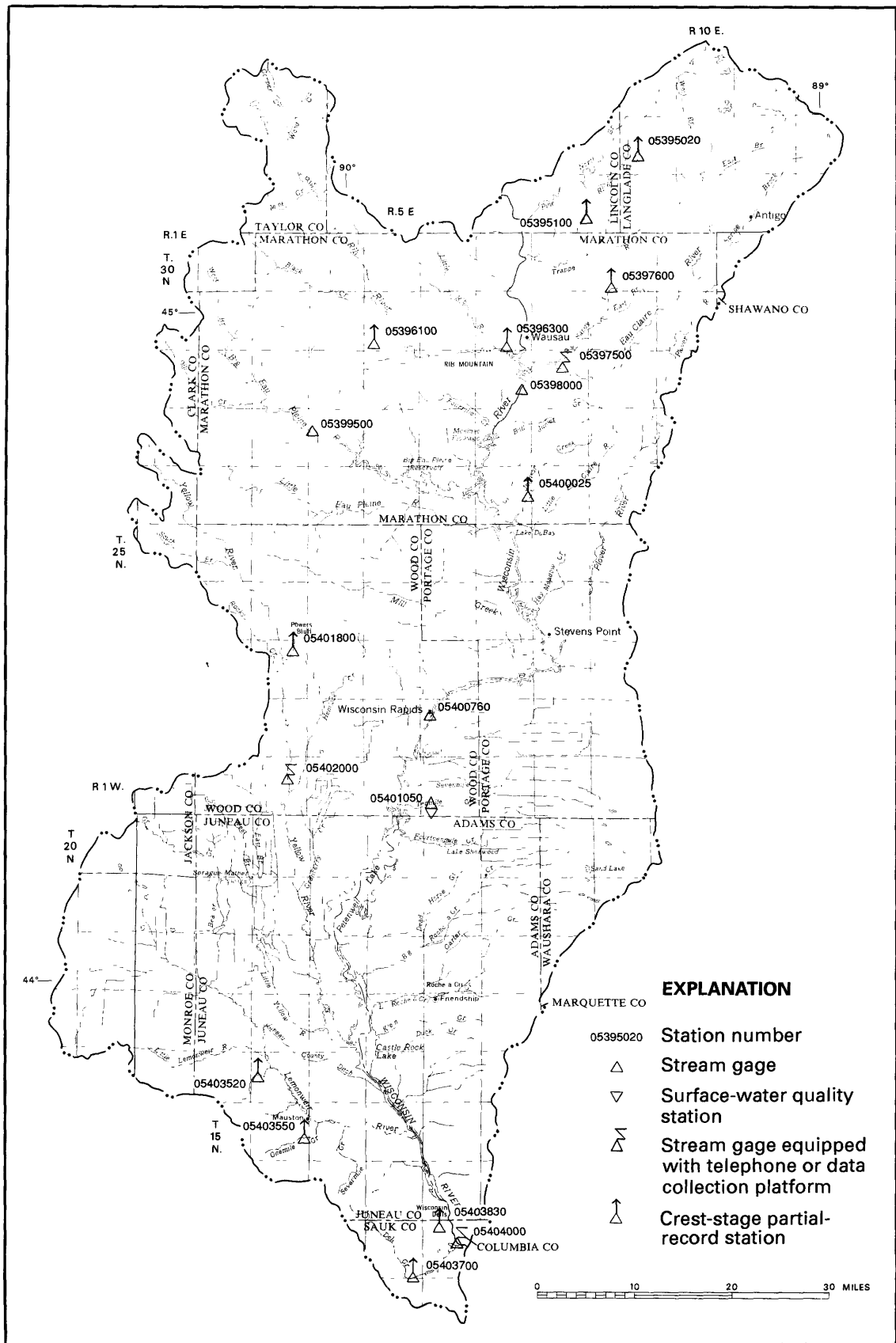
RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 22 to Mar. 12, and Mar. 16, 18-20.)

4.0	1,040	8.0	7,640
5.0	2,120	10.0	12,900
6.0	3,640	12.0	19,600

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2530	3150	2540	2100	1900	1900	4140	5960	14500	2590	2450	1900
2	2240	2710	2010	2000	1900	1900	3080	6420	16500	2420	2210	1790
3	2740	2620	2090	2400	1800	1900	3060	5280	14500	2420	3070	1920
4	3390	2660	2330	2000	2000	2000	3370	4980	10500	2610	2790	2350
5	3300	2130	2270	2000	2000	1900	3610	4660	7420	2910	2280	1860
6	2580	2250	2120	1900	1900	1900	3700	4970	6060	3450	1840	2010
7	2190	2320	2210	2200	2000	1900	3620	6090	4910	2850	2100	2350
8	2470	2330	2370	2000	2000	1800	4210	6090	4620	3080	2540	2230
9	2500	2490	2330	2100	2000	1900	9020	4460	3810	2130	2360	2300
10	2230	2220	2500	1800	2200	1800	9180	4690	2640	2550	2080	2730
11	2300	2380	2570	1900	2100	1700	7520	4230	3030	2510	2110	2140
12	2710	2310	2410	1900	2000	1800	5970	3900	3000	2180	1920	2220
13	2520	2160	2360	2000	2000	2180	5440	4220	2800	2430	1850	1860
14	2510	2070	2520	2200	1900	2130	4980	3240	2400	1920	2110	2210
15	2920	2230	2200	2300	1900	2090	6260	3250	3170	1960	2030	3120
16	2690	2460	2270	2000	2000	1800	5780	2580	2400	2070	1880	2450
17	2830	2500	2020	2100	2000	2090	5040	4770	2190	2900	2220	2300
18	3600	2440	2630	2200	1800	1800	4610	4550	2720	3490	2450	2160
19	4950	2520	2410	2000	1900	1900	3870	3820	1610	3020	2210	2210
20	5040	2240	2520	2000	1900	2100	3750	3450	2580	2120	1920	1950
21	5440	2550	2050	2100	2000	4110	3220	2740	3790	2080	1710	2220
22	6730	3070	2200	2100	1900	4570	2450	2580	5560	2580	1650	2000
23	5960	2890	2100	1800	1900	6760	2930	2820	3930	2110	2230	2020
24	5400	2610	2000	2000	1900	8350	3190	2620	3040	2230	2400	2450
25	5030	2210	2000	2000	1900	7250	3340	2540	2820	2210	2240	1910
26	4400	2080	1900	1700	1700	9420	3740	3640	2370	1940	2340	2160
27	3600	2330	1900	1900	1700	11400	3380	6740	2370	1950	1790	2080
28	4270	3210	2200	1900	2000	11300	3680	6520	2400	2430	1920	2200
29	3560	3060	2200	1900	---	9350	3630	10400	2250	2900	2010	2100
30	3430	2660	2200	1800	---	6830	5130	12700	2110	2730	2010	1960
31	3060	---	2400	2000	---	5490	---	12700	---	2540	2090	---
TOTAL	109120	74860	69830	62300	54200	123320	134900	157610	142000	77310	66810	65160
MEAN	3520	2495	2253	2010	1936	3978	4497	5084	4733	2494	2155	2172
MAX	6730	3210	2630	2400	2200	11400	9180	12700	16500	3490	3070	3120
MIN	2190	2070	1900	1700	1700	1700	2450	2540	1610	1920	1650	1790

CAL YR 1990 TOTAL 833844 MEAN 2285 MAX 14400 MIN 740  
WTR YR 1991 TOTAL 1137420 MEAN 3116 MAX 16500 MIN 1610



## CENTRAL WISCONSIN RIVER BASIN

## WISCONSIN RIVER BASIN

273

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 17, 1953, nonrecording gage at site 50 ft upstream at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--64 years (water years 1915-26, 1940-91), 251 ft<sup>3</sup>/s, 9.09 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,300 ft<sup>3</sup>/s, Aug. 21, 1926, gage height, 8.4 ft from graph based on gage readings, from rating curve extended above 6,000 ft<sup>3</sup>/s; maximum gage height, 10.14 ft Mar. 24, 1991, ice jam; minimum observed, 8.0 ft<sup>3</sup>/s, July 17, 1944, gage height, 0.17 ft, probably result of temporary regulation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 24	1300	(a)*4,000	(b)*10.14	June 4	0700	1,510	4.07
Mar. 28	1000	3,720	6.95	June 21	1900	1,910	4.66
Apr. 10	1600	2,190	5.05				

(a) Estimated daily mean.  
(b) Ice jam.

Minimum daily discharge, 75 ft<sup>3</sup>/s, Sept. 1, 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Nov. 23 to Mar. 25.)

0.9	63	3.0	880
1.2	127	4.0	1,470
2.0	404	6.0	2,920
		8.0	4,690

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	193	260	110	86	90	698	998	907	204	144	75
2	201	188	240	110	88	92	571	881	824	193	153	75
3	207	191	220	110	90	92	519	613	980	185	214	91
4	297	191	200	110	94	94	522	464	1360	175	252	98
5	343	186	200	110	100	100	557	400	744	191	222	95
6	297	177	210	110	100	100	555	426	440	191	181	94
7	246	170	220	110	96	100	532	451	345	176	153	99
8	214	161	240	110	98	100	569	433	300	166	155	106
9	194	157	240	110	96	110	1440	427	271	154	169	129
10	184	155	210	110	92	110	2060	387	251	143	171	135
11	195	154	210	110	88	110	1660	343	232	133	148	124
12	266	147	190	110	86	120	980	309	214	129	133	125
13	281	152	170	110	86	130	709	279	192	186	119	123
14	286	158	160	110	82	140	788	253	230	150	109	130
15	317	148	160	110	78	140	1010	228	295	128	103	213
16	313	154	150	110	78	140	883	212	271	116	99	238
17	290	158	150	110	80	150	685	252	232	134	104	204
18	377	153	150	110	80	170	532	343	200	151	114	169
19	473	145	150	120	80	230	531	375	177	148	120	149
20	459	140	160	110	82	380	487	297	183	138	108	134
21	469	156	140	110	84	1000	415	247	957	136	102	126
22	509	218	130	100	84	1800	364	233	1190	145	97	120
23	459	250	110	98	86	3000	362	274	1080	150	96	113
24	399	220	110	96	84	4000	366	252	718	143	99	107
25	347	190	120	92	84	3000	341	236	385	133	105	108
26	314	170	110	92	84	2820	307	304	291	134	105	110
27	281	190	110	92	86	3040	281	528	244	125	97	111
28	256	240	120	94	86	3570	275	633	227	121	90	111
29	234	320	120	92	---	2770	381	876	219	132	86	106
30	218	290	120	88	---	1590	889	1030	227	147	82	102
31	204	---	110	86	---	946	---	1110	---	157	78	---
TOTAL	9317	5522	5190	3250	2438	30234	20269	14094	14186	4714	4008	3720
MEAN	301	184	167	105	87.1	975	676	455	473	152	129	124
MAX	509	320	260	120	100	4000	2060	1110	1360	204	252	238
MIN	184	140	110	86	78	90	275	212	177	116	78	75
CFSM	.80	.49	.45	.28	.23	2.60	1.80	1.21	1.26	.41	.34	.33
IN.	.92	.55	.51	.32	.24	3.00	2.01	1.40	1.41	.47	.40	.37

CAL YR 1990 TOTAL 99212 MEAN 272 MAX 3880 MIN 47 CFSM .72 IN. 9.84  
WTR YR 1991 TOTAL 116942 MEAN 320 MAX 4000 MIN 75 CFSM .85 IN. 11.60

LOCATION.--Lat 44°53'09", long 89°38'05", in sec.26, T.28 N., R.7 E., Marathon County, Hydrologic Unit 07070002, on left bank at Rothschild, 0.5 mi downstream from Rothschild Dam, 1.7 mi north of bridge on U.S. Highway 51, 2.0 mi downstream from Eau Claire River, and 5.0 mi upstream from Black Creek.

REVISED RECORDS.--WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,125.86 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at datum 10.00 ft higher. Auxiliary water-stage recorder in Mosinee Pond 8 mi downstream. Prior to July 23, 1964, nonrecording auxiliary gage at same site and datum, read hourly.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 12-14, 16, 17, 19-21, 24-31, Jan. 1-4, and Jan. 6 to Mar. 18. Records good except for ice-affected periods, which are fair. Flow regulated by 20 reservoirs and 12 powerplants upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,200 ft<sup>3</sup>/s, Apr. 12, 1965, Mar. 31, 1967, gage height, 18.46 ft, datum then in use; minimum daily, 575 ft<sup>3</sup>/s, June 16, 1988.

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 ft<sup>3</sup>/s from rating curve extended above 45,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,600 ft<sup>3</sup>/s, Mar. 27, gage height, 24.14 ft; minimum daily, 1,700 ft<sup>3</sup>/s, Feb. 27.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3310	4000	3830	2200	2200	2100	7610	9610	17300	3180	3090	2120
2	3580	4050	3180	2100	2000	2200	6180	9470	24200	3520	3250	2080
3	3590	3310	2280	2400	2100	1900	5310	7930	23400	3320	4560	2340
4	5840	3720	2610	2700	2200	2100	5650	7050	16100	3410	4650	2520
5	5490	3210	2830	2670	2300	2200	5940	6230	10800	3600	3710	2560
6	4110	3550	2970	2500	2300	2100	6220	7070	8020	4330	2960	2380
7	3450	2390	3110	2700	2200	2200	6110	7720	6920	3630	2620	2500
8	3370	3250	3250	2500	2100	2200	7090	8430	6110	3900	3370	2990
9	3460	3350	3070	2500	2200	2100	17400	6870	5610	3200	3630	2790
10	3480	3080	3380	2100	2400	2100	17500	6470	4220	2930	3020	3250
11	3370	3070	3260	2100	2400	2100	13500	6000	3990	3310	2810	2970
12	4120	2960	3300	2300	2300	2000	10100	5480	4020	2760	2750	2990
13	4250	3180	2900	2100	2200	2200	8170	5710	3920	3520	2550	2620
14	4100	2870	2800	2500	2100	2200	9420	4440	3810	2940	2430	2780
15	4580	2740	2780	2600	2300	2200	11500	4270	4330	2560	2830	4880
16	4280	3160	2700	2300	2400	2100	9960	4010	4100	2710	2410	4450
17	4360	3310	2600	2500	2100	2300	8640	6280	2720	4090	2600	3420
18	4930	3080	2610	2400	2100	2300	6950	6710	4730	7410	2990	3040
19	6820	3260	2800	2400	2000	2750	6680	5630	2130	5610	2920	2820
20	7370	3090	2900	2200	2100	3970	6270	5010	2090	3940	2580	2750
21	7690	3310	2900	2500	2000	9630	5330	4170	8780	3320	2440	2980
22	9210	4400	2580	2500	2200	13600	4540	3620	16500	3610	1840	2570
23	8400	4280	2490	2200	2100	16400	4770	4300	9810	3480	2430	2500
24	7610	3830	2300	2200	2000	25700	4980	3880	5800	2820	2980	2890
25	6840	3220	2400	2300	2000	19600	4950	3510	4630	3070	2840	2340
26	6060	3080	2600	2200	1800	20500	5360	5580	4090	2820	2900	2800
27	4770	2920	2400	2300	1700	24300	4890	10100	3330	2550	2390	2660
28	5410	4380	2300	2100	2100	25700	5090	9210	3600	2950	2220	2630
29	4840	5070	2500	2200	---	19000	5640	13200	3390	3420	2350	2690
30	4750	4040	2000	1900	---	12800	8120	16300	3060	3800	2410	2420
31	4210	---	2100	2400	---	9390	---	16400	---	3610	2410	---
TOTAL	157650	103160	85730	72570	59900	241940	229870	220660	221510	109320	88940	84730
MEAN	5085	3439	2765	2341	2139	7805	7662	7118	7384	3526	2869	2824
MAX	9210	5070	3830	2700	2400	25700	17500	164				

## 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 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1914 to December 1925, April 1937 to current year. Monthly discharge only 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 and crest-stage gage. Datum of gage is 1,154.24 ft above National Geodetic Vertical Datum of 1929. 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 period listed in rating table below. Records good except those for ice-affected period, which is fair.

AVERAGE DISCHARGE.--65 years (water years 1915-25, 1938-91), 175 ft<sup>3</sup>/s, 10.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft<sup>3</sup>/s, Sept. 9, 1938, gage height, 24.5 ft, from flood-marks, based on rating curve extended above 24,000 ft<sup>3</sup>/s; no flow Aug. 17, 1947, Jan. 22 to Feb. 5, 1961.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of June 5, 1914, reached a stage of 20.7 ft, from floodmarks; discharge, 40,000 ft<sup>3</sup>/s, former site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 23	----	5,400	ice jam	June 22	0615	2,820	9.97
May 26	0845	6,240	13.32	July 17	1445	*7,920	*14.71
June 1	2215	4,470	11.74				

Minimum discharge, 4.5 ft<sup>3</sup>/s, Sept. 1, 2, 3.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Rate of change of stage used as factor Apr. 8, 10, 14, 15, 29, May 16, 30, 31, June 3, 21, 23, July 18, 19; stage-discharge relation affected by ice Nov. 29 to Mar. 27.)

2.2	2.6	3.0	4.8	6.0	670
2.3	5.0	3.5	104	8.0	1,540
2.4	8.0	4.0	175	10.0	2,850
2.6	17	5.0	375	13.0	5,710
2.8	30				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	37	50	14	12	18	210	558	1650	25	23	4.6
2	22	34	38	14	12	18	171	302	2540	26	69	4.5
3	61	32	35	13	13	19	145	202	1180	19	144	8.1
4	213	34	32	13	14	20	136	168	505	17	84	29
5	170	36	31	13	15	23	136	142	214	16	51	19
6	116	34	29	13	16	26	133	314	127	14	34	14
7	81	29	30	13	16	24	123	334	89	14	27	18
8	56	27	32	13	18	25	204	218	68	12	95	53
9	46	27	31	13	19	26	1390	217	56	10	182	26
10	41	28	32	13	18	29	738	167	47	9.1	97	26
11	44	26	33	13	17	27	411	116	39	8.1	54	68
12	42	25	31	13	16	26	241	88	32	8.9	35	63
13	37	23	30	13	15	24	218	77	26	25	25	69
14	43	21	29	13	15	24	1120	67	26	25	19	146
15	50	22	30	13	15	25	1090	48	26	17	16	1260
16	45	24	28	13	16	27	574	104	22	12	14	409
17	40	24	26	13	16	30	312	368	18	4050	14	178
18	58	23	25	14	16	40	197	124	15	2450	13	115
19	92	23	26	14	16	80	249	91	13	537	11	84
20	88	24	27	14	17	400	223	64	25	275	11	67
21	128	42	24	13	18	2000	148	47	1580	206	9.5	48
22	176	109	21	13	16	3400	114	39	2270	135	8.7	33
23	147	70	19	13	15	5400	149	34	657	111	8.2	27
24	125	50	19	13	14	3000	136	30	250	68	8.7	24
25	100	39	20	13	14	1500	100	31	119	47	8.1	27
26	80	35	17	13	14	1400	79	2750	71	37	7.3	24
27	67	37	17	13	14	1300	67	1140	47	30	7.0	29
28	57	216	18	13	16	1230	62	1700	34	30	6.1	21
29	49	110	16	13	---	553	129	1710	26	32	5.6	19
30	44	70	15	13	---	310	952	708	20	32	5.0	18
31	40	---	14	13	---	227	---	1100	---	28	4.8	---
TOTAL	2380	1331	825	408	433	21251	9957	13058	11792	8326.1	1097.0	2931.2
MEAN	76.8	44.4	26.6	13.2	15.5	686	332	421	393	269	35.4	97.7
MAX	213	216	50	14	19	5400	1390	2750	2540	4050	182	1260
MIN	22	21	14	13	12	18	62	30	13	8.1	4.8	4.5
CFSM	.34	.20	.12	.06	.07	3.06	1.48	1.88	1.75	1.20	.16	.44
IN.	.40	.22	.14	.07	.07	3.53	1.65	2.17	1.96	1.38	.18	.49
CAL YR 1990	TOTAL 61568.4	MEAN 169	MAX 9270	MIN 2.2	CFSM .75	IN. 10.22						
WTR YR 1991	TOTAL 73789.3	MEAN 202	MAX 5400	MIN 4.5	CFSM .90	IN. 12.25						

## 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 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1914 to March 1950 (published as "near Nekoosa"), October 1957 to current year.

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 National Geodetic Vertical Datum of 1929 (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 National Geodetic Vertical Datum. 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 20 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. These diversions, in cubic feet per second, for water year October 1990 to September 1991, were as follows:

Nov. 6	99	Nov. 18	81	Sept. 6	104	Sept. 18	104
Nov. 7-8	79	Nov. 19	79	Sept. 7-8	108	Sept. 19-20	108
Nov. 9	81	Nov. 20	81	Sept. 9	104	Sept. 21	104
Nov. 10-11	79	Nov. 21	50	Sept. 10-11	108	Sept. 22-23	108
Nov. 12	81	Nov. 22	14	Sept. 12	104	Sept. 24	54
Nov. 13-14	79	Sept. 3	71	Sept. 13-14	108	Sept. 25-26	58
Nov. 15	81	Sept. 4	97	Sept. 15	104	Sept. 27	54
Nov. 16-17	79	Sept. 5	108	Sept. 16-17	108	Sept. 28-30	58

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

AVERAGE DISCHARGE.--69 years (1915-49, 1958-91), 4,945 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,400 ft<sup>3</sup>/s, Sept. 12, 1938, gage height, 19.10 ft, from rating curve extended above 58,000 ft<sup>3</sup>/s; minimum, 26 ft<sup>3</sup>/s, Sept. 7, 1942; minimum daily, 165 ft<sup>3</sup>/s, Aug. 12, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,400 ft<sup>3</sup>/s, Mar. 29; minimum daily, 2,240 ft<sup>3</sup>/s, Nov. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3720	4200	4300	3180	3070	2890	13800	13300	24400	3410	3710	2580
2	3610	4340	4100	3420	3030	2620	6700	13500	29700	3610	3780	2630
3	3040	4440	3250	3000	2470	2500	6190	11600	32800	3360	4530	3360
4	5880	4450	2700	2850	2840	3070	7950	9860	25800	3470	5590	2890
5	5040	4710	3020	3140	3360	3430	8450	8480	17500	3660	4520	2530
6	4810	3250	3170	3130	3230	3340	8090	7770	12200	3140	3560	2630
7	4850	2830	3760	3550	3020	3480	7930	8310	9620	3630	3200	2880
8	4830	3030	3950	2800	2690	3750	10300	9670	7940	4450	4140	3110
9	3510	3260	3840	3730	3120	3740	21700	10000	6570	4390	3690	3230
10	3080	3580	3710	3340	3190	3650	25800	8120	5910	3620	3290	3690
11	3930	3730	3670	3120	3520	3510	21300	8560	5150	3220	3140	3880
12	4420	4250	3700	2660	3600	3310	15700	7990	5000	3490	2770	4160
13	4470	3560	3960	2440	4030	3390	13300	6840	4510	3270	2620	3550
14	4610	3390	3990	2870	3510	3380	14800	5630	4190	3510	2880	3300
15	5320	3070	2900	2980	3510	3600	18400	4240	4790	3700	2810	5100
16	5250	2950	2730	3050	3040	3630	16200	4690	5240	2620	3100	6340
17	5090	2510	4210	3120	2790	3240	13000	6360	3610	7390	3020	2300
18	6310	2240	4200	3200	2970	3660	11100	7390	3000	13100	3000	3310
19	7030	2550	3200	3140	3110	4100	10100	7240	4640	6550	3310	3180
20	8390	3240	3460	2660	3150	6390	9130	5800	3690	5870	2980	2860
21	9830	3800	3620	2790	2950	10200	9130	5080	8350	4030	2800	2730
22	8540	3810	2980	3240	2930	18200	6910	4420	18000	4090	2750	2660
23	11600	5720	2510	2850	3090	24900	6040	5400	14100	4650	2710	3050
24	8900	5180	2310	2630	2830	34800	6410	4870	8590	2390	2800	3170
25	8300	3430	2320	2550	2610	36900	7440	4750	6000	3390	2920	3020
26	7030	3910	2620	2520	2970	26000	6700	10800	3960	3550	3840	3180
27	6360	3850	2510	2330	3390	35500	5990	12400	3830	2680	3980	3170
28	5090	4790	2490	2590	3190	39300	6010	15100	3550	2900	3170	3150
29	4430	5280	2420	3000	---	36300	7260	20900	3260	3640	2630	3200
30	5170	5200	2420	3140	---	22000	11100	25000	3630	4010	2550	2850
31	5150	---	3280	2920	---	15000	---	22600	---	4390	2510	---
TOTAL	177590	114550	101300	91940	87210	369780	332930	296670	289530	129180	102300	97690
MEAN	5729	3818	3268	2966	3115	11930	11100	9570	9651	4167	3300	3256
MAX	11600	5720	4300	3730	4030	39300	25800	25000	32800	13100	5590	6340
MIN	3040	2240	2310	2330	2470	2500	5990	4240	3000	2390	2510	2300

CAL YR 1990 TOTAL 1671872 MEAN 4580 MAX 52200 MIN 842  
WTR YR 1991 TOTAL 2190670 MEAN 6002 MAX 39300 MIN 2240



## WISCONSIN RIVER BASIN

277

05401050 TENMILE CREEK NEAR NEKOOSA, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1962-63. October 1963 to September 1979, October 1987 to current year.

REVISED RECORDS.--WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 967.39 ft above National Geodetic Vertical Datum of 1929. Prior to May 13, 1964, and June 2, 1988 to May 2, 1989, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Nov. 29 to Mar. 26. Records good except those for period of estimated record, which are fair. 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.

AVERAGE DISCHARGE.--20 years, (1964-79, 1988-91) 58.8 ft<sup>3</sup>/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 456 ft<sup>3</sup>/s, Mar. 31, 1979, gage height, 6.62 ft; minimum, 9.5 ft<sup>3</sup>/s, Dec. 16, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 197 ft<sup>3</sup>/s, Apr. 15, gage height, 5.94 ft; minimum, 27 ft<sup>3</sup>/s, Sept. 10, 11.

## RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

4.3	22	5.5	132
4.5	36	6.0	207
5.0	77		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	67	66	45	39	50	118	131	125	55	42	29
2	72	67	62	43	40	52	113	122	126	54	43	28
3	71	67	60	42	42	52	110	117	118	52	42	28
4	71	68	58	40	45	54	109	113	112	53	40	28
5	71	69	62	39	49	56	106	113	107	51	39	28
6	70	68	60	40	45	58	104	116	102	50	39	28
7	67	67	58	40	40	60	102	113	99	48	38	29
8	65	66	60	41	41	64	114	113	97	48	44	28
9	64	66	62	41	45	62	153	123	93	49	41	28
10	64	65	64	41	40	60	165	124	91	47	40	27
11	67	64	64	41	38	60	162	118	89	46	39	27
12	68	62	66	42	39	60	151	114	86	46	38	30
13	71	62	68	43	40	60	148	111	83	46	37	29
14	72	62	66	44	40	60	167	107	82	45	37	29
15	70	62	64	44	39	62	192	104	83	44	37	30
16	71	62	64	44	40	64	182	104	81	43	37	32
17	70	60	62	44	41	70	166	107	78	52	37	33
18	70	60	60	44	43	78	154	104	77	50	36	33
19	72	59	60	45	44	86	150	102	73	48	37	31
20	74	59	60	47	45	94	144	99	71	49	36	32
21	74	61	58	45	46	110	137	98	70	48	35	31
22	76	60	56	43	48	120	132	99	68	52	34	31
23	77	60	54	40	50	140	132	103	66	50	33	30
24	75	59	52	39	47	160	126	100	64	48	33	31
25	73	58	50	38	45	160	121	99	61	47	33	34
26	72	58	47	38	45	150	117	108	60	46	32	31
27	71	61	48	40	46	145	115	107	59	45	32	31
28	69	60	52	40	48	140	113	102	58	46	31	30
29	68	56	50	38	---	131	124	100	57	44	30	30
30	67	68	48	38	---	123	138	103	56	43	30	30
31	66	---	46	38	---	121	---	108	---	42	29	---
TOTAL	2181	1883	1807	1287	1210	2762	4065	3382	2492	1487	1131	896
MEAN	70.4	62.8	58.3	41.5	43.2	89.1	135	109	83.1	48.0	36.5	29.9
MAX	77	69	68	47	50	160	192	131	126	55	44	34
MIN	64	56	46	38	38	50	102	98	56	42	29	27

CAL YR 1990 TOTAL 23644 MEAN 64.8 MAX 140 MIN 21  
WTR YR 1991 TOTAL 24583 MEAN 67.4 MAX 192 MIN 27

## WISCONSIN RIVER BASIN

05401050 TENMILE CREEK NEAR NEKOOSA, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	
NOV 1990												
15...	1245	--	491	322	7.8	6.5	4.7	10.9	744	91	K16	
JAN 1991												
29...	1200	38	--	293	7.8	0.0	3.8	12.8	749	89	K2	
MAR												
12...	1215	60	--	322	7.9	1.0	7.0	13.4	745	97	K5	
MAY												
06...	1325	--	550	332	8.0	6.0	4.4	11.0	738	91	70	
JUL												
09...	1130	--	484	285	8.0	13.0	6.8	8.8	748	85	200	
AUG												
27...	1000	--	464	262	8.0	14.5	3.5	8.8	749	88	150	
DATE		STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	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)	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)
NOV 1990												
15...	K16	160	38	16	2.6	0.90	151	124	18	9.6	0.10	
JAN 1991												
29...	K2	160	36	16	2.5	0.80	136	112	20	9.3	<0.10	
MAR												
12...	K17	170	40	17	2.5	1.2	151	124	24	9.3	<0.10	
MAY												
06...	29	180	41	18	2.4	1.0	153	126	24	11	<0.10	
JUL												
09...	260	150	35	15	2.1	0.80	146	120	18	6.5	0.10	
AUG												
27...	68	130	32	13	2.3	0.80	137	112	15	4.3	0.10	
DATE		SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
NOV 1990												
15...	11	186	186	0.010	3.30	0.070	0.050	0.60	0.020	<0.010	<0.010	
JAN 1991												
29...	12	157	176	0.020	2.80	0.080	0.060	0.50	0.010	<0.010	<0.010	
MAR												
12...	11	189	193	0.030	3.00	0.130	0.070	0.60	0.050	0.020	0.010	
MAY												
06...	10	207	198	0.030	3.20	0.060	0.050	0.70	0.050	0.020	<0.010	
JUL												
09...	11	186	167	0.020	1.60	0.020	0.020	1.6	0.020	<0.010	<0.010	
AUG												
27...	11	142	152	<0.010	1.20	0.020	0.020	0.40	0.020	0.010	<0.010	

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

05401050 TENMILE CREEK NEAR NEKOOSA, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM-INUM, DIS-SOLVED (UG/L) (01106)	ARSENIC, DIS-SOLVED (UG/L) (01000)	BARIUM, DIS-SOLVED (UG/L) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L) (01010)	CADMIUM, DIS-SOLVED (UG/L) (01025)	CHROMIUM, DIS-SOLVED (UG/L) (01030)	COBALT, DIS-SOLVED (UG/L) (01035)	COPPER, DIS-SOLVED (UG/L) (01040)
NOV 1990 15...	1245	--	491	<10	<1	15	<0.5	<1.0	1	<3	1
JAN 1991 29...	1200	38	--	<10	<1	15	<0.5	<1.0	<1	<3	1
MAY 06...	1325	--	550	20	<1	15	<0.5	<1.0	2	<3	1
AUG 27...	1000	--	464	<10	<1	12	<0.5	<1.0	<1	<3	<1

DATE	IRON, DIS-SOLVED (UG/L) (01046)	LEAD, DIS-SOLVED (UG/L) (01049)	LITHIUM, DIS-SOLVED (UG/L) (01130)	MANGANESE, DIS-SOLVED (UG/L) (01056)	MERCURY, DIS-SOLVED (UG/L) (01056)	MOLYBDENUM, DIS-SOLVED (UG/L) (01060)	NICKEL, DIS-SOLVED (UG/L) (01065)	SELENIUM, DIS-SOLVED (UG/L) (01145)	STRONTIUM, DIS-SOLVED (UG/L) (01080)	VANADIUM, DIS-SOLVED (UG/L) (01085)	ZINC, DIS-SOLVED (UG/L) (01090)
NOV 1990 15...	540	<1	<4	99	<0.1	<10	2	<1	41	<6	3
JAN 1991 29...	290	<1	<4	150	<0.1	<10	1	<1	40	<6	<3
MAY 06...	750	2	<4	78	<0.1	<10	1	<1	42	<6	7
AUG 27...	440	<1	<4	81	<0.1	<10	<1	<1	36	<6	3

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990 05...	0945	--	71		327	10.0	--	--
NOV 08...	1533	--	66		310	3.5	--	--
NOV 15...	1245	--	491		322	6.5	15	20
JAN 1991 16...	1455	--	44		307	0.0	--	--
JAN 1991 29...	1200	38	--		293	0.0	9	0.92
FEB 19...	1405	--	44		290	2.5	--	--
MAR 12...	1215	60	60		322	1.0	14	2.3
MAR 26...	1310	--	152		350	10.0	--	--
APR 16...	1815	--	172		340	10.5	--	--
MAY 06...	1325	--	550		332	6.0	38	56
JUN 12...	1640	--	86		333	19.5	--	--
JUL 09...	1130	--	484		285	13.0	17	22
AUG 07...	1210	--	38		280	15.5	--	--
AUG 27...	1000	--	464		262	14.5	3	3.8

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALACHLOR (LASSO) WATER DISSOLV (UG/L) (46342)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	METOLACHLOR, WATER DISSOLV (UG/L) (39415)	PROP-AZINE, WATER, DISS, REC (UG/L) (38535)	AMETRYN, WATER, DISS, REC (UG/L) (38401)	METRI-BUZIN, SENCOR, WATER DISSOLV (UG/L) (82630)
MAY 1991 06...	1325	550	<0.05	0.05	0.07	<0.05	<0.05	<0.05
JUL 09...	1130	484	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

## WISCONSIN RIVER BASIN

05402000 YELLOW RIVER AT BABCOCK, WI

LOCATION.--Lat 44°18'05", long 90°07'15", in NW 1/4 sec.14, T.21 N., R.3 E., Wood County, Hydrologic Unit 07070003, on right bank at downstream side of bridge on State Highway 80 at Babcock, 1.9 mi upstream from Hemlock Creek.

DRAINAGE AREA.--215 mi<sup>2</sup>.

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

REVISED RECORDS.--WSP 1308: 1944(M), 1946-47(M), 1949(M). WDR WI-77-1: Drainage area. WDR WI-82-1: 1981 (P).

GAGE.--Water-stage recorder. Datum of gage is 954.75 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1948, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Mar. 23 and Aug. 14 to Sept. 30. Records good except those for estimated daily discharges, which are poor. There is a large recreation dam about 5.0 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--47 years, 157 ft<sup>3</sup>/s, 9.92 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft<sup>3</sup>/s, Apr. 2, 1952, gage height, 17.38 ft; minimum observed, 0.94 ft<sup>3</sup>/s, Aug. 11, 1985, gage height, 1.84 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 24	0930	*4,810	*13.56	May 29	2000	2,520	11.08
Apr. 15	1515	1,770	9.84	June 1	2030	1,880	10.06
May 27	1330	2,330	10.80	June 2	2115	1,580	9.45

Minimum daily discharge, 6.1 ft<sup>3</sup>/s, Sept. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	40	79	24	22	28	289	994	1330	20	27	6.5
2	26	40	60	22	23	30	248	704	1380	19	25	6.3
3	25	42	52	23	24	32	208	336	1230	18	29	6.4
4	28	42	48	21	27	32	175	271	620	17	27	6.1
5	59	41	52	20	30	34	158	195	327	16	24	6.4
6	79	42	59	20	26	36	144	191	168	16	26	6.5
7	67	42	58	20	28	39	129	335	125	15	28	7.1
8	49	42	57	21	31	42	118	382	95	14	41	8.1
9	40	42	57	20	35	45	309	373	73	14	58	10
10	36	43	48	19	37	45	765	367	62	14	53	12
11	39	42	47	20	37	44	730	267	55	12	46	14
12	40	41	46	21	36	43	424	160	47	14	37	17
13	58	42	48	22	35	43	323	133	39	15	31	19
14	66	43	46	22	34	45	416	109	38	19	27	31
15	55	44	44	23	32	48	1470	88	44	16	19	47
16	46	45	44	24	35	52	1270	75	50	14	13	130
17	42	45	40	24	34	60	757	70	64	25	12	250
18	50	45	42	24	34	74	467	65	54	95	10	210
19	70	48	41	25	34	110	392	89	44	158	8.7	87
20	110	48	40	26	33	300	709	149	36	180	7.4	58
21	100	50	35	25	36	1000	501	145	30	187	6.8	28
22	84	59	32	24	33	2500	372	115	27	181	6.6	15
23	84	96	28	24	30	2900	258	87	23	156	6.5	13
24	77	93	27	22	28	4320	219	71	20	105	6.5	11
25	64	75	29	22	25	2400	215	65	20	76	6.5	11
26	53	65	26	21	27	1370	185	139	22	57	6.5	11
27	47	61	27	22	26	978	151	1790	24	46	6.5	10
28	45	61	28	23	26	913	128	1270	24	42	6.5	10
29	43	68	32	22	---	846	119	1710	24	40	6.5	11
30	42	81	32	21	---	576	373	1990	23	35	6.5	13
31	40	---	26	21	---	394	---	1120	---	31	6.5	---
TOTAL	1691	1568	1330	688	858	19379	12022	13855	6118	1667	621.0	1071.4
MEAN	54.5	52.3	42.9	22.2	30.6	625	401	447	204	53.8	20.0	35.7
MAX	110	96	79	26	37	4320	1470	1990	1380	187	58	250
MIN	25	40	26	19	22	28	118	65	20	12	6.5	6.1
CFSM	.25	.24	.20	.10	.14	2.91	1.86	2.08	.95	.25	.09	.17
IN.	.29	.27	.23	.12	.15	3.35	2.08	2.40	1.06	.29	.11	.19

CAL YR 1990 TOTAL 50051.6 MEAN 137 MAX 4550 MIN 6.6 CFSM .64 IN. 8.66  
WTR YR 1991 TOTAL 60868.4 MEAN 167 MAX 4320 MIN 6.1 CFSM .78 IN. 10.53

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5000	5870	6270	4800	6000	4100	23400	12200	26900	4910	4300	3440
2	4750	5720	5930	5000	6400	4200	17800	12300	29100	3840	4530	3210
3	4860	5920	5950	5600	6400	4900	12400	13500	32200	3660	4920	3580
4	4950	5680	7110	5600	6400	5000	9700	13600	33400	3660	5140	3460
5	6280	5860	6000	5800	6600	4930	7930	15900	33400	3650	6920	3820
6	6740	6200	4790	6000	6600	4970	8210	13000	22900	4100	6460	3840
7	6320	5720	4980	5000	6600	5520	7750	11300	15600	4100	5080	3860
8	5980	4580	5280	5600	6800	5780	7970	9810	14100	4230	4770	3790
9	6440	4660	5320	5400	6800	6270	13200	11700	12100	5070	6470	3720
10	6870	4750	5390	5400	6400	6150	21800	12300	10000	5670	6150	4240
11	7000	4710	5450	5400	5000	5800	23600	12200	9480	5260	4630	4590
12	6100	4970	5370	5200	5400	5900	19700	12700	9340	4500	4240	5750
13	5630	5390	5370	4500	6200	6370	19900	13500	9280	4250	4330	5190
14	6020	5080	5390	4400	6000	5540	23500	12600	8570	4190	3920	5690
15	5800	5300	5620	5000	4200	5640	23600	8820	9010	4090	4010	5690
16	5810	5000	5620	5400	5200	5710	19600	8230	8690	3660	3890	5860
17	6640	4480	5320	5400	5400	5620	18400	8190	7240	3990	3890	6590
18	7280	3950	5110	5400	4800	5440	15100	8350	4780	9130	3840	5970
19	7880	3370	5880	5600	4700	5820	14100	9580	4030	12400	4000	4070
20	7920	4160	5800	6400	5520	6420	16300	9410	5010	11400	4380	4030
21	8830	4870	6400	6400	5140	6790	14100	8550	5610	8450	3860	3400
22	9880	4880	6400	5000	5480	7760	12700	8130	13700	7400	3750	3180
23	9910	5360	4900	6200	5200	8570	10800	7810	16800	6170	3830	3350
24	11200	5930	4700	6400	5200	8780	10100	7900	13000	5260	3890	4190
25	11200	6690	4000	6000	5090	15300	9990	7860	11500	3840	3880	4880
26	11200	5740	3400	6200	4300	14000	9490	7830	7010	3590	3840	4140
27	11200	5040	4000	6400	4500	19900	9510	9750	5940	3900	3860	5050
28	8810	5810	4400	6200	4300	32800	9670	11900	4800	3510	3810	4620
29	7410	6080	4200	4100	---	36200	10300	14300	5040	3690	3810	4110
30	7190	6180	3700	4500	---	35700	11600	22500	5100	4310	3710	4080
31	7090	---	4400	5200	---	34100	---	26000	---	4170	3390	---
TOTAL	228190	157950	162450	169500	156630	329980	432220	361720	393630	160050	137500	131390
MEAN	7361	5265	5240	5468	5594	10640	14410	11670	13120	5163	4435	4380
MAX	11200	6690	7110	6400	6800	36200	23600	26000	33400	12400	6920	6590
MIN	4750	3370	3400	4100	4200	4100	7750	7810	4030	3510	3390	3180
CAL YR 1990	TOTAL 2364670		MEAN 6479	MAX 43600	MIN 1400							
WTR YR 1991	TOTAL 2821210		MEAN 7729	MAX 36200	MIN 3180							



## 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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 927.28 ft above National Geodetic Vertical Datum of 1929 (levels by Mid-State Associates, Baraboo, WI).

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records are fair. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,010 ft<sup>3</sup>/s, June 29, 1990, gage height, 15.26 ft; inside gage height, 15.60 ft from floodmark on gage house, from rating curve extended above 1,100 ft<sup>3</sup>/s, on basis of contracted-area measurement at gage height 15.60 ft; minimum daily, 3.3 ft<sup>3</sup>/s, Dec. 22, 23, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 643 ft<sup>3</sup>/s, Apr. 8, gage height, 11.66 ft; minimum daily, 3.9 ft<sup>3</sup>/s, Dec. 3.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Apr. 13, 15, May 10-16, 19-25, 27-29, May 31 to June 14, June 16-20, July 12, Aug. 8, Sept. 12, 14, and 15; stage-discharge relation affected by ice Dec. 24-27, Dec. 31 to Jan. 9, Jan. 22 to Feb. 2, and Feb. 13-17.)

4.2	3.6	6.0	61
4.3	4.2	7.0	122
4.5	7.5	9.0	298
5.0	20	11.0	543
5.5	38		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.6	7.9	9.0	9.0	9.4	13	20	28	9.1	8.6	6.6
2	5.4	7.2	6.8	8.8	9.2	38	12	18	24	8.8	8.8	6.7
3	11	13	3.9	8.6	9.4	21	11	16	21	8.1	9.3	7.4
4	13	12	5.0	8.8	11	13	11	16	18	8.3	9.0	7.2
5	7.3	9.0	11	9.0	12	15	11	97	16	8.6	8.3	6.8
6	6.9	8.0	10	8.8	12	40	9.8	47	15	8.2	8.1	7.2
7	6.1	8.0	9.2	9.0	12	16	9.5	29	14	7.9	9.3	6.8
8	6.1	7.2	9.0	9.0	13	13	422	36	14	8.3	36	7.6
9	6.9	8.1	9.3	8.8	14	15	120	31	13	8.1	13	9.6
10	8.1	8.3	9.9	8.6	14	12	157	24	13	8.6	9.9	7.9
11	11	7.4	9.2	8.9	10	18	43	22	13	8.1	9.2	10
12	7.9	7.3	9.6	9.0	8.9	20	43	20	12	28	8.7	47
13	7.2	6.8	8.6	8.9	8.6	13	88	20	12	11	8.3	11
14	7.3	7.1	7.5	9.2	7.4	14	189	18	14	9.7	8.2	28
15	7.5	7.5	9.1	9.4	6.8	14	73	17	33	9.2	8.0	81
16	7.0	7.2	8.9	9.3	8.6	14	44	20	17	8.9	8.3	12
17	7.7	6.7	9.4	9.2	8.4	15	33	38	13	13	9.6	9.9
18	11	7.0	10	9.1	8.3	29	31	43	12	13	8.4	11
19	9.1	7.0	9.8	9.2	8.3	24	34	30	11	10	8.6	9.3
20	8.3	6.9	9.9	9.5	8.1	24	26	21	11	9.7	8.3	8.7
21	12	10	9.9	8.9	9.2	27	22	19	13	9.9	8.2	8.6
22	9.2	12	8.8	8.8	13	31	21	19	12	13	7.9	8.4
23	8.1	8.4	8.6	9.0	10	154	29	17	11	10	7.5	8.1
24	7.4	7.8	8.6	8.8	8.7	47	21	17	9.9	9.0	7.6	8.7
25	6.8	7.6	8.6	8.8	6.9	25	18	22	9.5	8.8	7.3	9.2
26	6.7	7.2	8.8	8.8	6.8	21	18	53	9.1	8.6	7.1	8.5
27	6.7	8.9	9.2	8.8	6.9	40	20	29	8.8	8.5	7.0	8.0
28	6.4	9.2	9.6	8.8	7.0	25	18	20	8.6	9.9	6.8	8.0
29	6.5	7.3	9.9	8.8	---	18	36	31	8.7	11	7.0	7.9
30	6.7	7.5	9.2	8.8	---	15	29	76	8.6	9.7	7.2	7.9
31	6.6	---	9.2	9.0	---	15	---	28	---	9.2	6.8	---
TOTAL	243.5	244.2	274.4	277.4	267.5	795.4	1612.3	914	423.2	312.2	286.3	385.0
MEAN	7.85	8.14	8.85	8.95	9.55	25.7	53.7	29.5	14.1	10.1	9.24	12.8
MAX	13	13	11	9.5	14	154	422	97	33	28	36	81
MIN	5.4	6.6	3.9	8.6	6.8	9.4	9.5	16	8.6	7.9	6.8	6.6
CFSM	.20	.21	.23	.23	.24	.66	1.37	.75	.36	.26	.24	.33
IN.	.23	.23	.26	.26	.25	.76	1.53	.87	.40	.30	.27	.37

CAL YR 1990 TOTAL 6942.5 MEAN 19.0 MAX 1180 MIN 3.8 CFSM .49 IN. 6.61

WTR YR 1991 TOTAL 6035.4 MEAN 16.5 MAX 422 MIN 3.9 CFSM .42 IN. 5.74

## WISCONSIN RIVER BASIN

05404500 DEVILS LAKE NEAR BARABOO, WI

LOCATION.--Lat 43°25'18", long 89°43'38", in NW 1/4 NE 1/4 sec.24, T.11 N., R.6 E., Sauk County, Hydrologic Unit 07070004, in Devils Lake State Park, 3.5 mi south of Baraboo.

DRAINAGE AREA.--4.79 mi<sup>2</sup>. Area of Devils Lake, 361 acres.

## LAKE-STAGE RECORDS

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, National Geodetic Vertical Datum of 1929.

REMARKS.--Lake has no surface outlet.

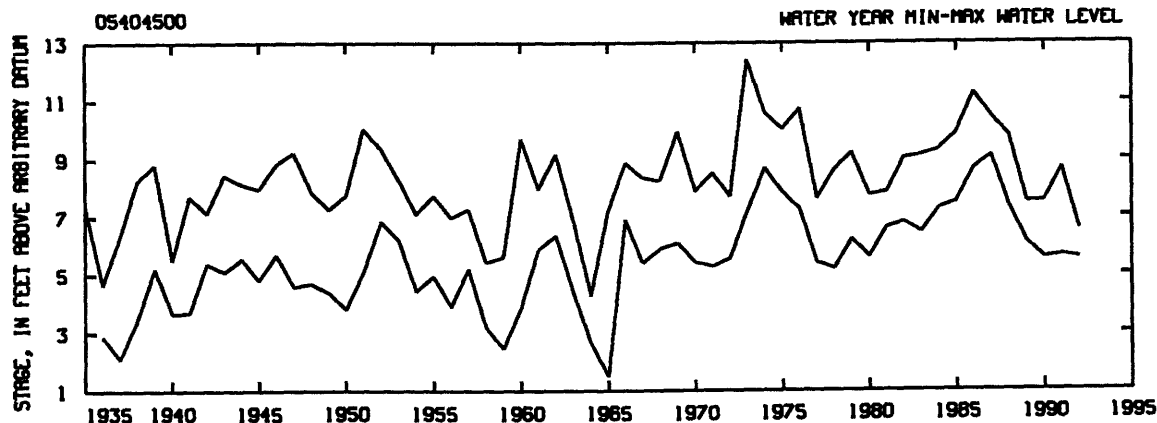
COOPERATION.--Gage readings furnished by Kenneth Lange of Devils Lake State Park October through November 1988 and Sept. 21, 1989; other readings furnished by P. S. Druckenmil.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 12.40 ft, May 31, June 1, 1973; minimum observed, 1.49 ft Feb. 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 8.68 ft, May 7; minimum observed, 5.65 ft, Sept. 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	8.14	6.44	5.97
2	---	---	---	---	---	---	---	---	---	---	6.42	5.94
3	---	---	---	---	---	---	---	---	---	---	6.40	5.97
4	---	---	---	---	---	---	---	---	---	---	6.37	5.96
5	---	---	---	---	---	---	---	---	---	---	6.35	5.94
6	---	6.86	---	---	---	---	---	---	---	---	6.32	5.92
7	---	---	---	---	---	---	---	8.68	---	---	6.30	5.90
8	---	---	---	---	---	---	---	---	---	7.90	6.40	5.89
9	---	---	---	---	---	---	---	---	---	---	6.41	5.88
10	---	---	---	---	---	---	---	---	---	---	6.39	5.86
11	---	---	---	---	---	---	7.62	---	---	---	6.37	5.85
12	---	---	---	---	---	---	---	---	---	---	6.36	5.93
13	---	---	---	---	---	---	---	---	---	---	6.34	5.92
14	---	---	---	---	---	---	---	---	---	---	6.32	5.96
15	---	---	---	---	---	---	---	---	---	---	6.30	5.97
16	---	---	---	---	---	---	8.04	---	---	---	6.28	5.96
17	---	---	---	---	---	---	---	---	---	6.68	6.28	5.94
18	---	---	---	---	---	---	---	---	---	6.67	6.26	5.93
19	7.02	---	---	---	---	---	---	---	---	6.65	6.23	5.89
20	---	---	---	---	---	---	---	---	---	6.63	6.21	5.87
21	---	---	---	---	---	---	---	---	---	6.61	6.19	5.85
22	---	---	---	---	---	---	---	8.64	---	6.65	6.17	5.81
23	---	---	---	---	---	---	---	---	---	6.63	6.15	5.79
24	---	---	---	---	---	---	8.08	---	8.26	6.60	6.13	5.78
25	---	---	---	---	---	---	---	---	---	6.56	6.11	5.77
26	---	---	---	---	---	---	---	---	---	6.54	6.09	5.74
27	---	---	---	---	---	---	---	---	---	6.51	6.07	5.72
28	---	---	---	---	---	---	---	---	8.18	6.49	6.05	5.70
29	---	---	---	---	---	---	---	---	---	6.52	6.04	5.68
30	---	6.73	---	---	---	---	---	---	---	6.50	6.03	5.65
31	---	---	---	---	---	---	---	---	---	6.47	6.00	---
MAX	---	---	---	---	---	---	---	---	---	---	6.44	5.97
MIN	---	---	---	---	---	---	---	---	---	---	6.00	5.65





05404500 DEVILS LAKE NEAR BARABOO, WI--CONTINUED

## WATER-QUALITY RECORDS

LOCATION.--Lat 43°25'00", long 89°44'00", in NW 1/4 sec.24, T.11 N., R.6 E., Sauk County, Hydrologic Unit 07070004, near center of lake, 3.6 mi south of Baraboo.

PERIOD OF RECORD.--July 1982 to September 1989, October 1990 to September 1991. Data from July 1982 to September 1984 at Devils Lake State Park office files.

REMARKS.--Secchi-disc readings furnished by personnel of Department of Natural Resources and Devils Lake State Park.

## SECCHI-DISC TRANSPARENCY (IN METERS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SECCHI DISC (M) (00078)	DATE	TIME	SECCHI DISC (M) (00078)
OCT 1990			JUL 1991		
04...	1200	2.2	01...	1200	7.1
19...	1200	2.7	17...	1200	7.6
NOV			AUG		
05...	1200	3.9	01...	1200	6.3
27...	1200	11.0	14...	1200	5.9
JUN 1991			28...	1200	5.2
12...	1200	7.5	SEP		
19...	1200	6.2	13...	1200	3.2
			26...	1200	2.4

## WISCONSIN RIVER BASIN

05405000 BARABOO RIVER NEAR BARABOO, WI

LOCATION.--Lat 43°28'51", long 89°38'09", in 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. 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: Ice-affected periods, Dec. 3-5, 14, Dec. 21 to Feb. 18, Feb. 25-27, and Mar. 3-7. Records good except those for ice-affected periods, which are fair. Apparent occasional regulation at low flow by dams upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--56 (water years 1915-21, 1943-91), 378 ft<sup>3</sup>/s, 8.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,900 ft<sup>3</sup>/s, Mar. 26, 1917, gage height, 17.5 ft, estimated, site and datum then in use, from rating curve extended above 6,000 ft<sup>3</sup>/s; minimum observed, 9.0 ft<sup>3</sup>/s, Feb. 17, 1944, gage height, 5.08 ft; minimum daily, 26 ft<sup>3</sup>/s, Oct. 6, 1950.

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 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,120 ft<sup>3</sup>/s, Apr. 14, gage height, 14.57 ft; minimum daily discharge, 114 ft<sup>3</sup>/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	183	203	180	170	248	579	677	445	153	181	114
2	147	194	194	180	170	521	461	599	537	163	167	126
3	151	191	190	180	180	540	391	519	454	169	154	156
4	170	204	180	180	190	600	340	418	350	169	146	263
5	175	217	190	180	200	580	314	455	304	171	149	337
6	193	256	199	180	210	620	301	729	262	148	150	239
7	210	272	213	180	220	620	291	716	222	150	152	172
8	194	247	219	180	230	619	281	739	204	140	233	151
9	180	233	220	180	240	596	680	744	188	148	266	159
10	178	219	221	180	250	545	1270	638	174	142	359	146
11	229	212	217	180	270	494	1380	572	171	139	420	148
12	250	209	233	180	270	486	1550	523	175	170	348	233
13	280	207	232	180	260	524	1710	437	176	213	228	287
14	296	207	220	180	250	537	1920	367	191	287	191	471
15	273	203	216	190	250	509	2070	323	486	317	146	547
16	250	195	208	180	240	476	1790	300	716	244	157	570
17	239	177	226	180	240	477	1500	281	613	190	157	700
18	241	189	226	190	230	518	1370	301	443	178	153	717
19	228	192	225	190	227	603	1220	414	316	166	154	544
20	260	185	232	180	224	723	970	550	237	212	156	349
21	292	195	220	180	228	806	747	543	206	454	155	272
22	273	208	200	170	250	814	641	604	194	298	149	239
23	271	220	190	170	278	1010	563	507	185	221	146	214
24	273	219	180	170	272	1200	513	363	183	220	139	201
25	266	226	170	160	270	1160	483	300	184	219	138	200
26	241	210	170	160	250	1120	454	279	180	208	134	199
27	225	213	170	160	230	1110	404	275	152	166	131	194
28	212	207	180	160	222	1030	361	408	150	147	129	192
29	181	203	190	160	---	914	995	528	148	172	127	189
30	194	203	180	160	---	857	799	466	150	168	124	179
31	191	---	180	170	---	737	---	420	---	179	130	---
TOTAL	6921	6296	6294	5450	6521	21594	26348	14995	8396	6121	5569	8508
MEAN	223	210	203	176	233	697	878	484	280	197	180	284
MAX	296	272	233	190	278	1200	2070	744	716	454	420	717
MIN	147	177	170	160	170	248	281	275	148	139	124	114
CFSM	.37	.34	.33	.29	.38	1.14	1.44	.79	.46	.32	.29	.47
IN.	.42	.38	.38	.33	.40	1.32	1.61	.92	.51	.37	.34	.52
CAL YR 1990	TOTAL 134017	MEAN 367	MAX 2740	MIN 140	CFSM .60	IN. 8.19						
WTR YR 1991	TOTAL 123013	MEAN 337	MAX 2070	MIN 114	CFSM .55	IN. 7.51						

431641089393601 FISH LAKE TRIBUTARY, AT HORNING AND FISH LAKE ROADS, NEAR ROXBURY, WI

LOCATION.--Lat 43°16'41", long 89°39'36", in SW 1/4 sec.10, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, at intersection of Horning and Fish Lake Roads about 2 mi north of Roxbury and 3.1 mi east of Sauk City.

DRAINAGE AREA.--0.399 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

REMARKS.--Samples are grab samples.

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1991			
05...	1845	E0.20	1.20
APR			
14...	0918	E0.20	4.70

E ESTIMATED.

LOCATION.--Lat 43°16'55", long 89°39'38", in SE 1/4 sec.4, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 100 ft south of Fish Lake on upstream side of Fish Lake Road, about 2.4 mi north of Roxbury, and 3.1 mi east of Sauk City.

WATER-DISCHARGE RECORDS

REMARKS.--Estimated daily discharges: Ice-affected periods, Feb. 4-11 and Feb. 21 to Mar. 7. Records good except for estimated daily discharges, which are poor. There was discharge during only 21 days during the year/

DISCHARGE, CUBIC FEET PER SECOND, NOVEMBER 1990 TO OCTOBER 1991  
DAILY MEAN VALUES

[illegible]

431655089393801 FISH LAKE TRIBUTARY (SITE A) NEAR ROXBURY, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 through November 1991 (discontinued).

PERIOD OF DAILY RECORD.--November 1990 through October 1991 (discontinued).

INSTRUMENTATION.--Automatic water sampler.

REMARKS.--Water-sample analyses by U.S. Geological Survey before June 30, 1991; after June 30, 1991, by Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

EXTREMES FOR CURRENT PERIOD.--

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 67 mg/L, Feb. 21; minimum observed, 0.05 mg/L, July 7.

TOTAL-PHOSPHORUS LOAD: Maximum daily, 51 lb, Mar. 1; minimum daily, 0.00 lb on many days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
FEB 1991					
*09...	1225	--	0.01	0.520	--
21...	1725	0.05	--	63.0	--
*21...	1730	0.05	--	67.0	--
*21...	1805	0.05	--	57.0	--
21...	2125	0.05	--	32.0	--
22...	0005	0.08	--	25.0	--
22...	1510	0.08	--	41.0	--
22...	1800	0.08	--	42.0	--
22...	2000	0.08	--	46.0	--
MAR					
*01...	0950	0.47	--	26.0	--
01...	1010	0.47	--	27.0	--
*01...	1011	0.47	--	25.0	--
01...	1102	--	0.76	27.0	--
01...	1210	0.47	--	21.0	--
01...	1410	0.47	--	20.0	--
01...	1710	0.47	--	18.0	--
01...	2210	0.47	--	17.0	--
*05...	1712	0.08	--	18.0	--
22...	2140	--	0.13	0.430	--
22...	2205	--	0.27	1.80	--
22...	2230	--	0.10	3.00	--
APR					
14...	0715	--	0.08	0.240	--
14...	1105	--	0.08	0.460	--
*14...	1106	--	0.08	0.490	--
28...	2205	--	0.13	0.240	--
28...	2240	--	1.2	--	1020
28...	2245	--	3.9	0.390	--
28...	2305	--	1.1	0.690	--
28...	2315	--	11	4.70	--
28...	2325	--	22	--	25100
28...	2350	--	33	5.80	--
29...	0030	--	12	6.30	--
29...	0050	--	4.1	--	41700
29...	0055	--	3.3	5.00	--
MAY					
21...	1525	--	0.19	4.30	--
21...	1605	--	3.2	13.0	--
21...	1610	--	3.5	9.20	--
21...	1710	--	2.6	6.70	--
21...	1735	--	1.9	4.90	--
21...	1850	--	0.71	3.80	--
21...	1950	--	0.37	3.90	--
JUN					
14...	1850	--	0.13	0.750	--
14...	2125	--	0.24	1.40	--
15...	0305	--	0.08	0.670	--
15...	0510	--	0.27	0.980	--
15...	0710	--	0.13	0.810	--
JUL					
07...	1500	--	0.10	0.050	--
SEP					
12...	0240	--	0.11	0.360	--
12...	0245	--	0.08	0.240	--

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WISCONSIN RIVER BASIN

431655089393801 FISH LAKE TRIBUTARY (SITE A) NEAR ROXBURY, WI--CONTINUED

## WATER-QUALITY DATA, OCTOBER TO NOVEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT					
24...	2045	--	0.14	0.370	--
24...	2120	--	0.08	0.430	--
24...	2135	--	0.34	1.64	--
24...	2140	--	0.71	2.07	--
24...	2145	--	1.2	3.00	--
24...	2225	--	0.61	2.39	--
24...	2240	--	0.24	1.84	--
24...	2310	--	0.61	2.17	--
25...	0010	--	0.61	2.39	--
25...	0250	--	0.16	1.53	--

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1991			
01...	1030	0.14	1.59
01...	1045	0.34	2.43
01...	1055	0.71	3.55
01...	1155	0.10	2.51
01...	1230	0.27	1.50
01...	1330	0.47	1.48
01...	1630	0.21	5.42

PHOSPHORUS TOTAL, POUNDS PER DAY, NOVEMBER 1990 TO OCTOBER 1991  
DAILY MEAN VALUES

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	.00	.00	.00	.00	50.6	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	23.2	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	4.70	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	7.61	.00	.04	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	5.57	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.03	.00	.00	.00	.00	.00	.02	.00	.00
9	.00	.00	.00	.03	.00	.01	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.01	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.03	.00	.19	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	11.9	.00	.00	10.8	.00	.00	.00	.00	.00
22	.00	.00	.00	14.1	.10	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.99
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.52
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	20.0	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	---	.00	22.2	.00	.00	.00	.00	.00	.01
30	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00	.00
31	---	.00	.00	---	.00	---	.00	---	.00	.00	---	.00
TOTAL	0.00	0.00	0.00	26.06	91.78	42.26	10.85	0.38	0.00	0.02	0.01	1.52

431655089393801 FISH LAKE TRIBUTARY (SITE A) NEAR ROXBURY, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1990 through October 1991, during non-freezing periods (discontinued).

GAGE.--Microdatalogger linked to tipping-bucket rain gage.

REMARKS.--Records are good. Records for period July 12 through Aug. 8, when the gage malfunctioned, are from a manually-read gage about 0.4 mi north of this gage.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 2.61 in., Apr. 28.

RAINFALL ACCUMULATED (INCHES), NOVEMBER 1990 TO OCTOBER 1991  
DAILY SUM VALUES

DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	.00	---	---	---	.99	.00	.00	.08	.40	.00	.00	.00
2	.00	---	---	---	.52	.00	.00	.00	.00	.00	.00	.02
3	.20	---	---	---	.00	.00	.00	.00	.00	.00	.68	.13
4	.06	---	---	---	.00	.00	.00	.00	.03	.00	.00	.69
5	.08	---	---	---	.00	.01	.81	.00	.00	.00	.00	.12
6	.00	---	---	---	.00	.00	.01	.00	.00	.00	.00	.03
7	.01	---	---	---	.00	.00	.00	.00	.61	.00	.00	.00
8	.00	---	---	---	.04	.63	.26	.00	.00	1.92	.03	.00
9	.02	---	---	---	.00	.77	.00	.00	.05	.07	.11	.00
10	.00	---	---	---	.00	.02	.00	.03	.03	.01	.01	.00
11	.00	---	---	---	.00	.00	.00	.00	.00	.01	.64	.00
12	.00	---	---	---	.00	.98	.00	.04	.21	.00	1.00	.00
13	.00	---	---	---	.00	.09	.00	.30	.00	.00	.00	.02
14	.00	---	---	---	.00	.79	.00	1.47	.00	.00	.36	.01
15	.00	---	---	---	.00	.00	.00	.64	.00	.01	.05	.00
16	.00	---	---	---	.00	.00	.01	.00	.00	.45	.15	.00
17	.00	---	---	---	.26	.00	.00	.00	.07	.00	.32	.00
18	.00	---	---	---	.00	.00	.58	.00	.00	.00	.00	.02
19	.00	---	---	---	.01	.00	.00	.00	.00	.01	.00	.13
20	.02	---	---	---	.00	.00	.00	.00	.00	.00	.00	.00
21	.30	---	---	---	.00	.00	.71	.39	.08	.00	.00	.00
22	.00	---	---	---	.79	.10	.00	.00	.25	.00	.02	.00
23	.00	---	---	---	.05	.16	.00	.00	.00	.00	.00	.00
24	.00	---	---	---	.00	.00	.00	.00	.00	.00	.16	2.16
25	.00	---	---	---	.00	.00	.15	.00	.00	.00	.04	.20
26	.01	---	---	---	.13	.00	.18	.00	.00	.00	.00	.30
27	.37	---	---	---	.50	.12	.00	.00	.00	.00	.00	.00
28	.00	---	---	---	.02	2.61	.00	.00	.56	.00	.00	.26
29	.00	---	---	---	.00	.29	.05	.00	.15	.00	.00	.41
30	.00	---	---	---	.00	.01	.13	.00	.00	.09	.00	.00
31	---	---	---	---	.01	---	.04	---	.00	.00	---	.50
TOTAL	1.07	---	---	---	3.32	6.58	2.93	2.95	2.44	2.57	3.57	5.00

## WISCONSIN RIVER BASIN

431655089393802 FISH LAKE TRIBUTARY (SITE I) NEAR ROXBURY, WI

LOCATION.--Lat 43°16'55", long 89°39'38", in SE 1/4 sec.4, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 100 ft south of Fish Lake on upstream side of Fish Lake Road, about 60 ft west of site 43165508089393801 [Fish Lake Trib (Site A) near Roxbury], about 2.4 mi north of Roxbury and 3.1 mi east of Sauk City.

DRAINAGE AREA.--<0.005 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

REMARKS.--Sample was grab sample.

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1991 05...	1717	<0.01	5.00

431657089392301 FISH LAKE TRIBUTARY (SITE G) NEAR ROXBURY, WI

LOCATION.--Lat 43°16'57", long 89°39'23", in SW 1/4 sec.3, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 50 ft south of Fish Lake, 0.4 mi east of Fish Lake Road, about 2.4 mi north of Roxbury and 3.5 mi east of Sauk City.

DRAINAGE AREA.--0.109 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

REMARKS.--Samples are grab samples.

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1991 29...	1418	0.27	1.40
MAY 16...	1000	0.03	1.00
20...	0940	0.01	0.980
22...	1340	0.02	0.960
JUN 15...	1210	<0.01	0.660



431701089394401 FISH LAKE TRIBUTARY (SITE B) NEAR ROXBURY, WI

LOCATION.--Lat 43°17'01", long 89°39'44", in SE 1/4 sec.4, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 40 ft west of Fish Lake on upstream side of Fish Lake Road, about 2.5 mi north of Roxbury and about 3.1 mi east of Sauk City.

DRAINAGE AREA.--0.009 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

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

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1991			
*01...	1055	<0.10	0.860
*05...	1800	E0.10	1.00
APR			
*14...	0932	<0.01	0.270
28...	2240	E0.30	1.90
28...	2320	E1.0	10.0
MAY			
21...	1525	E1.0	0.360

\* GRAB SAMPLE.  
E ESTIMATED.

## WISCONSIN RIVER BASIN

431717089401001 MUD LAKE TRIBUTARY (SITE D) NEAR ROXBURY, WI

LOCATION.--Lat 43°17'17", long 89°40'10", in NE 1/4 sec.4, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, at west edge of Mud Lake, about 0.4 mi west of Fish Lake Road, about 2.8 mi north of Roxbury and about 2.7 mi east of Sauk City.

DRAINAGE AREA.--0.365 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to November 1991 (discontinued).

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

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

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)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1990							
*11...	1455	E0.10	5.40	21.0	79	11.0	6.20
FEB 1991							
*21...	1755	E1.0	--	--	--	5.70	--
*22...	1650	E0.50	--	--	--	6.00	--
MAR							
*01...	1045	--	--	--	--	1.80	--
*05...	1820	E0.50	--	--	--	4.00	--
APR							
*09...	1610	E0.02	--	--	--	16.0	--
*14...	0956	E0.10	--	--	--	--	--
28...	2240	--	--	--	--	7.90	--
28...	2320	--	--	--	--	6.70	--
*29...	1144	E0.15	--	--	--	5.50	--
MAY							
*05...	1200	--	--	--	--	3.50	--
21...	1530	--	--	--	--	1.70	--
21...	1600	--	--	--	--	3.30	--
JUN							
14...	1900	--	--	--	--	9.50	--
14...	2000	--	--	--	--	7.50	--
*15...	1115	E0.05	--	--	--	16.0	--
AUG							
08...	0630	--	0.270	7.55	51	11.2	--
*08...	0935	E0.10	0.160	13.6	57	12.9	--
OCT							
24...	2130	--	--	--	--	15.1	--
NOV							
01...	1100	--	--	--	--	5.49	--
01...	1130	--	--	--	--	11.0	--

\* GRAB SAMPLE.  
E ESTIMATED.

431730089393301 MUD LAKE TRIBUTARY (SITE E) NEAR ROXBURY, WI

LOCATION.--Lat 43°17'30", long 89°39'33", in NW 1/4 sec.3, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 100 ft east of Mud Lake, on west side of Fish Lake Road, about 2.9 mi north of Roxbury and about 3.1 mi east of Sauk City.

DRAINAGE AREA.--0.027 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

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

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1991			
*05...	1805	0.02	0.480
APR			
28...	2240	--	0.380
28...	2320	--	0.390
JUN			
14...	1850	--	1.20

\* GRAB SAMPLE.

## 431736089393301 MUD LAKE TRIBUTARY (SITE F) NEAR ROXBURY, WI

LOCATION.--Lat 43°17'36", long 89°39'33", in SW 1/4 sec.34, T.10 N., R.7 E., Dane County, Hydrologic Unit 07070005, on east side of Fish Lake Road at intersection with Schoepp Road, about 3.0 mi north of Roxbury and 3.1 mi east of Sauk City.

DRAINAGE AREA.--0.157 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to November 1991 (discontinued).

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

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1991			
*14...	1122	E0.00	0.580
28...	2240	E0.10	0.670
*29...	1106	E0.00	0.970
MAY			
05...	1100	--	1.70
21...	1530	--	1.20
JUN			
14...	2000	--	0.640
OCT			
24...	2145	--	2.07
NOV			
01...	1100	--	1.48
01...	1130	--	8.14

\* GRAB SAMPLE.  
E ESTIMATED.

## 431717089395101 SOUTH SIDE MUD LAKE TRIBUTARY (SITE H) NEAR ROXBURY, WI

LOCATION.--Lat 43°17'17", long 89°39'51", in NE 1/4 sec.4, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, about 10 ft south of Mud Lake at end of field drain pipe, about 0.3 mi west of Fish Lake Road, about 2.8 mi north of Roxbury and about 2.8 mi east of Sauk City.

DRAINAGE AREA.--0.009 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1990 to October 1991 (discontinued).

REMARKS.--Samples are grab samples.

## WATER-QUALITY DATA, NOVEMBER 1990 TO OCTOBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1991			
05...	1840	E0.20	0.640
APR			
14...	1005	E0.00	1.90
29...	1150	--	2.80

E ESTIMATED.

## WISCONSIN RIVER BASIN

05406050 FISH LAKE NEAR SAUK CITY, WI

## LAKE-STAGE RECORDS

LOCATION.--Lat 43°17'02", long 89°39'15", in NE 1/4 SW 1/4 sec.3, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, on south side of lake near Ganser's Tavern and Dance Hall, 0.4 mi southwest of Crystal Lake, and 3.1 mi east of Sauk City.

DRAINAGE AREA.--8.97 mi<sup>2</sup>, includes 7.11 mi<sup>2</sup> without surface drainage. Area of Fish Lake, 252 acres.

PERIOD OF RECORD.--November 1966 to September 1981, April 1985 to September 1987, April to September 1990 (fragmentary); continuous record since Oct. 23, 1990.

REVISED RECORDS.--WDR WI-77-1: Drainage area. WDR WI-87-1: All published readings in the 1987 water year are invalid because the observer read the wrong staff gage. In the 1987 water year only one reading by the USGS is valid: May 7, 1987, water surface 10.52 ft. In the 1988 water year only one reading by the USGS is valid: May 16, 1988, water surface 10.83 ft.

GAGE.--Nonrecording gage in lake bed. Datum of gage is 848.07 ft above National Geodetic Vertical Datum of 1919. Staff gage read by James Vennie. Water-stage recorder since Oct. 23, 1990.

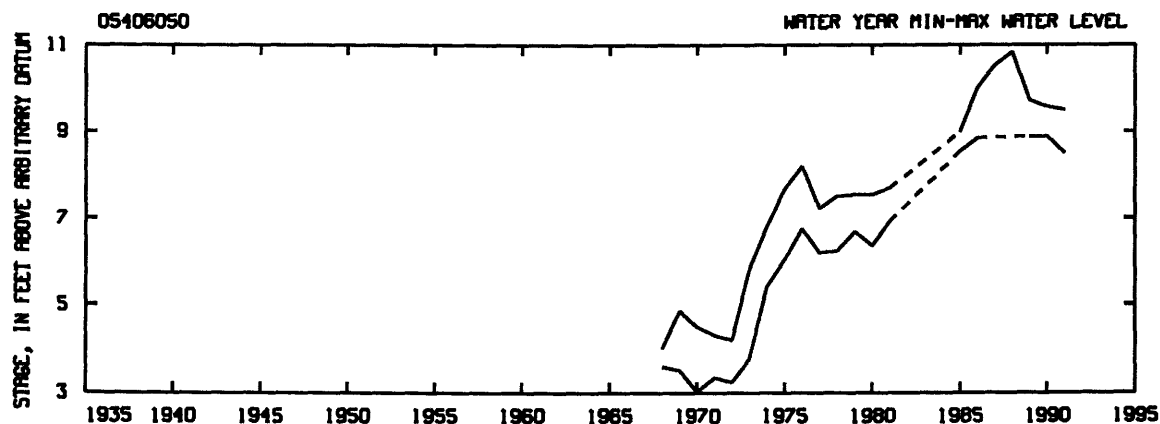
REMARKS.--Lake has no surface outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 10.83 ft, May 16, 1988; minimum observed, 3.02 ft, Aug. 29, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 9.49 ft, Apr. 29-30, May 6, 9, and 22-23; minimum observed, 8.50 ft, Sept. 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.75	8.69	---	8.83	8.81	9.06	9.47	9.45	9.20	8.82	8.58
2	---	8.75	8.68	---	8.82	8.94	9.05	9.46	9.45	9.21	8.81	8.56
3	---	8.75	8.77	---	8.81	8.95	9.04	9.44	9.43	9.18	8.79	8.59
4	---	8.76	8.79	---	8.80	8.95	9.04	9.43	9.40	9.16	8.78	8.60
5	---	8.77	8.79	---	8.79	8.95	9.04	9.46	9.37	9.14	8.76	8.58
6	---	8.76	8.78	---	8.79	8.95	9.04	9.49	9.35	9.12	8.73	8.57
7	---	8.76	8.77	---	8.79	8.95	9.03	9.48	9.33	9.12	8.72	8.56
8	---	8.75	8.77	---	8.79	8.95	9.04	9.48	9.31	9.14	8.85	8.55
9	---	8.77	8.77	8.82	8.79	8.95	9.12	9.49	9.30	9.12	8.88	8.54
10	---	8.76	8.76	---	8.79	8.95	9.15	9.48	9.29	9.11	8.87	8.54
11	8.87	8.76	8.76	---	8.78	8.95	9.13	9.48	9.28	9.09	8.85	8.54
12	---	8.75	8.76	---	8.78	8.95	9.16	9.48	9.26	9.08	8.84	8.65
13	---	8.74	---	---	8.77	8.95	9.22	9.47	9.25	9.06	8.83	8.66
14	---	8.73	---	---	8.78	8.94	9.27	9.47	9.28	9.05	8.81	8.67
15	---	8.73	---	8.85	8.79	8.94	9.30	9.46	9.44	9.03	8.80	8.67
16	---	8.72	---	8.84	8.79	8.94	9.28	9.45	9.43	9.00	8.79	8.67
17	---	8.71	---	8.84	8.78	8.94	9.28	9.44	9.41	8.99	8.81	8.65
18	---	8.71	---	8.84	8.78	8.96	9.27	9.43	9.40	8.98	8.79	8.66
19	---	8.70	---	8.84	8.79	8.96	9.26	9.43	9.38	8.96	8.77	8.63
20	---	8.69	---	8.84	8.79	8.96	9.25	9.42	9.36	8.95	8.75	8.61
21	---	8.73	---	8.84	8.78	8.96	9.24	9.44	9.35	8.95	8.74	8.59
22	---	8.73	---	8.84	8.78	8.98	9.23	9.49	9.35	8.95	8.73	8.58
23	8.84	8.72	---	8.84	8.78	9.05	9.24	9.49	9.32	8.93	8.71	8.57
24	8.82	8.70	---	8.84	8.78	9.05	9.24	9.48	9.31	8.90	8.70	8.56
25	8.81	8.69	---	8.84	8.78	9.04	9.23	9.48	9.29	8.88	8.68	8.57
26	8.80	8.69	---	8.83	8.78	9.05	9.22	9.48	9.27	8.85	8.67	8.55
27	8.79	8.72	---	8.83	8.77	9.09	9.22	9.48	9.26	8.84	8.65	8.53
28	8.78	8.72	---	8.83	8.77	9.10	9.24	9.48	9.24	8.84	8.64	8.52
29	8.77	8.71	---	8.83	---	9.08	9.49	9.47	9.22	8.86	8.63	8.51
30	8.76	8.70	---	8.83	---	9.07	9.49	9.46	9.21	8.85	8.63	8.50
31	8.76	---	---	8.83	---	9.07	---	9.46	---	8.84	8.61	---
MAX	---	8.77	---	---	8.83	9.10	9.49	9.49	9.45	9.21	8.88	8.67
MIN	---	8.69	---	---	8.77	8.81	9.03	9.42	9.21	8.84	8.61	8.50



## WISCONSIN RIVER BASIN

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05406050 FISH LAKE NEAR SAUK CITY, WI--CONTINUED

## WATER-QUALITY RECORDS

LOCATION.--Lat 43°17'14", long 89°39'08", in NW 1/4 sec.3, T.9 N., R.7 E., Dane County, Hydrologic Unit 07070005, near center of lake, and 3.6 mi east of Sauk City.

PERIOD OF RECORD.--May 1985 to current year.

REMARKS.--Secchi disc readings made by James Vennie.

## SECCHI DISC TRANSPARENCY (IN METERS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	SECCHI DISC (M) (00078)	DATE	TIME	SECCHI DISC (M) (00078)
NOV 1990			JUL 1991		
01...	1200	2.8	14...	1200	2.1
MAY 1991			AUG		
27...	1200	2.5	18...	1200	1.6
JUN					
23...	1200	1.8			

## WISCONSIN RIVER BASIN

05406460 BLACK EARTH CREEK AT CROSS PLAINS, WI

LOCATION.--Lat 43°06'38", long 89°38'44", in NW 1/4 SE 1/4 sec.3, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on left bank at bridge at County Trunk KP at Cross Plains.

DRAINAGE AREA.--12.8 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to current year.

REVISED RECORDS.--WDR WI-90-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 880 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 12 to Aug. 14. Records fair except those for period of estimated record, which is poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123 ft<sup>3</sup>/s, Mar. 8, 1990, gage height, 11.29 ft; maximum gage height, 12.80 ft, July 25, 1985; minimum daily discharge, 5.0 ft<sup>3</sup>/s, Sept. 11, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 70 ft<sup>3</sup>/s, Mar. 2, gage height, 10.24 ft; maximum gage height, 10.66 ft, July 7 (backwater from vegetation); minimum daily discharge, 5.0 ft<sup>3</sup>/s, Sept. 11.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second.  
(Shifting-control method used May 31 to July 11 and Aug. 15 to Sept. 22.)

8.9	3.7	9.5	31
9.0	6.1	10.0	56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	5.6	5.8	6.2	5.4	14	12	12	8.6	11	10	5.5
2	5.9	5.6	5.7	6.1	5.5	36	12	11	8.7	12	10	5.4
3	6.5	5.6	5.9	6.0	5.5	14	12	10	8.5	9.1	9.8	5.6
4	6.7	5.8	5.5	6.0	5.6	12	11	10	8.6	8.2	9.8	5.5
5	6.4	5.9	5.5	6.1	5.7	12	9.1	15	8.4	8.0	9.8	5.4
6	6.2	5.9	5.7	6.0	5.7	13	9.0	13	8.2	7.8	9.0	5.3
7	6.1	5.9	5.6	5.9	6.1	10	8.0	12	7.9	12	8.2	5.2
8	6.2	5.7	5.6	5.8	6.7	9.6	8.6	12	8.0	12	18	5.2
9	6.3	6.0	5.7	5.7	6.1	9.3	15	11	8.0	7.3	11	5.4
10	6.7	5.9	5.7	5.7	6.0	8.8	15	11	8.6	7.0	9.0	5.1
11	6.9	6.2	5.7	6.0	5.8	9.7	13	10	8.6	7.1	8.2	5.0
12	6.6	6.1	5.5	6.2	5.6	9.1	18	9.5	8.2	7.2	7.8	6.3
13	6.2	5.9	5.7	5.9	5.5	8.8	22	9.3	8.2	7.2	7.4	5.3
14	6.4	5.9	5.5	5.8	5.5	8.9	26	9.7	11	7.0	7.6	6.6
15	6.1	5.9	5.6	5.7	5.4	8.8	22	9.1	14	7.0	7.7	6.7
16	5.8	5.9	5.6	5.8	5.3	8.6	18	8.6	11	6.8	8.0	5.9
17	5.8	5.7	5.7	5.9	5.3	8.8	15	8.4	10	6.8	8.1	5.7
18	5.8	5.7	5.7	5.8	5.5	9.8	14	9.4	9.9	6.8	7.8	5.9
19	5.6	5.7	5.7	5.9	5.7	9.8	13	9.0	9.5	6.6	8.4	5.7
20	5.6	5.7	5.8	5.8	5.8	9.9	12	8.3	8.4	6.6	7.5	5.8
21	5.7	6.1	6.1	5.7	6.3	10	12	8.3	7.6	8.0	7.4	5.8
22	5.6	5.9	5.9	5.6	7.7	10	11	8.0	9.2	9.0	7.2	5.8
23	5.6	6.4	5.9	5.7	6.9	14	11	8.2	7.7	7.4	7.2	6.7
24	5.7	5.7	5.9	5.6	6.5	14	11	8.3	7.4	7.0	7.1	6.3
25	5.5	5.6	6.0	5.5	6.4	14	11	8.6	7.2	6.8	7.0	6.2
26	5.4	5.6	6.1	5.5	6.1	14	11	9.0	7.2	7.0	6.6	6.0
27	5.5	6.6	6.1	5.5	6.1	17	10	8.5	8.1	7.6	6.0	6.1
28	5.4	6.1	6.2	5.4	6.0	14	12	8.0	10	8.6	5.6	5.1
29	5.8	5.9	6.4	5.4	---	13	16	8.0	7.5	9.0	5.6	5.1
30	5.6	5.9	6.1	5.4	---	13	13	8.3	7.6	9.8	6.0	5.5
31	5.6	---	6.1	5.5	---	12	---	8.3	---	11	5.6	---
TOTAL	185.1	176.4	180.0	179.1	165.7	375.9	402.7	299.8	261.8	254.7	254.4	171.1
MEAN	5.97	5.88	5.81	5.78	5.92	12.1	13.4	9.67	8.73	8.22	8.21	5.70
MAX	6.9	6.6	6.4	6.2	7.7	36	26	15	14	12	18	6.7
MIN	5.4	5.6	5.5	5.4	5.3	8.6	8.0	8.0	7.2	6.6	5.6	5.0
CFSM	.47	.46	.45	.45	.46	.95	1.05	.76	.68	.64	.64	.45
IN.	.54	.51	.52	.52	.48	1.09	1.17	.87	.76	.74	.74	.50

CAL YR 1990 TOTAL 2947.1 MEAN 8.07 MAX 61 MIN 5.2 CFSM .63 IN. 8.57  
WTR YR 1991 TOTAL 2906.7 MEAN 7.96 MAX 36 MIN 5.0 CFSM .62 IN. 8.45

05406460 BLACK EARTH CREEK AT CROSS PLAINS, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 1985 to September 1986, October 1989 to current year.

DISSOLVED OXYGEN: April 1984 to September 1986, April 1989 to current year.

INSTRUMENTATION.--Continuous water temperature recorder January 1985 to September 1986, October 1989 to current year. Dissolved oxygen recorder April 1984 to September 1986, April 1989 to current year.

REMARKS.--Suspended-sediment, total phosphorus, and total nitrogen discharge were calculated for the period October 1984 to June 1986.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 23.0°C, July 25, 1985; minimum observed, 0.5°C, Mar. 8, 1990, Mar. 2, 1991.

DISSOLVED OXYGEN: Maximum observed, 16.5 mg/L, May 8, 1990; minimum observed, 3.0 mg/L, July 25, 1985.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 19.0°C, May 28; minimum observed, 0.5°C, Mar. 2.

DISSOLVED OXYGEN: Maximum observed, 15.5 mg/L, Apr. 28, May 2, 4; minimum observed, 3.6 mg/L, July 22.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					APR 1991				
03...	0930	6.1	450	12.0	25...	1108	11	560	11.0
NOV					JUN				
15...	1005	6.0	585	10.0	04...	0841	8.8	560	11.5
DEC					JUL				
20...	1528	6.1	565	7.5	10...	1130	7.0	570	15.0
FEB 1991					AUG				
01...	1536	5.4	575	7.0	20...	0746	7.2	565	11.5
MAR									
19...	1321	9.5	555	12.0					

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.0	9.0	11.0	13.0	9.0	10.5	9.0	6.0	7.5	6.5	4.0	5.0
2	14.0	8.5	11.0	12.0	10.0	11.0	8.0	5.5	6.5	5.0	3.5	4.5
3	15.0	10.5	12.0	10.5	8.5	9.5	6.0	1.0	3.5	5.5	3.0	4.0
4	13.5	9.0	11.0	9.0	8.0	8.5	6.5	4.0	5.0	5.5	3.0	4.5
5	15.0	9.5	12.0	8.5	7.5	8.0	7.5	4.0	6.0	6.5	4.0	5.5
6	15.5	11.5	13.0	9.0	7.0	8.0	7.5	4.5	6.0	6.0	3.5	4.5
7	11.5	9.0	10.5	9.5	6.5	7.5	8.0	4.5	6.5	6.0	3.0	4.5
8	9.5	9.0	9.5	8.0	6.0	7.0	8.5	5.5	7.0	6.5	4.0	5.5
9	10.0	9.0	9.5	8.0	6.5	7.0	9.0	5.5	7.0	7.0	4.0	6.0
10	9.0	6.0	7.5	9.5	6.0	7.5	8.5	5.5	7.0	6.5	4.0	5.5
11	12.0	7.0	9.0	9.0	5.5	7.0	9.0	6.0	7.0	6.0	5.5	5.5
12	12.0	8.0	9.5	9.0	6.0	7.5	8.5	6.0	7.0	7.5	5.5	6.5
13	12.5	8.0	10.0	9.5	6.0	7.5	7.0	4.5	6.0	6.5	5.5	6.0
14	11.5	9.0	10.0	11.0	6.5	8.5	7.5	4.5	6.0	8.0	5.5	7.0
15	11.5	8.0	9.5	12.0	8.5	10.0	7.5	5.5	7.0	8.0	6.5	7.5
16	13.0	9.0	10.5	10.5	7.0	9.0	7.0	5.5	6.5	8.0	5.5	6.5
17	13.5	10.5	11.5	10.0	6.5	8.0	7.5	6.5	7.0	7.5	5.0	6.0
18	10.0	7.5	8.5	9.5	7.5	8.5	7.5	6.0	7.0	7.0	4.0	5.5
19	11.0	7.0	8.5	10.5	7.5	8.5	7.5	6.0	6.5	9.0	5.5	7.0
20	10.5	8.0	9.5	10.0	7.0	8.5	7.5	6.5	7.0	7.0	4.5	6.0
21	11.5	8.0	9.5	12.0	9.0	10.5	7.0	4.5	6.0	5.5	2.5	4.0
22	12.0	7.0	9.0	10.0	7.5	8.5	4.5	3.0	3.5	4.5	2.0	3.0
23	12.0	7.5	9.5	8.5	6.0	7.5	4.5	2.5	3.5	5.0	3.5	4.5
24	11.5	8.0	9.0	8.5	6.0	7.5	5.0	2.5	4.0	5.5	3.0	4.0
25	11.5	7.0	8.5	9.0	6.5	7.5	5.5	2.0	4.0	5.5	2.0	3.5
26	11.5	7.5	9.0	10.5	6.0	7.5	5.0	2.0	3.5	6.0	3.0	4.0
27	11.5	8.0	9.5	11.0	8.5	9.5	6.0	4.0	5.0	6.5	3.5	5.0
28	11.0	7.5	8.5	8.5	5.5	6.5	7.0	5.5	6.0	7.0	4.0	5.5
29	11.5	7.0	9.0	7.5	5.5	6.0	7.5	4.0	6.5	6.0	3.5	5.0
30	13.0	9.0	10.5	8.5	5.5	7.0	4.5	3.0	3.5	5.5	2.0	3.5
31	12.5	8.5	10.0	---	---	---	5.0	3.0	4.0	6.5	3.0	4.5
MONTH	15.5	6.0	9.9	13.0	5.5	8.2	9.0	1.0	5.8	9.0	2.0	5.1





05406460 BLACK EARTH CREEK AT CROSS PLAINS, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.6	8.8	10.2	14.3	8.5	10.5	---	---	---	---	---	---
2	12.8	8.4	10.3	13.5	8.4	10.4	---	---	---	---	---	---
3	10.0	8.2	8.7	11.3	9.1	9.9	---	---	---	---	---	---
4	12.8	8.2	10.1	14.1	9.4	11.0	---	---	---	---	---	---
5	13.2	8.0	10.0	13.9	9.8	11.2	---	---	---	---	---	---
6	12.4	7.8	9.5	14.6	9.9	11.6	---	---	---	---	---	---
7	12.6	8.2	9.9	15.2	10.1	11.9	---	---	---	---	---	---
8	11.2	9.1	9.8	13.9	10.4	11.6	---	---	---	---	---	---
9	12.6	9.2	10.4	14.8	9.9	11.5	---	---	---	---	---	---
10	12.2	8.9	10.0	15.2	10.5	12.0	---	---	---	---	---	---
11	13.4	8.6	10.5	14.7	10.1	11.5	---	---	---	---	---	---
12	12.9	8.6	10.3	14.9	10.1	11.7	---	---	---	---	---	---
13	13.5	8.7	10.6	14.2	9.6	11.2	---	---	---	---	---	---
14	12.8	8.7	9.9	13.4	8.6	10.4	---	---	---	---	---	---
15	13.4	8.9	10.7	13.2	8.1	9.9	---	---	---	---	---	---
16	13.2	8.7	10.4	13.4	8.0	10.0	---	---	---	---	---	---
17	12.6	8.0	9.6	13.6	9.2	10.6	---	---	---	---	---	---
18	12.6	8.3	10.2	13.5	9.1	10.5	---	---	---	---	---	---
19	14.8	9.4	11.4	14.2	9.1	10.9	---	---	---	---	---	---
20	14.2	9.5	11.4	14.0	9.3	10.9	---	---	---	---	---	---
21	14.3	9.3	11.0	11.1	8.5	9.5	---	---	---	---	---	---
22	14.5	9.9	11.5	14.1	9.3	11.0	---	---	---	---	---	---
23	14.4	9.5	11.2	14.2	9.5	11.0	---	---	---	---	---	---
24	14.1	9.6	11.1	12.9	9.2	10.5	---	---	---	---	---	---
25	14.3	9.8	11.3	13.8	9.2	10.7	---	---	---	---	---	---
26	14.1	9.4	11.1	11.2	8.5	9.8	---	---	---	---	---	---
27	13.6	9.4	10.8	10.3	8.4	9.0	---	---	---	---	---	---
28	13.9	9.5	11.0	13.3	8.5	10.3	---	---	---	---	---	---
29	14.0	8.8	10.8	13.2	9.4	10.6	---	---	---	---	---	---
30	13.9	8.7	10.4	---	---	---	---	---	---	---	---	---
31	13.7	8.8	10.4	---	---	---	---	---	---	---	---	---
MONTH	14.8	7.8	10.5	---	---	---	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	12.7	8.8	10.4	14.8	8.6	11.1
2	---	---	---	---	---	---	12.3	8.6	10.1	15.5	8.5	11.5
3	---	---	---	---	---	---	12.5	8.3	10.0	15.4	8.5	11.2
4	---	---	---	---	---	---	11.2	8.2	9.3	15.5	8.4	11.5
5	---	---	---	---	---	---	13.2	7.8	10.0	10.3	7.5	8.7
6	---	---	---	---	---	---	13.3	7.5	9.8	11.9	8.2	10.0
7	---	---	---	---	---	---	13.6	7.3	9.8	14.6	7.8	11.0
8	---	---	---	---	---	---	13.0	7.3	8.9	14.2	7.7	10.1
9	---	---	---	---	---	---	9.7	6.9	8.4	14.5	7.3	10.4
10	---	---	---	---	---	---	13.3	8.3	10.4	13.7	7.1	9.9
11	---	---	---	---	---	---	12.3	8.3	9.8	14.5	6.8	10.0
12	---	---	---	---	---	---	11.4	8.9	10.1	14.1	6.6	9.7
13	---	---	---	---	---	---	10.1	9.0	9.6	13.9	6.5	9.5
14	---	---	---	---	---	---	9.3	8.4	8.9	13.4	6.6	9.2
15	---	---	---	---	---	---	10.1	8.2	9.0	13.1	6.7	9.5
16	---	---	---	---	---	---	10.8	8.0	9.2	12.9	6.6	9.4
17	---	---	---	---	---	---	10.9	8.0	9.2	11.9	6.8	8.9
18	---	---	---	---	---	---	10.3	8.1	9.0	11.0	7.5	9.0
19	---	---	---	---	---	---	11.0	8.2	9.2	13.4	7.4	10.1
20	---	---	---	---	---	---	11.4	8.2	9.5	13.7	7.0	10.0
21	---	---	---	---	---	---	11.4	8.0	9.4	12.7	6.8	8.7
22	---	---	---	---	---	---	11.5	7.8	9.4	13.7	6.7	9.6
23	---	---	---	---	---	---	11.7	7.7	9.5	13.5	6.5	9.3
24	---	---	---	---	---	---	13.0	8.3	10.2	13.7	6.5	9.3
25	---	---	---	---	---	---	13.3	8.2	10.1	12.4	6.8	8.8
26	---	---	---	12.5	7.5	9.5	14.2	8.2	10.7	13.4	6.6	9.5
27	---	---	---	9.3	7.0	8.1	14.1	8.1	10.0	13.8	6.8	9.8
28	---	---	---	12.0	8.5	10.0	15.5	6.7	11.0	13.7	6.6	9.6
29	---	---	---	12.3	9.1	10.5	11.2	6.7	8.4	13.8	6.5	9.6
30	---	---	---	12.6	9.2	10.7	13.4	7.9	10.4	13.6	6.4	9.4
31	---	---	---	12.3	9.1	10.3	---	---	---	12.6	6.7	9.0
MONTH	---	---	---	---	---	---	15.5	6.7	9.7	15.5	6.4	9.8

## WISCONSIN RIVER BASIN

05406460 BLACK EARTH CREEK AT CROSS PLAINS, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	7.0	9.4	12.0	5.6	8.1	10.8	5.6	7.9	10.1	6.2	7.8
2	13.5	6.8	9.6	12.0	4.9	8.1	9.3	5.5	7.2	10.2	6.3	7.8
3	14.2	7.1	10.0	11.8	5.1	8.3	9.7	5.6	7.3	8.9	6.0	7.1
4	13.7	7.4	10.1	12.0	5.5	8.5	11.4	5.9	8.2	10.5	6.5	8.1
5	13.8	7.3	10.0	12.4	5.8	8.8	11.3	6.1	8.3	10.0	6.8	8.1
6	13.8	7.3	10.1	12.4	5.5	8.6	10.3	6.4	8.1	10.8	6.7	8.3
7	13.9	7.3	10.1	12.4	5.4	7.8	8.9	6.4	7.5	10.4	6.6	8.1
8	13.9	7.3	10.1	12.0	4.8	8.2	7.7	5.4	6.3	9.6	6.5	7.7
9	12.7	7.1	9.4	12.4	5.6	8.6	11.5	5.6	8.2	10.1	6.2	7.6
10	14.0	7.0	9.5	12.4	5.6	8.8	11.8	6.5	8.7	9.7	6.2	7.6
11	13.8	6.9	9.8	12.4	5.6	8.7	12.1	6.7	9.1	8.8	6.2	7.4
12	13.7	6.8	9.6	10.1	5.0	7.4	10.6	6.2	8.3	8.8	6.0	7.1
13	13.8	6.6	9.8	11.6	5.4	8.2	10.5	6.0	7.9	10.2	6.4	7.7
14	13.5	6.1	9.1	12.1	5.8	8.7	10.4	6.0	7.9	8.7	5.6	7.1
15	12.3	5.7	8.2	12.0	5.8	8.6	10.3	5.8	7.7	9.0	5.3	6.7
16	14.0	6.6	9.9	---	---	---	9.4	5.6	7.2	10.0	6.1	7.6
17	14.2	6.9	10.1	---	---	---	9.8	5.3	7.2	10.0	6.4	7.7
18	14.5	7.0	10.3	---	---	---	10.0	5.8	7.6	10.1	6.3	8.0
19	---	---	---	10.8	5.1	7.7	8.6	5.8	7.3	10.0	7.5	8.5
20	---	---	---	11.5	5.2	7.9	10.3	6.5	8.1	10.7	7.6	8.8
21	13.0	6.4	8.9	9.7	4.8	6.6	10.4	6.2	7.8	10.4	7.2	8.7
22	10.4	5.9	7.6	10.4	3.6	6.5	10.4	6.0	7.7	9.0	7.2	7.9
23	13.3	6.9	9.7	11.3	4.7	7.7	10.3	6.2	7.8	10.5	7.0	8.6
24	13.5	6.3	9.5	11.3	5.5	8.0	10.3	6.2	7.9	9.3	7.3	8.1
25	13.1	6.1	9.3	11.1	5.6	8.1	10.4	6.1	7.7	9.9	7.5	8.3
26	13.0	5.9	9.0	11.3	6.1	8.3	10.1	5.9	7.6	10.3	7.6	8.7
27	12.7	5.1	8.5	11.7	6.2	8.6	10.2	5.9	7.5	10.6	7.9	9.0
28	12.9	5.0	8.7	8.5	5.7	6.9	9.9	5.8	7.4	10.5	8.1	9.0
29	13.0	5.6	8.8	10.9	5.5	7.8	9.6	5.8	7.3	10.4	7.7	8.9
30	12.5	5.4	8.5	11.3	5.8	8.1	9.8	5.5	7.0	10.2	7.7	8.4
31	---	---	---	11.1	5.8	8.0	9.8	5.5	7.3	---	---	---
MONTH	---	---	---	---	---	---	12.1	5.3	7.7	10.8	5.3	8.0

## WISCONSIN RIVER BASIN

303

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 Whipporwill Road, 0.5 mi south of intersection with County Trunk K.

PERIOD OF RECORD.--October 1989 to current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 27, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 9, Dec. 15, and Jan. 5, 12, 14, 16. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Oct. 10, Nov. 5, Dec. 17-18, 20, 28-29, Feb. 18, and Mar. 17-18.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.09 in., June 8, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.74 in., Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.00	.00	.00	.88	.00	.00	.05	1.29	.00	.00
2	.00	.00	.00	.00	.00	.48	.00	.00	.00	.00	.00	.00
3	.83	.19	.00	.00	.00	.00	.00	.00	.00	---	.00	.28
4	.00	.03	.00	.00	.00	.00	.00	.00	.00	.22	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.95	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
7	.05	---	.00	.00	.00	.00	.00	.00	.00	1.39	.12	.00
8	.15	.00	.00	.00	.00	.05	.89	.14	.00	---	1.74	.01
9	.00	.00	.00	.00	.00	.00	.81	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.05	.00	.29	.00	.00	.00
11	.50	.01	.00	.00	.00	.00	.00	.00	.00	.02	.00	.41
12	.00	.00	.00	.00	.00	.00	1.01	.00	.11	.01	.00	1.15
13	.00	.00	.00	.00	.00	.00	.06	.00	.37	.04	.00	.00
14	.23	.00	.00	.00	.00	.00	.64	.00	1.05	.00	.00	1.43
15	.00	.00	.00	.00	.00	.00	.00	.00	.40	---	.00	.25
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.01
17	.18	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.37
18	.11	.00	.00	.00	.00	.00	.00	.52	.00	.00	.00	.02
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
20	.05	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.04	.20	.00	.00	.00	.00	.00	.10	1.22	.03	.00	.00
22	.00	.00	.00	.00	.00	.66	.09	---	.00	.39	.00	.02
23	.00	.00	.00	.00	.00	.02	.22	.00	.00	.00	.01	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15
25	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00	.02
26	.00	.01	.00	.00	.00	.08	.00	.53	.00	.00	.00	.00
27	.00	.56	.00	.00	.00	.61	.17	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.02	1.23	.00	.00	.58	.00	.00
29	.00	.00	.00	.00	---	.00	.44	.00	.03	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.22	.00	.00	.15	.00
31	.00	---	.00	.00	---	.00	---	.03	---	.00	.00	---
TOTAL	2.15	---	0.00	0.00	0.00	2.80	5.61	---	3.52	---	2.23	4.13

## 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 current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 28, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 7, 9, Dec. 4-5, 15, and Jan. 8-9, 12, 14, 16. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Oct. 10, Nov. 5, Dec. 17-18, 20, 28-29, Feb. 18, and Mar. 17-19, 31. Unpublished rainfall data collected at this site during 1985-86 water years is available for inspection at the District Office.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.35 in., June 28, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.28 in., Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.00	.00	.00	.00	.81	.00	---	---	---	.00	.00
2	.00	.00	.00	.00	.00	.69	.00	---	---	---	.00	.00
3	.79	.22	.00	.00	.00	.00	.00	---	---	---	.00	.18
4	.00	.02	.00	---	.00	.00	.00	---	---	---	.00	.00
5	.00	.00	.00	---	.00	.00	.00	---	---	---	.00	.00
6	.00	.00	.00	---	.00	.00	.00	---	---	---	.00	.00
7	.16	.00	.00	---	.00	.00	.00	---	---	---	.15	.00
8	.18	.00	.00	.00	.00	.04	.49	---	---	---	2.28	.01
9	.00	.00	.00	.00	.00	.00	.73	---	---	---	.00	.00
10	.00	.00	.00	.00	.00	.00	.22	---	---	---	.00	.00
11	.75	.01	.00	.00	.00	.00	---	---	---	---	.00	.46
12	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.97
13	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.00
14	.30	.00	.00	.00	.00	.00	---	---	---	---	.00	1.40
15	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.31
16	.00	.00	.00	.00	.00	.00	---	---	---	---	.22	.02
17	.16	.00	.00	.00	.00	.00	---	---	---	---	.00	.42
18	.17	.00	.00	.00	.00	.00	---	---	---	---	.00	.01
19	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.00
20	.06	.06	.00	.00	.00	.00	---	---	---	---	.00	.00
21	.06	.22	.00	.00	.00	.00	---	---	---	---	.00	.00
22	.00	.00	.00	.00	.00	.34	---	---	---	---	.00	.01
23	.00	.00	.00	.00	.00	.41	---	---	---	---	.04	.00
24	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.16
25	.00	.00	.00	.00	.00	.00	---	---	---	---	.00	.02
26	.00	.03	.00	.00	.00	.07	---	---	---	.00	.00	.00
27	.00	.61	.00	.00	.00	.68	---	---	---	.00	.00	.00
28	.00	.00	.00	.00	.00	.05	---	---	---	.63	.00	.00
29	.00	.00	.00	.00	---	.00	---	---	---	.01	.00	.00
30	.00	.00	.00	.00	---	.00	---	---	---	.00	.12	.00
31	.00	---	.00	.00	---	.00	---	---	---	.00	.00	---
TOTAL	2.66	1.17	0.00	---	0.00	3.09	---	---	---	---	2.81	3.97

## WISCONSIN RIVER BASIN

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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 current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 28, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 7, 9, Dec. 4-5, 15, and Jan. 5, 12, 14, 16. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Oct. 10, Nov. 5, Dec. 17, 20, 28-29, Feb. 18, and Mar. 17-19, 31.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.86 in., June 28, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.34 in., Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.00	.00	.00	.86	.00	.00	.13	---	.00	.00
2	.00	.00	.00	.00	.00	.59	.00	.00	.00	.01	.00	.00
3	.78	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
4	.00	.11	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	1.20	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.04
7	.19	.00	.00	.00	.00	.00	.00	.00	.00	.83	.28	.00
8	.16	.00	.00	.00	.00	.03	.90	.10	.00	.00	2.34	.01
9	.00	.00	.00	.00	.00	.00	.85	.00	.00	.00	.01	.00
10	.00	.00	.00	.00	.00	.00	.07	.00	.32	.00	.01	.00
11	.66	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.31
12	.00	.00	.00	.00	.00	.00	1.33	.00	.24	.06	.01	.85
13	.00	.00	.00	.00	.00	.00	.07	.00	.45	.01	.00	.00
14	.27	.00	.00	.00	.00	.00	.88	.00	1.13	.00	.00	1.46
15	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.40
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.02
17	.18	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.44
18	.14	.00	.00	.00	.00	.00	.00	.59	.00	.00	.00	.01
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00
20	.05	.02	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
21	.07	.24	.00	.00	.00	.00	.00	.18	.66	.44	.00	.00
22	.00	.00	.00	.00	.00	.67	.17	.01	.00	.17	.00	.01
23	.00	.00	.00	.00	.00	.05	.09	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.17
25	.00	.00	.00	.00	.00	.00	.00	.36	.00	.01	.00	.01
26	.00	.02	.00	.00	.00	.15	.00	.20	.00	.00	.00	.00
27	.00	.60	.00	.00	.00	.75	.17	.00	.00	.00	.00	.01
28	.00	.00	.00	.00	.00	.05	1.24	.00	.00	.58	.00	.00
29	.00	.00	.00	.00	---	.00	.33	.00	.01	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.01	.16	.01	.00	.25	.00
31	.00	---	.00	.00	---	.00	---	.03	---	.00	.01	---
TOTAL	2.52	1.14	0.00	0.00	0.00	3.15	6.11	2.86	3.25	---	3.13	4.03

05406470 BREWERY CREEK AT CROSS PLAINS, WI

LOCATION.--Lat 43°38'40", Long 89°38'44", 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 mi<sup>2</sup>, of which 2.80 mi<sup>2</sup> is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Ice period, Dec. 6 to Mar. 21. Records poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 231 ft<sup>3</sup>/s, July 25, 1985, gage height, 13.51 ft; minimum discharge, 0.00 ft<sup>3</sup>/s, Aug. 9, 1990, and many days in the 1991 water year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 54 ft<sup>3</sup>/s (estimated), Mar. 2, gage height, 11.89 ft (backwater from ice); minimum, no flow on many days during current year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.17	.16	.01	.01	3.0	.81	1.2	.20	.30	.00	.00
2	.11	.14	.14	.01	.01	20	.68	.83	.19	3.9	.00	.00
3	.27	.14	.15	.01	.02	6.0	.62	.62	.18	.33	.00	.03
4	.26	.17	.06	.01	.03	4.0	.53	.48	.15	.20	.00	.00
5	.17	.15	.10	.01	.04	3.5	.49	2.9	.14	.16	.00	.00
6	.16	.14	.10	.01	.03	4.5	.46	2.2	.15	.12	.00	.00
7	.16	.14	.11	.01	.04	1.5	.37	1.3	.16	1.0	.17	.00
8	.19	.13	.12	.01	.08	1.2	.67	1.0	.14	5.3	3.9	.00
9	.21	.15	.13	.01	.15	1.1	4.4	.77	.12	.28	1.7	.00
10	.36	.14	.15	.01	.07	1.0	2.8	.61	.21	.18	.61	.00
11	.39	.13	.17	.01	.06	.90	1.6	.52	.24	.09	.46	.04
12	.39	.12	.20	.01	.05	.80	3.7	.47	.26	.06	.40	.47
13	.27	.12	.23	.01	.04	.70	7.8	.39	.26	.04	.35	.16
14	.28	.13	.20	.01	.03	.64	8.0	.37	.59	.03	.34	.82
15	.32	.14	.19	.01	.02	.60	3.8	.32	1.7	.03	.32	1.7
16	.29	.15	.20	.01	.02	.60	2.0	.25	.94	.03	.30	1.0
17	.27	.15	.22	.01	.03	.80	1.5	.24	.67	.01	.32	.54
18	.31	.16	.19	.01	.04	1.5	1.2	.48	.54	.00	.24	.57
19	.30	.16	.18	.02	.05	1.0	.89	.28	.42	.02	.16	.52
20	.28	.16	.18	.03	.06	.90	.71	.19	.36	.00	.09	.30
21	.29	.20	.15	.02	.30	1.5	.58	.21	.39	.16	.03	.23
22	.27	.16	.10	.01	1.0	2.0	.44	.19	2.0	.10	.00	.20
23	.26	.15	.07	.01	.60	4.5	.53	.17	.56	.01	.00	.27
24	.25	.16	.05	.01	.40	2.3	.39	.17	.41	.00	.00	.19
25	.23	.17	.04	.01	.30	1.6	.32	.21	.33	.00	.00	.19
26	.23	.15	.03	.01	.27	1.6	.32	.29	.25	.00	.00	.17
27	.21	.25	.02	.01	.26	3.8	.40	.21	.21	.00	.00	.08
28	.21	.21	.03	.01	.25	2.3	.65	.18	.09	.13	.00	.06
29	.22	.17	.04	.01	---	1.9	5.6	.20	.05	.11	.00	.06
30	.21	.17	.03	.01	---	1.4	2.2	.25	.05	.04	.11	.06
31	.20	---	.02	.01	---	1.0	---	.23	---	.00	.00	---
TOTAL	7.68	4.68	3.76	0.35	4.26	78.14	54.46	17.73	11.96	12.63	9.50	7.66
MEAN	.25	.16	.12	.011	.15	2.52	1.82	.57	.40	.41	.31	.26
MAX	.39	.25	.23	.03	1.0	20	8.0	2.9	2.0	5.3	3.9	1.7
MIN	.11	.12	.02	.01	.01	.60	.32	.17	.05	.00	.00	.00
CAL YR 1990	TOTAL	389.63	MEAN	1.07	MAX	47	MIN	.02				
WTR YR 1991	TOTAL	212.81	MEAN	.58	MAX	20	MIN	.00				

05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

## 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 (discontinued).

SUSPENDED-SOLIDS DISCHARGE: 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.--Suspended-sediment and total-nitrogen discharge was calculated for the period October 1984 to June 1986. Dissolved-oxygen concentrations greater than 20.0 mg/L out of calibration range of meter. 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, 33.0°C, May 28 and July 22, 1991; minimum observed, 0.0°C, on many days during 1985, 1986, 1990, and 1991 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-PHOSPHORUS DISCHARGE: Maximum daily, 1,830 lb, July 25, 1985; 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, 33.0°C, May 28 and July 22; minimum observed, 0.0°C, on many days.

DISSOLVED OXYGEN: Maximum observed, 21.6 mg/L, Apr. 5; minimum observed, 0.3 mg/L, June 15.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 7.3 tons, Apr. 29; minimum daily, 0.00 ton, Dec. 25-31, 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.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 67.6 lb, Apr. 14; minimum daily, 0.00 lb, July 20, 24-27, 31, Aug. 1-6, 22-29, 31, Sept. 1-2, and 4-10.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990				
03...	1134	0.30	380	15.5
NOV				
15...	1045	0.14	740	9.5
DEC				
20...	1230	0.18	670	0.0
MAR 1991				
19...	1415	0.95	605	7.0
APR				
25...	0916	0.30	690	9.0
MAY				
14...	0955	0.32	635	19.5
JUN				
04...	1351	0.12	540	21.5
JUL				
10...	1111	0.14	625	22.0
AUG				
20...	0843	0.10	660	14.5

## WISCONSIN RIVER BASIN

05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH 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)	STREP- TOCOCCHI KF AGAR (COLS. PER 100 ML) (31673)	ALKA- LITY WAT WH TOT FET LAB MG/L AS CAC03 (00417)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
OCT 1990									
*05...	1416	--	0.17	7.8	7.9	130000	32000	--	48
*19...	1330	--	0.31	7.8	--	--	--	--	47
NOV									
*02...	1320	--	0.14	8.5	--	1000	5900	28	24
DEC									
*14...	1255	0.20	--	7.7	--	250	470	--	59
FEB 1991									
14...	1315	0.03	--	7.5	1.5	30	10	--	14
MAR									
23...	0230	--	6.9	7.9	21	--	--	--	608
*23...	0829	--	4.9	8.1	--	--	--	--	82
23...	0830	--	4.9	7.9	8.9	--	--	--	115
*23...	0831	--	4.9	8.0	8.0	--	--	--	66
APR									
*11...	1630	--	1.4	8.3	0.9	770	170	--	6
12...	1930	--	6.9	7.6	--	--	--	--	372
12...	2100	--	11	7.6	--	--	--	--	910
12...	2230	--	14	7.6	--	--	--	--	900
13...	0845	--	7.5	7.9	--	--	--	--	152
14...	0730	--	7.2	7.9	--	--	--	--	480
14...	1015	--	10	7.7	--	--	--	--	690
14...	1200	--	14	7.8	--	--	--	--	380
14...	2100	--	7.5	8.1	--	--	--	--	112
15...	1300	--	3.4	8.3	--	--	--	--	27
29...	0215	--	6.9	7.5	>18	--	--	--	1560
29...	0315	--	9.7	7.6	16	--	--	--	2620
*29...	1000	--	4.6	7.8	8.9	--	--	--	226
*29...	1005	--	4.5	7.8	9.8	--	--	--	264
29...	1011	--	4.3	7.7	10	--	--	--	368
*30...	1222	--	2.1	8.3	1.5	12000	2300	--	16
MAY									
05...	1215	--	7.9	7.7	>22	--	--	--	1480
05...	1230	--	6.2	--	--	--	--	--	--
05...	1600	--	5.9	7.8	16	--	--	--	1120
*07...	1315	--	1.3	8.4	1.2	2200	820	--	23
*07...	1320	--	1.3	--	--	--	--	--	--
*22...	1345	--	0.19	8.6	3.1	6700	8300	--	12
JUN									
*04...	1010	--	0.17	8.3	4.0	2200	3700	--	108
*13...	1200	--	0.25	8.3	1.8	--	--	--	5
*19...	1400	--	0.38	8.0	2.2	8600	2200	--	14
JUL									
02...	0030	--	4.0	8.1	15	--	--	--	180
02...	0045	--	7.1	7.9	38	--	--	--	254
02...	0115	--	12	7.9	28	--	--	--	344
02...	0645	--	5.9	7.7	15	--	--	--	172
07...	1500	--	0.03	7.1	7.7	--	--	--	340
07...	1545	--	0.03	7.1	11	--	--	--	370
07...	2230	--	0.79	7.7	36	--	--	--	484
07...	2245	--	0.79	7.7	40	--	--	--	448
07...	2315	--	2.0	7.6	24	--	--	--	704
08...	0500	--	7.9	7.6	13	--	--	--	308
08...	0915	--	2.8	7.6	8.8	--	--	--	124
*11...	1225	--	0.09	8.3	1.8	1500	1400	--	28
*29...	0945	--	0.09	7.4	2.1	7500	4500	--	21
AUG									
*07...	1010	--	0.22	7.8	3.7	40000	30000	--	17
08...	0330	--	4.7	7.7	5.5	150000	92000	--	164
08...	0345	--	13	7.8	6.4	180000	110000	--	584
08...	0700	--	4.5	7.6	9.6	100000	260000	--	180
*09...	1340	--	1.1	7.9	2.2	150000	10000	--	26
*19...	1245	--	0.19	8.1	1.5	2000	850	--	6
SEP									
*11...	0845	--	0.0	--	--	960	2300	--	--
14...	2115	--	4.7	7.9	6.5	--	--	--	320
14...	2130	--	7.6	7.9	6.1	--	--	--	424
*16...	1030	--	1.0	8.3	2.0	8000	2700	--	3

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.



## WISCONSIN RIVER BASIN

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05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1990									
05...	476	146	40	8	0.900	1.30	--	--	--
19...	492	120	41	6	0.800	1.20	--	0.470	--
NOV									
02...	438	116	20	4	0.370	0.060	--	0.230	--
DEC									
14...	522	124	49	10	1.80	0.360	--	0.160	--
FEB 1991									
14...	474	126	10	4	1.55	0.493	--	0.180	--
MAR									
23...	1050	268	528	80	5.49	1.20	--	2.06	--
23...	558	210	68	14	6.03	0.825	--	0.810	--
23...	574	212	97	18	6.04	0.815	--	0.830	--
23...	526	204	54	12	5.97	0.849	--	0.800	--
APR									
11...	470	144	--	<2	5.30	0.075	--	0.150	--
12...	566	132	300	72	1.34	1.18	--	2.42	--
12...	1180	216	750	160	3.06	1.32	--	4.03	--
12...	1160	208	770	130	4.19	1.02	--	2.95	--
13...	462	118	124	28	5.81	0.213	--	0.660	--
14...	696	130	416	64	3.23	0.639	--	1.20	--
14...	1040	234	540	150	4.88	1.08	--	3.52	--
14...	700	152	325	55	4.40	0.455	--	1.52	--
14...	454	126	94	18	5.62	0.230	--	0.680	--
15...	448	152	21	6	6.71	0.134	--	0.360	--
29...	1860	366	1340	220	2.64	2.53	--	6.28	--
29...	2780	366	2320	300	2.75	1.14	--	5.71	--
29...	566	134	194	32	3.46	0.656	--	1.13	--
29...	650	142	232	32	3.46	0.662	--	1.08	--
29...	706	144	324	44	3.44	0.630	--	1.27	--
30...	452	124	14	2	5.32	0.185	--	0.230	--
MAY									
05...	1590	200	1300	176	0.728	1.13	--	3.52	--
05...	--	--	--	--	--	--	--	--	1630
05...	1370	220	968	152	3.71	0.936	--	2.62	1110
07...	--	--	--	--	5.03	0.062	0.60	0.190	--
07...	--	--	--	--	--	--	--	--	87
22...	--	--	--	--	0.821	0.211	1.0	0.510	41
JUN									
04...	474	136	95	13	0.370	0.025	--	0.630	--
13...	370	118	0	5	0.268	0.059	--	0.600	3
19...	--	--	--	--	1.16	0.118	0.90	0.430	10
JUL									
02...	556	160	152	28	0.582	0.572	--	1.39	167
02...	712	210	202	52	0.625	1.83	--	--	229
02...	674	182	284	60	1.06	1.00	--	1.13	353
02...	502	128	136	36	1.09	0.647	--	2.15	274
07...	388	56	300	40	0.296	0.293	--	0.550	318
07...	474	90	320	50	0.674	0.271	--	1.03	363
07...	856	216	400	84	2.18	1.03	--	2.71	486
07...	850	218	368	80	2.23	1.41	--	3.17	468
07...	944	178	596	108	1.86	0.552	--	2.43	717
08...	696	136	248	60	1.38	0.178	--	2.14	455
08...	460	106	92	32	1.14	0.141	--	1.55	265
11...	--	--	--	--	0.645	0.044	0.80	0.650	67
29...	378	102	17	4	0.338	0.181	--	0.490	44
AUG									
07...	288	88	12	5	0.686	0.330	--	0.430	11
08...	280	76	124	40	0.820	0.267	--	0.520	--
08...	638	90	508	76	0.411	0.152	--	0.910	--
08...	368	100	146	34	1.84	0.790	--	1.81	--
09...	364	110	19	7	0.976	0.579	--	0.970	21
19...	426	136	--	<2	0.102	0.051	--	0.560	8
SEP									
11...	--	--	--	--	--	--	--	--	5
14...	526	86	276	44	0.333	0.141	--	0.960	--
14...	586	86	372	52	0.310	0.144	--	1.06	--
16...	400	114	1	2	0.619	0.603	--	1.17	--

## WISCONSIN RIVER BASIN

05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)		
DATE	TIME									
JUN 1991										
**14...	2046	0.55	0.15	0.39	<0.30	<0	<1	<0.2		
		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
JUL 1991										
02...	0030	4.0	54	34	6.6	100	<20	4000	480	60
02...	0045	7.1	57	34	10	100	20	6400	760	70
02...	0115	12	38	24	6.6	200	26	13000	800	80
02...	0645	5.9	21	12	4.9	200	28	14000	520	110
07...	1500	0.03	7.2	4.3	1.1	80	31	7200	360	70
07...	1545	0.03	15	9.0	2.3	100	<20	12000	530	70
07...	2230	0.79	42	25	7.8	200	27	19000	920	100
07...	2245	0.79	41	24	9.1	200	29	16000	920	90
07...	2315	2.0	31	20	5.0	200	33	25000	1200	110
08...	0500	7.9	19	12	3.3	200	32	26000	930	110
08...	0915	2.8	22	12	3.3	100	20	15000	470	70
SEP										
14...	2115	4.7	23	14	3.0	100	29	18000	670	70
14...	2130	7.6	20	13	2.5	100	23	19000	710	70
*16...	1030	1.0	60	33	6.5	70	<20	420	120	<10

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

\*\* GRAB SAMPLE.

## 05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.5	10.0	12.5	14.5	7.5	11.0	e.00	e.00	e.00	e.00	e.00	e.00
2	17.0	7.5	12.0	15.0	11.5	13.0	e.00	e.00	e.00	e.00	e.00	e.00
3	18.0	13.0	15.0	13.0	7.5	11.0	e.00	e.00	e.00	e.00	e.00	e.00
4	16.5	10.0	13.0	7.5	5.0	6.5	e.00	e.00	e.00	e.00	e.00	e.00
5	20.0	10.5	15.0	5.0	3.0	4.0	e.00	e.00	e.00	e.00	e.00	e.00
6	22.0	15.5	18.0	5.0	1.5	3.0	e.00	e.00	e.00	e.00	e.00	e.00
7	16.0	9.5	12.5	4.5	.50	2.5	e.00	e.00	e.00	e.00	e.00	e.00
8	9.5	7.5	8.5	.50	.00	.50	e.00	e.00	e.00	e.00	e.00	e.00
9	9.5	6.5	8.0	3.5	.00	1.5	e.00	e.00	e.00	e.00	e.00	e.00
10	7.0	2.0	4.5	5.0	.00	1.5	e.00	e.00	e.00	e.00	e.00	e.00
11	10.5	.50	5.0	4.0	.00	1.0	e.00	e.00	e.00	e.00	e.00	e.00
12	12.0	5.0	8.0	4.0	.00	1.0	e.00	e.00	e.00	e.00	e.00	e.00
13	13.0	5.5	9.0	3.0	.00	1.0	e.00	e.00	e.00	e.00	e.00	e.00
14	14.0	9.0	11.0	8.5	.00	4.0	e.00	e.00	e.00	e.00	e.00	e.00
15	11.0	6.0	8.5	12.5	6.0	9.0	e.00	e.00	e.00	e.00	e.00	e.00
16	14.5	7.5	11.0	10.5	4.0	8.5	e.00	e.00	e.00	e.00	e.00	e.00
17	17.5	12.5	14.5	6.0	.50	3.5	e.00	e.00	e.00	e.00	e.00	e.00
18	13.0	5.5	8.0	7.0	3.0	5.0	e.00	e.00	e.00	e.00	e.00	e.00
19	9.5	3.0	6.0	---	---	---	e.00	e.00	e.00	e.00	e.00	e.00
20	10.5	6.0	8.5	---	---	---	e.00	e.00	e.00	e.00	e.00	e.00
21	11.0	5.5	9.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
22	10.0	2.5	6.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
23	10.5	4.0	7.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
24	10.0	4.5	7.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
25	8.5	2.0	5.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
26	9.0	1.5	5.0	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
27	9.5	4.5	6.5	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
28	8.5	2.0	4.5	.00	.00	.00	e.00	e.00	e.00	e.00	e.00	e.00
29	10.0	1.0	5.5	---	---	---	e.00	e.00	e.00	e.00	e.00	e.00
30	13.0	6.0	9.5	---	---	---	e.00	e.00	e.00	e.00	e.00	e.00
31	13.5	6.5	10.0	---	---	---	e.00	e.00	e.00	e.00	e.00	e.00
MONTH	22.0	.50	9.1	---	---	---	.00	.00	.00	.00	.00	.00
FEBRUARY			MARCH			APRIL			MAY			
1	e.00	e.00	e.00	---	---	---	---	---	---	15.5	7.0	10.5
2	e.00	e.00	e.00	---	---	---	---	---	---	20.5	5.0	11.5
3	e.00	e.00	e.00	---	---	---	---	---	---	14.5	5.5	10.0
4	e.00	e.00	e.00	---	---	---	---	---	---	19.0	7.0	12.5
5	e.00	e.00	e.00	---	---	---	---	---	---	13.5	8.5	10.0
6	e.00	e.00	e.00	---	---	---	---	---	---	8.5	6.5	7.5
7	e.00	e.00	e.00	---	---	---	---	---	---	20.0	4.5	11.0
8	e.00	e.00	e.00	---	---	---	---	---	---	18.5	9.0	12.5
9	e.00	e.00	e.00	---	---	---	---	---	---	26.0	9.0	17.0
10	e.00	e.00	e.00	---	---	---	---	---	---	23.0	12.0	18.0
11	e.00	e.00	e.00	---	---	---	---	---	---	28.5	13.5	20.5
12	e.00	e.00	e.00	---	---	---	---	---	---	29.5	16.0	22.0
13	e.00	e.00	e.00	---	---	---	---	---	---	29.0	17.0	22.5
14	e.00	e.00	e.00	---	---	---	---	---	---	28.0	15.5	21.5
15	e.00	e.00	e.00	---	---	---	---	---	---	27.5	17.0	21.5
16	e.00	e.00	e.00	---	---	---	---	---	---	25.5	18.5	21.5
17	e.00	e.00	e.00	---	---	---	---	---	---	20.5	12.5	17.5
18	e.00	e.00	e.00	---	---	---	---	---	---	12.5	11.0	11.5
19	e.00	e.00	e.00	---	---	---	---	---	---	19.5	10.5	14.0
20	e.00	e.00	e.00	---	---	---	---	---	---	27.0	12.5	18.5
21	e.00	e.00	e.00	---	---	---	---	---	---	23.5	18.0	20.0
22	e.00	e.00	e.00	---	---	---	---	---	---	29.0	19.5	23.5
23	e.00	e.00	e.00	---	---	---	---	---	---	29.5	21.0	24.5
24	e.00	e.00	e.00	---	---	---	---	---	---	29.5	21.5	24.5
25	e.00	e.00	e.00	---	---	---	---	---	---	23.5	20.5	22.0
26	e.00	e.00	e.00	---	---	---	---	---	---	28.0	20.5	23.5
27	e.00	e.00	e.00	---	---	---	22.5	13.5	17.0	31.0	19.5	24.5
28	e.00	e.00	e.00	---	---	---	27.5	10.5	18.0	33.0	21.5	26.5
29	---	---	---	---	---	---	17.5	13.5	15.5	32.0	24.0	27.5
30	---	---	---	---	---	---	13.0	8.5	10.5	29.0	22.0	25.5
31	---	---	---	---	---	---	---	---	---	25.5	22.0	24.0
MONTH	.00	.00	.00	---	---	---	---	---	---	33.0	4.5	18.6

e Estimated

05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.0	22.0	23.5	27.5	21.0	24.0	28.0	17.0	22.0	25.0	16.0	20.0
2	26.5	22.0	24.0	28.5	21.5	24.5	24.5	20.5	22.0	25.0	16.5	20.5
3	29.0	22.0	24.5	27.5	21.0	24.0	24.0	20.0	21.5	25.0	19.0	22.0
4	25.0	18.0	21.5	26.0	19.5	22.5	26.0	18.0	21.0	23.5	15.0	19.0
5	26.0	16.0	20.5	30.0	19.0	23.5	25.5	16.5	20.5	19.5	14.0	17.0
6	26.0	15.5	20.5	32.0	20.5	25.5	21.5	16.0	19.0	24.5	15.0	19.5
7	26.5	15.5	21.0	29.0	21.0	24.0	20.5	18.5	19.5	24.5	17.0	20.5
8	26.5	17.0	21.5	27.0	20.0	22.5	19.5	17.5	18.5	21.5	17.5	20.0
9	23.5	18.5	20.5	27.0	18.5	22.5	25.5	15.5	20.0	27.0	20.0	23.0
10	24.5	19.5	22.0	31.0	18.0	23.5	27.0	16.0	20.5	24.0	18.5	22.0
11	26.5	20.5	23.0	31.0	19.5	24.0	27.5	16.0	21.5	20.0	17.0	18.5
12	28.5	20.5	24.0	26.5	22.0	24.0	28.0	18.0	22.0	20.0	18.0	19.0
13	27.0	19.5	23.5	27.5	20.5	23.0	26.5	16.5	21.0	23.5	19.0	21.0
14	27.0	21.5	24.0	28.0	17.5	22.0	27.5	17.0	22.0	23.5	20.5	22.0
15	23.0	21.0	22.0	27.0	16.5	21.5	28.0	18.5	23.0	24.5	21.5	22.5
16	27.0	19.0	22.5	29.0	18.0	23.0	24.0	19.5	22.0	22.5	18.0	20.5
17	27.5	18.5	22.5	25.5	21.0	23.0	26.0	20.5	22.5	19.5	15.0	17.5
18	28.0	18.5	23.0	31.0	20.5	25.0	25.5	18.5	21.5	18.0	13.0	15.5
19	28.0	20.0	24.0	28.5	21.0	24.5	20.0	16.5	18.0	13.0	11.0	12.0
20	27.5	20.0	23.5	30.0	22.5	25.5	23.5	14.5	18.5	14.5	8.5	11.5
21	25.5	20.0	22.0	30.5	23.5	26.0	26.0	16.5	20.5	15.0	8.0	11.5
22	19.5	16.0	17.0	33.0	23.5	27.0	27.0	19.0	22.5	14.0	12.0	13.5
23	24.0	14.0	18.0	28.5	21.0	24.0	25.5	19.0	21.5	14.0	10.0	12.5
24	26.5	16.0	20.5	27.0	17.5	21.5	28.5	18.0	22.5	13.0	11.0	12.0
25	27.5	17.5	22.0	24.0	16.0	19.5	28.5	20.0	23.5	14.5	10.5	12.0
26	29.5	18.5	23.5	24.5	15.0	19.5	29.0	20.0	24.0	13.5	9.5	11.5
27	31.5	22.5	26.0	26.5	15.0	20.0	28.5	19.5	23.5	13.0	6.5	9.5
28	30.5	22.5	26.0	20.0	18.0	19.0	30.0	20.5	24.5	13.0	6.5	10.0
29	32.0	21.5	26.5	24.5	17.5	20.0	28.0	21.0	24.5	13.0	7.5	10.5
30	28.0	23.5	25.0	26.0	16.0	20.5	29.5	21.5	24.5	15.5	11.0	13.0
31	---	---	---	29.5	17.5	22.5	25.5	18.5	21.5	---	---	---
MONTH	32.0	14.0	22.6	33.0	15.0	23.0	30.0	14.5	21.6	27.0	6.5	16.6

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	17.3	8.6	12.6	14.5	8.9	11.5
2	---	---	---	---	---	---	18.6	8.0	12.7	16.0	7.8	11.9
3	---	---	---	---	---	---	19.9	6.9	12.7	17.9	7.9	12.3
4	---	---	---	---	---	---	18.0	6.9	11.2	19.1	6.6	12.6
5	---	---	---	---	---	---	21.6	5.4	12.5	10.6	6.6	8.0
6	---	---	---	---	---	---	21.0	4.7	11.2	13.4	8.3	10.9
7	---	---	---	---	---	---	19.9	3.8	10.2	15.4	7.6	11.7
8	---	---	---	---	---	---	17.8	3.8	8.4	17.7	7.3	11.3
9	---	---	---	---	---	---	9.1	5.7	7.8	18.3	5.3	11.2
10	---	---	---	---	---	---	13.1	8.1	10.3	18.2	5.1	10.5
11	---	---	---	---	---	---	14.1	8.2	11.3	16.8	3.3	9.2
12	---	---	---	---	---	---	13.6	9.8	11.4	15.8	3.1	8.1
13	---	---	---	---	---	---	10.2	9.2	9.8	14.0	2.9	7.0
14	---	---	---	---	---	---	9.7	7.9	8.6	12.1	2.9	6.4
15	---	---	---	---	---	---	10.6	8.3	9.4	12.2	3.0	6.5
16	---	---	---	---	---	---	11.8	8.2	10.2	11.7	3.0	6.1
17	---	---	---	---	---	---	13.1	7.7	10.5	10.7	3.2	6.5
18	---	---	---	---	---	---	14.9	7.8	11.1	10.8	6.4	8.3
19	---	---	---	---	---	---	16.1	8.7	11.5	13.5	5.8	9.3
20	---	---	---	---	---	---	16.9	7.6	12.1	13.0	3.6	8.1
21	---	---	---	---	---	---	17.5	6.7	11.7	12.1	3.1	5.7
22	---	---	---	---	---	---	17.3	6.7	11.3	11.5	2.7	6.1
23	---	---	---	---	---	---	18.1	6.2	11.6	11.5	2.6	5.7
24	---	---	---	---	---	---	18.5	6.2	12.0	11.1	2.6	5.6
25	---	---	---	---	---	---	18.3	6.2	11.3	10.6	2.7	5.0
26	---	---	---	15.9	6.7	10.8	19.1	6.1	11.6	9.5	2.4	5.1
27	---	---	---	9.3	5.1	7.6	17.4	5.5	9.4	10.8	1.8	5.4
28	---	---	---	13.8	9.3	11.8	18.6	5.3	10.7	12.1	1.7	5.8
29	---	---	---	14.9	11.3	12.7	7.6	2.1	6.2	12.6	1.7	5.8
30	---	---	---	15.0	9.9	12.3	13.4	7.4	10.4	12.6	1.7	5.5
31	---	---	---	15.9	9.3	12.2	---	---	---	12.5	1.7	5.3
MONTH	---	---	---	---	---	---	21.6	2.1	10.7	19.1	1.7	8.0
JUNE				JULY			AUGUST			SEPTEMBER		
1	13.1	2.1	6.1	---	---	---	---	---	---	---	---	---
2	14.3	1.9	6.6	---	---	---	---	---	---	---	---	---
3	14.6	1.7	7.0	---	---	---	---	---	---	---	---	---
4	14.3	1.7	7.0	---	---	---	---	---	---	---	---	---
5	14.2	2.0	7.2	---	---	---	---	---	---	---	---	---
6	14.9	2.2	7.1	---	---	---	---	---	---	---	---	---
7	14.0	2.0	6.6	---	---	---	---	---	---	---	---	---
8	15.3	1.8	7.2	---	---	---	---	---	---	---	---	---
9	13.4	1.6	6.4	---	---	---	---	---	---	---	---	---
10	14.9	1.7	6.0	---	---	---	---	---	---	---	---	---
11	11.7	1.7	5.5	---	---	---	---	---	---	---	---	---
12	15.1	2.0	6.2	---	---	---	---	---	---	---	---	---
13	11.7	1.5	5.7	---	---	---	---	---	---	---	---	---
14	10.5	1.4	5.3	---	---	---	---	---	---	---	---	---
15	6.1	.3	3.8	---	---	---	---	---	---	---	---	---
16	7.4	3.3	5.1	---	---	---	---	---	---	---	---	---
17	7.2	3.1	5.0	---	---	---	---	---	---	---	---	---
18	8.4	2.2	5.0	---	---	---	---	---	---	---	---	---
19	7.1	2.0	4.2	---	---	---	---	---	---	---	---	---
20	5.4	2.2	3.5	---	---	---	---	---	---	---	---	---
21	5.8	2.3	3.6	---	---	---	---	---	---	---	---	---
22	4.9	2.3	3.9	---	---	---	---	---	---	---	---	---
23	6.5	3.3	5.1	---	---	---	---	---	---	---	---	---
24	6.1	2.9	4.7	---	---	---	---	---	---	---	---	---
25	5.7	2.8	4.0	---	---	---	---	---	---	---	---	---
26	5.0	2.2	3.6	---	---	---	---	---	---	---	---	---
27	4.2	2.1	3.1	---	---	---	---	---	---	---	---	---
28	5.6	2.0	4.6	---	---	---	---	---	---	---	---	---
29	6.4	4.8	5.7	---	---	---	---	---	---	---	---	---
30	7.5	5.2	6.8	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	15.3	.3	5.4	---	---	---	---	---	---	---	---	---

## WISCONSIN RIVER BASIN

05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.02	.00	.00	.11	.05	.05	.03	.03	.00	.00
2	.01	.01	.02	.00	.00	.76	.03	.04	.04	1.6	.00	.00
3	.03	.01	.02	.00	.00	.23	.03	.03	.04	.02	.00	.00
4	.03	.01	.01	.00	.00	.15	.02	.02	.04	.01	.00	.00
5	.02	.01	.01	.00	.00	.13	.02	3.4	.03	.01	.00	.00
6	.02	.01	.01	.00	.00	.17	.01	.36	.02	.01	.00	.00
7	.02	.01	.02	.00	.00	.06	.01	.08	.02	.84	.01	.00
8	.02	.01	.02	.00	.00	.05	.02	.06	.01	3.8	1.2	.00
9	.03	.01	.02	.00	.01	.04	1.6	.04	.01	.02	.14	.00
10	.05	.01	.02	.00	.00	.04	.61	.03	.01	.01	.04	.00
11	.05	.01	.03	.00	.00	.03	.03	.02	.01	.01	.02	.00
12	.05	.01	.03	.00	.00	.03	4.1	.02	.00	.00	.02	.01
13	.04	.01	.04	.00	.00	.03	4.5	.02	.00	.00	.01	.00
14	.04	.01	.03	.00	.00	.02	4.2	.01	.01	.00	.01	.01
15	.04	.01	.03	.00	.00	.02	.37	.01	.21	.00	.01	.03
16	.04	.01	.03	.00	.00	.02	.14	.01	.06	.00	.01	.02
17	.03	.01	.03	.00	.00	.03	.10	.01	.02	.00	.01	.01
18	.04	.01	.03	.00	.00	.06	.08	.02	.02	.00	.00	.01
19	.04	.01	.03	.00	.00	.04	.06	.01	.02	.00	.00	.01
20	.03	.01	.02	.00	.00	.03	.04	.00	.01	.00	.00	.01
21	.03	.02	.02	.00	.01	.06	.03	.01	.01	.01	.00	.00
22	.03	.02	.01	.00	.04	.38	.03	.00	.30	.01	.00	.00
23	.03	.02	.01	.00	.02	1.7	.03	.00	.02	.00	.00	.01
24	.02	.02	.01	.00	.02	.36	.02	.01	.01	.00	.00	.00
25	.02	.02	.00	.00	.01	.22	.02	.01	.01	.00	.00	.00
26	.02	.02	.00	.00	.01	.19	.02	.01	.01	.00	.00	.00
27	.02	.03	.00	.00	.01	.41	.02	.01	.01	.00	.00	.00
28	.02	.02	.00	.00	.01	.22	.44	.01	.00	.01	.00	.00
29	.02	.02	.00	.00	---	.16	7.3	.02	.00	.01	.00	.00
30	.02	.02	.00	.00	---	.10	.14	.03	.00	.00	.00	.00
31	.01	---	.00	.00	---	.07	---	.03	---	.00	.00	---
TOTAL	0.88	0.41	0.52	0.00	0.14	5.92	24.07	4.38	0.98	6.40	1.48	0.12

CAL YR 1990 TOTAL 515.85  
WTR YR 1991 TOTAL 45.30

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.21	.15	.01	.01	2.74	1.49	1.41	.60	.92	.00	.00
2	.23	.17	.13	.01	.01	18.3	1.16	.96	.60	27.0	.00	.00
3	.56	.17	.14	.01	.02	5.48	.96	.72	.57	.63	.00	.12
4	.54	.19	.06	.01	.03	3.65	.75	.56	.48	.36	.00	.00
5	.36	.17	.08	.01	.04	3.20	.64	24.7	.46	.28	.00	.00
6	.34	.15	.09	.01	.03	4.11	.55	6.14	.46	.20	.00	.00
7	.35	.16	.09	.01	.04	1.37	.41	1.48	.51	12.6	.37	.00
8	.42	.14	.10	.01	.07	1.10	.67	1.02	.45	45.0	17.7	.00
9	.47	.17	.11	.01	.14	1.01	23.6	.85	.38	.86	7.33	.00
10	.78	.15	.13	.01	.06	.91	11.3	.71	.64	.56	2.87	.00
11	.87	.14	.14	.01	.05	.82	1.23	.65	.73	.29	2.03	.15
12	.88	.13	.17	.01	.05	.73	42.2	.63	.80	.21	1.66	1.85
13	.62	.13	.19	.01	.04	.64	55.1	.56	.80	.13	1.38	.62
14	.64	.14	.16	.01	.03	.58	67.6	.57	1.68	.09	1.26	3.02
15	.74	.15	.15	.01	.02	.55	8.17	.53	5.0	.10	1.12	6.09
16	.67	.16	.16	.01	.02	.55	3.74	.43	2.44	.09	1.01	3.62
17	.64	.16	.18	.01	.03	.73	2.69	.44	1.64	.03	1.01	1.87
18	.72	.16	.16	.01	.04	1.37	2.15	.96	1.25	.00	.71	1.94
19	.71	.16	.15	.02	.05	.91	1.61	.59	.92	.07	.45	1.74
20	.64	.16	.15	.03	.05	.82	1.29	.43	.79	.00	.25	.96
21	.62	.19	.12	.02	.27	1.37	1.04	.52	.85	.45	.08	.73
22	.56	.16	.08	.01	.91	5.04	.80	.49	6.50	.29	.00	.61
23	.50	.15	.06	.01	.55	24.9	.95	.45	1.23	.02	.00	.83
24	.46	.16	.04	.01	.37	8.44	.70	.45	.89	.00	.00	.55
25	.41	.16	.03	.01	.27	5.38	.57	.56	.72	.00	.00	.55
26	.38	.14	.02	.01	.25	4.83	.57	.80	.55	.00	.00	.48
27	.34	.23	.02	.01	.24	18.6	.71	.58	.46	.00	.00	.23
28	.32	.20	.03	.01	.23	8.2	5.36	.51	.19	.32	.00	.17
29	.31	.16	.03	.01	---	4.55	53.7	.57	.12	.28	.00	.16
30	.28	.16	.03	.01	---	3.10	3.45	.75	.11	.09	.38	.16
31	.26	---	.02	.01	---	2.05	---	.70	---	.00	.00	---
TOTAL	15.84	4.88	3.17	0.35	3.92	136.03	295.16	50.72	32.82	90.87	39.61	26.45

CAL YR 1990 TOTAL 3826.48  
WTR YR 1991 TOTAL 699.82



05406476 BLACK EARTH CREEK AT MILLS STREET AT CROSS PLAINS, WI--CONTINUED

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1989 to current year.

DISSOLVED OXYGEN: April 1990 to current year.

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, 23.5°C, July 4, 1990; minimum observed, 0.0°C, Dec. 21, 1989, Mar. 8-9, and Dec. 3, 1991.

DISSOLVED OXYGEN: Maximum observed, 17.3 mg/L, May 8, 1990; minimum observed, 3.7 mg/L, July 22, 1991.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 21.0°C, Sept. 14; minimum observed, 0.0°C, Dec. 3.

DISSOLVED OXYGEN: Maximum observed, 16.3 mg/L, May 2-4; minimum observed, 3.7 mg/L, July 22.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					APR 1991				
03...	1055	7.0	570	12.5	25...	1009	12	560	10.5
NOV					JUN				
15...	1202	6.3	545	11.0	04...	1303	9.9	550	15.5
DEC					JUL				
20...	0900	6.1	585	6.0	10...	1318	8.1	560	15.0
FEB 1991					AUG				
01...	1224	5.6	565	7.0	20...	1040	9.4	585	13.0
MAR									
19...	1208	11	575	10.5					

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.0	9.0	11.0	13.5	9.0	11.0	9.0	5.5	7.0	6.5	3.5	5.0
2	14.0	8.0	10.5	12.5	10.5	11.5	7.5	5.0	6.0	5.0	3.0	4.0
3	16.5	9.5	12.0	11.0	8.5	10.0	5.5	.0	2.5	5.0	2.0	3.5
4	13.5	8.5	11.0	9.5	8.0	8.5	6.0	3.5	4.5	5.5	2.5	4.0
5	16.0	9.5	12.0	8.0	7.0	8.0	7.0	3.5	5.5	6.5	3.5	5.0
6	16.0	12.0	13.5	9.0	7.0	8.0	7.0	4.0	6.0	6.0	3.0	4.5
7	12.0	9.5	11.0	9.0	6.0	7.5	7.5	4.0	6.0	6.0	2.5	4.0
8	10.0	9.0	9.5	7.5	5.5	6.5	8.0	5.0	6.5	6.5	3.5	5.5
9	10.5	9.0	9.5	8.0	6.0	7.0	8.5	5.0	6.5	7.0	4.0	6.0
10	9.0	5.5	7.5	9.5	6.0	7.5	8.0	5.0	6.5	6.0	3.5	5.0
11	12.1	6.9	9.0	9.0	5.5	7.0	8.5	5.5	6.5	6.0	5.0	5.5
12	12.3	7.7	9.5	9.0	6.0	7.0	8.0	5.5	6.5	7.5	5.5	6.5
13	12.6	7.8	9.9	9.5	6.0	7.5	6.5	4.0	5.5	6.5	5.0	5.5
14	12.0	9.0	10.5	11.0	6.5	8.5	7.0	3.5	5.5	8.0	5.0	7.0
15	11.5	8.0	9.5	12.5	8.5	10.0	7.5	5.0	6.5	8.0	6.5	7.5
16	13.0	8.5	10.5	10.5	7.0	9.5	6.5	5.0	6.0	7.5	5.5	6.5
17	14.0	10.5	12.0	10.0	6.1	7.9	7.0	6.5	6.5	7.0	4.5	6.0
18	10.5	7.5	8.5	9.5	7.5	8.5	7.5	5.5	6.5	6.5	4.0	5.5
19	10.5	7.0	8.5	10.5	7.0	8.5	7.0	5.5	6.5	9.5	5.0	7.0
20	10.5	8.0	9.5	10.0	7.0	8.5	7.5	6.0	7.0	7.0	4.5	5.5
21	11.5	7.5	9.5	12.0	9.0	10.5	7.0	4.0	5.5	5.0	2.0	3.5
22	11.5	6.5	8.5	9.5	7.0	8.0	4.0	2.5	3.0	4.0	1.5	3.0
23	12.0	7.5	9.0	8.0	6.0	7.0	3.5	1.5	2.5	5.0	3.0	4.0
24	11.5	7.5	9.0	9.0	6.0	7.5	4.5	2.0	3.0	5.0	2.5	3.5
25	11.5	6.5	8.5	9.0	6.5	7.5	5.0	1.5	3.5	5.0	1.5	3.0
26	11.5	7.0	8.5	10.5	6.0	7.5	4.5	1.5	3.0	5.5	2.0	3.5
27	11.5	8.0	9.0	11.5	9.0	10.0	5.5	3.5	4.5	6.5	3.0	4.5
28	11.0	7.0	8.5	9.0	5.5	7.0	6.5	5.0	6.0	7.0	4.0	5.0
29	11.5	7.0	9.0	7.5	5.0	6.5	7.5	3.5	6.0	5.5	3.0	4.5
30	13.0	9.0	10.5	8.0	5.5	7.0	4.0	2.5	3.0	5.0	1.5	3.0
31	13.0	8.5	10.5	---	---	---	5.0	2.5	3.5	6.0	2.5	4.0
MONTH	16.5	5.5	9.9	13.5	5.0	8.2	9.0	.0	5.3	9.5	1.5	4.9





05406476 BLACK EARTH CREEK AT MILLS STREET AT CROSS PLAINS, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.9	9.4	10.6	---	---	---	---	---	---	---	---	---
2	13.4	8.9	10.8	---	---	---	---	---	---	---	---	---
3	10.4	7.9	8.9	---	---	---	---	---	---	---	---	---
4	13.2	8.3	10.4	---	---	---	---	---	---	---	---	---
5	13.2	8.5	10.3	---	---	---	---	---	---	---	---	---
6	12.9	8.4	10.0	---	---	---	---	---	---	---	---	---
7	12.7	8.5	10.2	---	---	---	---	---	---	---	---	---
8	10.9	9.2	9.8	---	---	---	---	---	---	---	---	---
9	12.5	9.2	10.4	---	---	---	---	---	---	---	---	---
10	12.3	9.1	10.3	---	---	---	---	---	---	---	---	---
11	12.8	8.6	10.4	---	---	---	---	---	---	---	---	---
12	12.7	8.6	10.2	---	---	---	---	---	---	---	---	---
13	13.1	9.2	10.7	---	---	---	---	---	---	---	---	---
14	12.9	8.8	10.2	---	---	---	---	---	---	---	---	---
15	14.1	9.6	11.4	---	---	---	---	---	---	---	---	---
16	14.6	9.7	11.5	---	---	---	---	---	---	---	---	---
17	14.1	9.0	10.7	15.6	10.5	12.2	---	---	---	---	---	---
18	14.5	9.4	11.7	15.6	10.3	12.0	---	---	---	---	---	---
19	16.2	9.9	12.2	15.3	10.4	12.0	---	---	---	---	---	---
20	13.7	9.0	11.0	14.9	10.0	11.7	---	---	---	---	---	---
21	13.9	8.7	10.5	11.7	9.1	10.1	---	---	---	---	---	---
22	14.0	9.6	11.1	14.5	10.1	11.6	---	---	---	---	---	---
23	14.0	9.4	11.0	13.5	9.7	11.1	---	---	---	---	---	---
24	13.9	9.4	10.9	12.7	9.7	10.7	---	---	---	---	---	---
25	13.9	9.6	11.1	13.3	10.0	11.0	---	---	---	---	---	---
26	13.9	9.7	11.1	11.6	9.9	10.5	---	---	---	---	---	---
27	---	---	---	12.3	10.3	11.1	---	---	---	---	---	---
28	---	---	---	12.3	9.4	10.7	---	---	---	---	---	---
29	---	---	---	12.7	9.7	10.8	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	13.0	9.1	10.7	15.6	9.1	11.7
2	---	---	---	---	---	---	13.2	9.0	10.7	16.3	9.1	12.1
3	---	---	---	---	---	---	13.4	8.7	10.6	16.3	9.0	11.8
4	---	---	---	---	---	---	12.0	8.5	9.7	16.3	8.6	12.0
5	---	---	---	---	---	---	14.3	8.1	10.7	10.7	7.9	9.0
6	---	---	---	---	---	---	14.2	7.8	10.4	12.5	8.6	10.5
7	---	---	---	---	---	---	14.6	7.6	10.3	15.8	8.0	11.4
8	---	---	---	---	---	---	13.8	7.4	9.2	14.4	7.9	10.3
9	---	---	---	---	---	---	9.8	7.1	8.7	14.8	7.5	10.7
10	---	---	---	---	---	---	13.2	8.5	10.5	14.4	7.4	10.4
11	---	---	---	---	---	---	11.5	8.5	9.9	15.1	7.1	10.4
12	---	---	---	---	---	---	11.8	9.1	10.4	14.9	6.9	10.3
13	---	---	---	---	---	---	10.3	9.2	9.8	14.6	6.9	10.0
14	---	---	---	---	---	---	9.7	8.6	9.0	13.1	6.8	9.5
15	---	---	---	---	---	---	10.1	8.4	9.1	13.2	6.7	9.5
16	---	---	---	---	---	---	10.8	8.0	9.3	12.9	6.7	9.4
17	---	---	---	---	---	---	11.1	8.0	9.4	11.9	6.7	8.9
18	---	---	---	---	---	---	10.4	8.1	9.1	10.9	7.4	8.9
19	---	---	---	---	---	---	11.2	8.2	9.3	13.5	7.5	10.1
20	---	---	---	---	---	---	11.5	8.2	9.6	13.8	7.1	10.2
21	---	---	---	---	---	---	11.6	8.0	9.5	12.9	6.8	8.7
22	---	---	---	---	---	---	11.7	7.5	9.4	13.5	6.7	9.6
23	---	---	---	---	---	---	11.8	7.4	9.3	13.4	6.4	9.3
24	---	---	---	---	---	---	12.7	8.1	10.1	13.5	6.5	9.2
25	---	---	---	---	---	---	13.4	8.1	10.1	12.6	6.7	8.7
26	---	---	---	12.2	7.4	9.3	14.6	8.1	10.8	13.5	6.4	9.4
27	---	---	---	9.0	7.0	8.0	14.5	8.0	10.1	14.2	6.8	10.0
28	---	---	---	12.0	8.5	10.0	15.9	6.8	11.3	13.6	6.6	9.7
29	---	---	---	12.4	9.1	10.5	10.2	6.3	8.1	13.8	6.4	9.6
30	---	---	---	12.5	9.2	10.6	13.8	8.0	10.7	13.6	6.5	9.4
31	---	---	---	12.5	9.1	10.3	---	---	---	12.8	6.7	9.0
MONTH	---	---	---	---	---	---	15.9	6.3	9.9	16.3	6.4	10.0

05406476 BLACK EARTH CREEK AT MILLS STREET AT CROSS PLAINS, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	7.0	9.5	12.6	5.8	7.9	11.5	6.0	8.5	10.9	6.5	8.2
2	13.9	6.9	9.8	11.7	4.3	7.8	9.9	5.9	7.7	11.0	6.5	8.2
3	14.6	7.1	10.2	12.1	5.2	8.5	10.4	6.0	7.8	9.7	6.0	7.3
4	14.4	7.2	10.4	12.3	5.7	8.7	11.8	6.2	8.6	11.2	6.6	8.4
5	14.2	7.3	10.2	12.8	6.0	9.1	11.7	6.3	8.6	10.9	7.0	8.4
6	14.3	7.4	10.4	12.6	5.7	8.9	10.9	6.6	8.3	11.5	6.9	8.6
7	14.3	7.4	10.4	12.7	5.0	7.8	9.0	6.1	7.4	11.6	6.8	8.5
8	14.4	7.2	10.3	11.5	4.6	7.9	8.3	5.2	6.2	10.7	6.8	8.2
9	13.0	7.1	9.6	12.3	5.7	8.7	10.8	5.6	7.8	11.2	6.4	8.1
10	14.5	7.0	9.6	12.3	5.7	8.9	11.1	6.2	8.3	10.7	6.3	8.1
11	14.5	6.8	10.0	12.9	5.8	9.0	11.2	6.5	8.6	9.5	6.5	7.8
12	14.1	6.9	9.9	10.9	5.4	7.9	11.0	6.5	8.4	9.5	6.4	7.6
13	14.3	6.1	10.1	12.4	5.9	8.7	11.0	6.4	8.4	11.0	6.7	8.2
14	13.7	5.6	9.0	12.7	6.2	9.2	11.2	6.5	8.5	9.4	5.5	7.4
15	11.6	5.3	7.8	12.5	6.3	9.2	11.1	6.1	8.3	8.9	5.3	6.8
16	13.5	6.4	9.5	---	---	---	10.5	5.7	7.8	10.1	5.9	7.7
17	13.5	6.6	9.7	---	---	---	10.6	5.7	7.7	10.3	6.4	7.9
18	13.8	6.6	9.8	---	---	---	10.9	6.4	8.3	10.5	6.3	8.2
19	---	---	---	10.8	5.5	8.1	9.2	6.5	7.8	10.4	7.7	8.8
20	---	---	---	12.5	5.6	8.5	10.6	6.7	8.3	10.9	7.9	9.0
21	14.1	6.7	9.3	10.9	4.9	7.1	10.6	6.3	8.0	10.7	7.7	9.0
22	10.7	6.2	7.9	11.0	3.7	7.0	10.5	6.1	7.9	9.1	7.4	8.1
23	14.1	7.2	10.3	11.8	5.0	8.2	10.8	6.3	8.1	10.9	7.4	8.9
24	14.3	6.7	10.2	11.9	5.8	8.6	11.0	6.5	8.2	9.6	7.6	8.4
25	13.9	6.5	9.9	11.7	5.9	8.6	11.2	6.3	8.2	10.2	7.6	8.5
26	13.8	6.1	9.5	12.1	6.4	8.9	11.0	6.1	8.1	10.6	7.7	8.9
27	13.4	5.4	9.0	12.4	6.5	9.2	11.1	6.0	8.0	10.8	8.1	9.2
28	13.5	5.1	9.0	8.9	6.2	7.2	11.2	6.0	8.0	10.9	8.2	9.2
29	13.5	5.8	9.1	11.5	5.9	8.3	10.9	5.9	7.9	10.9	7.9	9.3
30	13.1	5.5	8.7	12.0	6.2	8.7	11.3	5.7	7.3	10.5	7.9	8.8
31	---	---	---	11.9	6.2	8.6	10.4	5.7	7.7	---	---	---
MONTH	---	---	---	---	---	---	11.8	5.2	8.0	11.6	5.3	8.3

## 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 current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 13, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 9, 10, and Dec. 4, 6-8, 15. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Nov. 5-7 and Dec. 17, 20.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.19 in., June 28, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.71 in., Apr. 12.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	---	---	---	---	.00	.13	.42	---	.00
2	---	.00	.00	---	---	---	---	.00	.00	---	---	.00
3	---	.06	.00	---	---	---	---	.00	.00	---	---	.40
4	---	.10	.00	---	---	---	---	.00	.00	---	---	.00
5	---	.00	.00	---	---	---	---	1.15	.00	.00	---	.00
6	---	.00	.00	---	---	---	---	.01	.00	.00	---	.07
7	---	.00	.00	---	---	---	---	.00	.00	.79	---	.00
8	---	.00	.00	---	---	---	---	.11	.00	.00	---	.03
9	---	.00	.00	---	---	---	---	.00	.00	.00	---	.00
10	---	.00	.00	---	---	---	---	.00	.55	.00	---	.00
11	---	.00	.00	---	---	---	---	.00	.00	.00	---	---
12	.00	.00	.00	---	---	---	1.71	.00	.00	.03	---	---
13	.00	.00	.00	---	---	---	.02	.04	.42	.02	.00	---
14	.22	.00	.00	---	---	---	1.04	.00	1.21	.00	.00	---
15	.01	.00	.00	---	---	---	.00	.00	.39	.00	.00	---
16	.00	.00	.00	---	---	---	.00	.00	.00	.00	.27	---
17	.14	.00	.00	---	---	---	.00	.11	.00	.00	.00	---
18	.05	.00	.00	---	---	---	.00	.65	.00	.00	.00	---
19	.15	.00	.00	---	---	---	.00	.00	.00	.08	.00	---
20	.05	.03	.00	---	---	---	.00	.00	.00	.00	.00	---
21	.07	.27	.00	---	---	---	.00	.18	.33	.83	.00	---
22	.00	.05	.00	---	---	---	.13	.05	.00	.10	.00	---
23	.00	.00	.00	---	---	---	.36	.00	.00	.01	.00	---
24	.00	.00	.00	---	---	---	.00	.00	.00	.00	.00	---
25	.00	.00	.00	---	---	---	.00	.31	.00	---	.00	---
26	.00	.02	.00	---	---	---	.00	.14	.00	---	.00	---
27	.00	.50	.00	---	---	---	.11	.00	.00	---	.00	---
28	.00	.14	---	---	---	---	1.07	.00	.00	---	.00	---
29	.00	.00	---	---	---	---	.19	.00	.00	---	.00	---
30	.00	.00	---	---	---	---	.01	.16	.00	---	.11	---
31	.00	---	---	---	---	---	---	.07	---	---	.00	---
TOTAL	---	1.17	---	---	---	---	---	2.98	3.03	---	---	---

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 current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 12, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 9, 11, Dec. 4-5, 12, 15, Jan. 1, 3-6, 14-17, 31, and Feb. 17. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Oct. 10, Nov. 5, 7, Dec. 17, 20, 28-29, Feb. 18-19, and Mar. 9, 17, 31. Unpublished rainfall data collected at this site during 1985-86 water years is available for inspection at the District office.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.53 in., June 28, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.18 in., Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.81	.00	.00	.08	.25	.00	.00
2	.00	.00	.00	.00	.00	.65	.00	.00	.00	.01	.00	.00
3	.73	.17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28
4	.00	.12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	1.11	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.01	.00	.00	.00	.00	.00	.00	.00	.00	.95	.21	.00
8	.14	.00	.00	.00	.00	.03	.62	.13	.00	.00	2.18	.02
9	.01	.00	.00	.00	.00	.00	.72	.00	.00	.00	.04	.00
10	.00	.00	.00	.00	.00	.00	.04	.00	.36	.00	.01	.00
11	1.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28
12	.00	.00	.00	.00	.00	.00	1.76	.00	.00	.04	.00	.78
13	.01	.00	.00	.00	.00	.00	.02	.03	.43	.02	.00	.01
14	.22	.00	.00	.00	.00	.00	1.02	.00	1.05	.00	.01	1.22
15	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00	.00	.39
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27	.01
17	.22	.00	.00	.00	.00	.00	.00	.07	.00	.00	.03	.44
18	.13	.00	.00	.00	.00	.00	.00	.61	.00	.00	.00	.01
19	.00	.00	.00	.00	.00	.00	.00	.01	.00	.13	.00	.00
20	.07	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.07	.29	.00	.00	.00	.00	.00	.27	.06	1.11	.00	.00
22	.00	.00	.00	.00	.00	.69	.13	.02	.02	.16	.00	.00
23	.00	.00	.00	.00	.00	.07	.21	.00	.01	.00	.00	.01
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17
25	.00	.00	.00	.00	.00	.00	.00	.28	.00	.00	.00	.05
26	.00	.04	.00	.00	.00	.34	.00	.17	.00	.00	.00	.00
27	.00	.65	.00	.00	.00	.76	.11	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.06	1.24	.00	.00	.44	.00	.00
29	---	.00	.00	.00	---	.00	.24	.00	.00	.01	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.20	.01	.00	.09	.00
31	.00	---	.00	.00	---	.00	---	.05	---	.00	.00	---
TOTAL	---	1.32	0.00	0.00	0.00	3.41	6.11	2.95	2.69	3.12	2.84	3.67

## 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 current year (non-frozen precipitation).

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

REMARKS.--Gage established Oct. 27, 1989. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 9, Dec. 5, 7-8, 12, 15, Jan. 6, 12, 14-16, 19, and Feb. 14, 17. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Oct. 10, Nov. 5, 7, Dec. 17, 20, 27-29, Feb. 18-19, and Mar. 13, 17-18, 31.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 1.92 in., June 28, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.81 in., Apr. 12.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.88	.00	.00	.05	---	---	.00
2	.02	.00	.00	.00	.00	.67	.00	.00	.00	---	---	.00
3	.79	.24	.00	.00	.00	.00	.00	.00	.00	---	---	.27
4	.01	.05	.00	.00	.00	.00	.00	.00	.00	---	---	.00
5	.00	.00	.00	.00	.00	.00	.00	1.33	.00	---	---	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.08
7	.01	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00
8	.16	.00	.00	.00	.00	.03	.78	.14	.00	---	---	.02
9	.00	.00	.00	.00	.00	.00	.79	.00	.00	---	---	.00
10	.00	.00	.00	.00	.00	.00	.03	.00	.39	---	---	.00
11	.80	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.32
12	.00	.00	.00	.00	.00	.00	1.81	.00	.00	---	---	.75
13	.00	.00	.00	.00	.00	.00	.03	.02	.28	---	.00	.00
14	.23	.00	.00	.00	.00	.00	.89	.00	---	---	.00	1.14
15	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.40
16	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.23	.02
17	.19	.00	.00	.00	.00	.00	.00	.08	---	---	.01	.46
18	.11	.00	.00	.00	.00	.00	.00	.74	---	---	.00	.01
19	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.00
20	.07	.09	.00	.00	.00	.00	.00	.00	---	---	.01	.00
21	.06	.28	.00	.00	.00	.00	.00	.17	---	---	.00	.00
22	.00	.00	.00	.00	.00	.75	.12	.09	---	---	.00	.00
23	.00	.00	.00	.00	.00	.04	.19	.00	---	---	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.18
25	.00	.00	.00	.00	.00	.00	.00	.35	---	---	.00	.04
26	.00	.05	.00	.00	.00	.44	.00	.26	---	---	.00	.00
27	.00	.61	.00	.00	.00	.82	.17	.00	---	---	.00	.00
28	.00	.00	.00	.00	.00	.07	1.14	.00	---	---	.00	.00
29	.00	.00	.00	.00	---	.00	.34	.00	---	---	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.15	---	---	.17	.00
31	.00	---	.00	.00	---	.00	---	.06	---	---	.01	---
TOTAL	2.45	1.32	0.00	0.00	0.00	3.70	6.29	3.39	---	---	---	3.69

## 05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI

LOCATION.--Lat 44°51'16", long 89°40'43", 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 860 ft, from topographic map.

REMARKS.--Estimated daily discharges: June 19-24, July 7-10, and ice periods listed in rating table below. Records are fair. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128 ft<sup>3</sup>/s, July 25, 1985, gage height, 5.84 ft; minimum 1.6 ft<sup>3</sup>/s, Dec. 21, 1989, and Oct. 27, 1990; minimum gage height, 3.19 ft, Jan. 30, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60 ft<sup>3</sup>/s, Mar. 2, gage height, 5.06 ft; minimum, 1.6 ft<sup>3</sup>/s, Oct. 27; minimum gage height, 3.19 ft, Jan. 30.

RATING TABLE (gage height, in feet, and discharge in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3, 4, 22-27, 31, Jan. 3, 4, 21-23, 25, 26, and Feb. 14-16.)

3.2	1.5	3.7	10
3.3	2.6	4.0	18
3.5	5.8	4.5	35

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	2.2	2.6	2.2	2.0	10	3.8	4.8	3.2	3.2	2.8	2.7
2	1.7	2.3	2.5	2.2	2.0	29	3.7	4.3	3.1	3.1	2.8	2.5
3	2.0	2.4	2.5	2.1	2.0	5.0	3.7	4.2	3.1	3.1	2.8	2.5
4	2.2	2.7	2.4	2.1	2.1	4.0	3.7	4.2	3.2	3.1	2.8	2.5
5	2.1	3.0	2.4	2.1	2.2	4.6	3.7	6.7	3.2	3.1	2.8	2.5
6	2.0	2.9	2.4	2.1	2.2	5.6	3.7	5.6	3.2	3.1	2.8	2.4
7	2.1	2.9	2.4	2.0	2.5	3.8	3.5	4.7	3.2	3.1	2.8	2.4
8	2.1	2.9	2.4	2.1	2.9	3.8	3.6	4.4	3.8	3.6	5.2	2.4
9	2.0	3.0	2.4	2.1	3.0	3.9	6.0	4.3	3.3	3.3	3.1	2.4
10	2.4	2.5	2.4	2.1	2.9	3.5	5.0	4.1	3.2	3.0	2.9	2.4
11	3.5	2.4	2.6	2.1	2.8	3.7	4.3	3.8	3.2	2.9	2.8	2.5
12	2.9	2.3	2.7	2.1	2.7	3.7	13	3.8	3.2	3.0	2.7	2.8
13	2.5	2.2	2.7	2.1	2.7	3.6	18	3.7	3.2	3.1	2.7	2.7
14	2.4	2.1	2.7	2.1	2.6	3.7	24	3.7	4.0	3.0	2.7	3.0
15	2.5	2.1	2.7	2.1	2.5	3.7	7.1	3.6	5.5	2.9	2.7	4.1
16	2.4	2.1	2.7	2.1	2.4	3.7	5.5	3.5	4.0	2.9	2.7	3.0
17	2.2	2.1	2.7	2.1	2.4	3.8	5.0	3.4	3.6	2.9	2.7	2.8
18	2.3	2.3	2.7	2.1	2.5	4.7	4.7	3.8	3.5	2.9	2.7	3.0
19	2.4	2.3	2.7	2.1	2.5	4.3	4.6	3.6	3.4	3.0	2.7	2.9
20	2.3	2.3	2.6	2.1	2.6	4.1	4.9	3.4	3.3	3.1	2.6	2.8
21	2.2	2.7	2.5	2.1	3.5	4.0	4.2	3.4	3.4	3.9	2.5	2.7
22	2.1	2.8	2.5	2.1	4.2	4.5	4.0	3.4	3.5	3.4	2.5	2.7
23	2.1	2.7	2.4	2.1	3.6	7.4	4.0	3.4	3.3	3.3	2.5	2.7
24	2.1	2.6	2.4	2.1	3.3	4.9	4.0	3.2	3.2	3.3	2.5	2.7
25	1.9	2.6	2.3	2.1	3.2	4.3	4.0	3.3	3.2	3.4	2.7	2.7
26	1.9	2.6	2.3	2.1	3.1	4.7	3.9	3.6	3.2	3.1	2.8	2.7
27	1.9	3.5	2.2	2.1	3.0	8.5	3.8	3.7	3.3	3.1	2.8	2.6
28	1.9	3.3	2.2	2.1	2.9	5.1	3.9	3.4	3.3	3.1	2.8	2.5
29	2.0	3.0	2.2	2.1	---	4.5	8.3	3.2	3.2	3.1	2.8	2.5
30	2.1	2.8	2.2	2.1	---	4.2	5.1	3.2	3.1	3.0	2.8	2.5
31	2.1	---	2.2	2.1	---	4.1	---	3.2	---	2.9	2.8	---
TOTAL	68.0	77.6	76.6	65.2	76.3	168.4	176.7	120.6	102.1	97.0	87.3	80.6
MEAN	2.19	2.59	2.47	2.10	2.72	5.43	5.89	3.89	3.40	3.13	2.82	2.69
MAX	3.5	3.5	2.7	2.2	4.2	29	24	6.7	5.5	3.9	5.2	4.1
MIN	1.7	2.1	2.2	2.0	2.0	3.5	3.5	3.2	3.1	2.9	2.5	2.4

CAL YR 1990 TOTAL 1137.7 MEAN 3.12 MAX 35 MIN 1.7  
WTR YR 1991 TOTAL 1196.4 MEAN 3.28 MAX 29 MIN 1.7

## 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 1984 to September 1985, April 1990 to current year.

SUSPENDED-SOLIDS DISCHARGE: 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 1984 to September 1985, April 1990 to current year.

REMARKS.--Suspended-sediment and total-nitrogen discharge were published for the period October 1984 to June 1986. 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, 24.5°C, July 25, 1985; minimum observed, 0.0°C, on several days during 1985, 1986, 1990, and 1991.

DISSOLVED OXYGEN: Maximum observed, 17.4 mg/L, Apr. 11, 1990; minimum observed, 1.5 mg/L, Aug. 17, 1990.

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-PHOSPHORUS DISCHARGE: Maximum daily, 747 lb, July 25, 1985; minimum daily, 0.47 lb, Dec. 24, 1989.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 21.5°C, June 27, 29; minimum observed, 0.0°C, Jan. 27, 31, and Feb. 12, 26.

DISSOLVED OXYGEN: Maximum observed, 14.6 mg/L, Nov. 9; minimum observed, 4.7 mg/L, July 1.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 58 tons, Apr. 14; minimum daily, 0.06 ton, Feb. 16-17.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 264 lb, Mar. 2; minimum daily, 0.77 lb, Feb. 16.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH 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)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
OCT 1990									
*05...	1236	--	2.0	7.7	<3.0	69000	5200	20	352
*19...	1155	--	2.4	7.7	--	--	--	19	364
NOV									
*02...	1210	--	2.3	8.2	--	3200	4200	18	354
DEC									
*07...	1310	--	2.4	8.0	--	2500	370	50	380
JAN 1991									
*17...	1145	--	2.1	8.0	<3.0	370	1000	41	356
FEB									
*14...	1415	2.6	--	8.3	<1.0	40	40	10	330
MAR									
01...	1430	--	10	7.8	--	--	--	736	1020
01...	2045	--	21	7.5	--	--	--	536	766
02...	0100	--	37	7.5	--	--	--	588	812
02...	0500	--	56	7.6	--	--	--	710	880
02...	1230	--	21	7.6	--	--	--	228	436
02...	1830	--	10	7.6	--	--	--	152	406
22...	2345	--	10	7.9	18	--	--	750	1160
*23...	0809	--	6.9	7.9	--	--	--	100	462
23...	0810	--	6.9	7.8	11	--	--	170	516
*23...	0811	--	6.9	7.9	--	--	--	100	464
APR									
*11...	1440	--	4.2	7.8	1.8	4800	260	36	372
12...	1815	--	9.6	8.0	--	--	--	750	1120
12...	1900	--	17	7.9	--	--	--	1070	1380
12...	1930	--	24	7.8	--	--	--	1350	1590
12...	2000	--	33	7.6	--	--	--	1540	1710
14...	0815	--	29	7.7	13	--	--	1460	1830
14...	1000	--	47	7.6	12	--	--	1900	2110
14...	1645	--	30	7.9	8.0	--	--	352	662
14...	1900	--	17	7.8	6.5	--	--	188	516
*15...	1241	--	6.6	7.9	4.3	--	--	92	414
*30...	1010	--	4.8	7.8	2.2	--	--	43	388
*30...	1040	--	4.8	--	--	26000	3600	--	--
MAY									
*07...	1055	--	4.5	7.7	2.0	16000	2300	30	--
*07...	1100	--	4.5	--	--	--	--	--	--
*22...	1130	--	3.4	8.1	4.3	99000	11000	39	--
JUN									
*04...	1215	--	3.2	8.2	3.1	53000	6700	25	350
*13...	1017	--	3.2	8.2	1.5	--	--	21	368
*13...	1027	--	3.2	--	--	--	--	--	--
*19...	1225	3.4	--	7.9	2.5	24000	5100	26	--

\* 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 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH 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)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
JUL									
*11...	1050	--	2.9	8.1	3.7	2300	17000	23	--
*29...	0925	--	3.1	7.5	1.8	29000	8300	15	352
AUG									
*07...	1035	--	2.8	8.1	2.2	30000	5200	18	366
08...	0745	--	8.7	8.2	15	--	--	--	--
*09...	1330	--	3.1	8.0	1.2	110000	6900	31	356
*19...	1015	--	2.7	8.0	2.1	23000	6700	10	338
SEP									
*11...	0826	--	2.5	8.1	3.7	130000	79000	22	352

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1990								
05...	104	15	5	2.10	<0.100	--	0.168	--
19...	100	12	7	2.00	<0.100	--	0.170	--
NOV								
02...	108	11	7	2.07	0.060	--	0.200	--
DEC								
07...	100	41	9	2.30	0.040	--	0.100	--
JAN 1991								
17...	98	34	7	2.10	0.060	--	0.100	--
FEB								
14...	90	6	4	2.29	<0.013	--	0.060	--
MAR								
01...	236	624	112	1.59	2.41	--	2.89	--
01...	184	460	76	1.41	3.30	--	2.21	--
02...	178	504	84	1.45	3.36	--	2.06	--
02...	172	610	100	1.56	3.45	--	2.32	--
02...	120	200	28	3.71	1.29	--	1.21	--
02...	124	132	20	4.87	1.98	--	1.22	--
22...	268	646	104	4.24	0.396	--	1.84	--
23...	148	80	20	6.27	0.596	--	0.700	--
23...	150	143	27	6.18	0.569	--	0.770	--
23...	152	82	18	6.29	0.602	--	0.700	--
APR								
11...	116	32	4	3.77	0.061	--	0.130	--
12...	252	590	160	3.29	1.00	--	3.41	--
12...	252	910	160	3.90	0.755	--	2.92	--
12...	242	1180	170	3.85	0.526	--	2.60	--
12...	228	1370	170	3.25	0.448	--	2.53	--
14...	252	1310	150	4.09	0.454	--	2.72	--
14...	252	1680	220	2.62	0.583	--	3.53	--
14...	148	308	44	3.94	0.499	--	1.29	--
14...	142	164	24	4.63	0.431	--	0.980	--
15...	132	70	22	4.40	0.148	--	0.440	--
30...	112	35	8	3.54	0.080	--	0.230	--
30...	--	--	--	--	--	--	--	--
MAY								
07...	--	--	--	2.93	0.077	1.1	0.160	--
07...	--	--	--	--	--	--	--	118
22...	--	--	--	2.35	0.049	1.5	0.220	138
JUN								
04...	106	18	7	2.42	0.059	--	0.150	--
13...	104	15	6	2.32	0.078	--	0.090	--
13...	--	--	--	--	--	--	--	23
19...	--	--	--	2.74	0.054	0.60	0.130	41
JUL								
11...	--	--	--	2.14	0.042	0.80	0.240	43
29...	94	10	5	2.00	0.048	--	0.110	17
AUG								
07...	104	13	5	2.11	0.042	--	0.090	19
08...	--	--	--	2.06	0.134	--	1.18	--
09...	102	21	10	1.92	0.064	--	0.220	18
19...	110	6	4	2.25	0.031	--	0.120	16
SEP								
11...	98	11	11	2.09	0.048	--	0.180	26

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## WISCONSIN RIVER BASIN

05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALA-CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)		
JUN 1991 **14...		2130	4.8	<0.10	0.98	0.50	<0	<1	1	
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
SEP 1991 *11...	0826	2.5	60	36	4.2	<40	<20	400	<40	<10

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

\*\* GRAB SAMPLE.

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990 03...	1300	1.9	520	13.5	APR 1991 25...	1401	4.0	540	13.5
NOV 15...	1303	2.1	500	11.0	JUN 04...	0925	3.2	550	12.0
DEC 20...	1608	2.6	525	5.5	JUL 10...	1513	3.0	520	17.5
MAR 1991 19...	0840	4.1	515	4.0	AUG 20...	1117	2.6	525	14.0

## WISCONSIN RIVER BASIN

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05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	13.5	9.0	11.0	13.0	9.0	11.0	---	---	---	3.5	1.0	2.0
2	13.0	7.5	10.5	13.0	11.0	12.0	---	---	---	2.5	.5	1.5
3	14.5	11.5	12.5	11.5	8.0	10.0	---	---	---	---	---	---
4	13.0	9.0	11.0	8.0	7.0	7.5	---	---	---	---	---	---
5	15.0	9.5	12.5	7.0	5.5	6.5	---	---	---	4.0	.5	2.5
6	16.0	12.5	14.5	7.5	5.5	6.5	---	---	---	---	---	---
7	13.5	9.5	11.0	7.5	4.5	6.0	5.0	1.0	3.0	---	---	---
8	9.5	8.0	8.5	5.0	3.0	4.5	5.5	2.5	4.0	4.0	.5	2.5
9	9.0	8.0	8.5	7.0	4.5	5.5	6.5	2.5	4.5	4.5	1.5	3.5
10	8.5	4.5	6.5	8.0	4.5	5.5	6.0	2.5	4.5	3.0	.5	2.0
11	10.5	5.5	8.0	7.0	3.0	5.0	6.5	3.5	5.0	3.0	2.5	3.0
12	11.5	7.5	9.5	7.0	4.0	5.0	6.5	3.5	5.0	5.5	3.0	4.0
13	11.5	7.0	9.5	6.5	3.5	5.0	5.0	1.5	3.5	4.0	3.0	3.5
14	12.0	9.5	10.5	9.0	4.0	6.5	5.0	1.0	3.0	6.0	3.0	4.5
15	10.5	7.5	9.0	11.0	7.5	9.5	5.5	2.5	4.5	5.5	4.0	5.0
16	12.5	8.5	10.5	10.0	5.5	8.5	4.5	2.5	4.0	5.5	3.5	4.0
17	14.5	11.5	13.0	7.5	3.5	5.5	5.0	4.0	4.5	5.0	1.5	3.5
18	12.0	7.5	8.5	8.0	5.5	7.0	5.5	3.5	4.5	4.5	.5	2.5
19	9.0	6.0	7.5	8.5	5.5	7.0	5.0	3.5	4.0	7.0	2.5	4.5
20	10.5	7.5	9.0	9.0	5.0	7.0	6.0	4.0	5.0	5.0	1.5	3.5
21	10.5	7.5	9.5	12.0	9.0	10.5	5.0	2.0	3.5	---	---	---
22	9.5	5.0	7.5	9.0	5.5	7.0	---	---	---	---	---	---
23	10.5	6.5	8.0	6.5	4.0	6.0	---	---	---	2.5	.5	1.5
24	10.0	6.5	8.0	7.0	4.0	5.5	---	---	---	---	---	---
25	9.0	5.0	7.0	7.5	4.5	6.0	---	---	---	---	---	---
26	9.0	5.0	7.0	9.5	4.0	6.0	---	---	---	---	---	---
27	9.5	6.5	8.0	10.5	8.0	9.5	---	---	---	3.5	.0	1.5
28	8.5	5.5	7.0	8.0	3.5	5.5	4.5	2.0	3.5	4.5	1.0	3.0
29	9.5	4.5	7.0	5.5	3.0	4.0	5.0	1.5	4.0	3.0	.5	2.0
30	12.0	8.0	10.0	6.5	3.5	5.0	---	---	---	---	---	---
31	11.5	7.5	9.5	---	---	---	---	---	---	3.5	.0	1.5
MONTH	16.0	4.5	9.4	13.0	3.0	6.9	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	.5	2.5	5.5	1.0	3.5	12.0	3.5	7.0	12.5	8.5	10.0
2	6.0	2.5	4.0	2.0	.5	1.0	12.0	3.0	7.0	15.0	7.0	10.5
3	7.0	3.5	5.0	5.5	1.0	2.5	13.0	5.0	8.5	12.0	7.0	9.0
4	7.5	4.0	5.5	7.0	1.5	3.5	10.0	7.0	8.5	14.0	8.0	10.5
5	7.5	3.0	5.0	6.0	2.5	4.0	17.0	6.0	11.0	10.5	9.0	9.5
6	6.5	4.0	5.0	4.0	1.5	3.0	19.0	9.5	13.0	9.0	8.0	8.5
7	8.5	3.0	5.5	6.5	1.0	3.0	19.5	10.0	14.0	15.0	7.0	10.5
8	7.5	2.5	4.5	7.5	2.5	4.5	15.0	10.5	12.5	14.5	9.0	11.0
9	7.0	2.5	4.5	5.0	3.0	3.5	10.5	6.5	8.0	18.0	9.0	13.0
10	5.5	2.0	3.0	9.5	2.0	5.0	13.5	5.5	8.5	17.0	10.0	13.0
11	4.5	.5	2.0	7.5	3.5	5.0	7.0	6.0	6.5	19.5	10.5	14.5
12	5.5	.0	2.5	4.0	3.0	3.5	6.0	1.5	4.0	19.5	11.5	14.5
13	5.0	3.5	4.0	8.0	2.5	4.0	6.5	2.5	5.0	19.5	11.5	15.0
14	---	---	---	9.0	2.0	4.5	9.0	6.0	7.0	18.5	11.5	14.0
15	---	---	---	10.0	2.0	5.5	12.0	6.5	8.5	17.5	11.5	14.0
16	---	---	---	7.0	3.5	5.0	14.0	6.5	9.5	17.0	12.0	14.0
17	6.5	2.5	4.0	6.5	4.0	5.0	14.5	6.0	9.5	13.0	10.0	12.0
18	5.0	3.5	4.5	7.5	4.0	5.0	10.0	7.0	8.5	10.5	9.5	10.0
19	6.5	3.0	5.0	11.5	3.0	6.5	10.0	7.0	8.5	14.0	9.5	11.5
20	7.5	2.5	4.5	9.0	3.5	6.5	12.5	5.5	9.0	18.5	9.5	13.5
21	8.5	3.0	4.5	13.5	5.5	8.5	15.0	6.5	10.0	15.5	11.5	13.0
22	5.5	2.0	3.5	8.0	5.5	6.5	16.0	5.5	10.0	18.0	12.0	15.0
23	4.5	1.5	3.0	6.0	4.0	4.5	10.5	7.5	9.0	19.5	13.0	15.5
24	6.0	1.5	3.5	10.5	4.0	6.5	16.5	6.0	10.5	20.0	14.0	16.0
25	6.0	.5	2.5	12.0	4.0	7.5	13.5	7.5	10.0	15.5	12.5	14.0
26	5.5	.0	2.5	14.0	7.5	10.0	15.5	7.5	11.0	19.0	13.5	16.0
27	6.0	1.0	3.5	12.0	6.5	10.0	15.5	10.0	12.5	20.0	12.5	15.5
28	7.5	2.0	4.5	8.5	4.0	5.5	18.0	8.5	12.5	21.0	12.5	16.0
29	---	---	---	8.0	3.0	5.0	14.5	11.0	12.5	21.0	13.0	16.5
30	---	---	---	10.5	2.5	5.5	11.0	9.0	10.0	19.0	13.0	15.5
31	---	---	---	10.5	4.0	6.5	---	---	---	16.0	12.5	14.5
MONTH	---	---	---	14.0	.5	5.2	19.5	1.5	9.4	21.0	7.0	13.1

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

## WISCONSIN RIVER BASIN

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05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	12.7	9.9	11.2	11.1	9.3	10.1
2	---	---	---	---	---	---	13.2	9.9	11.4	11.6	9.4	10.4
3	---	---	---	---	---	---	13.5	9.7	11.3	12.1	9.6	10.7
4	---	---	---	---	---	---	12.3	9.7	10.7	11.8	9.0	10.4
5	---	---	---	---	---	---	13.9	8.4	10.8	9.9	9.0	9.4
6	---	---	---	---	---	---	13.1	7.9	10.1	10.5	9.2	9.8
7	---	---	---	---	---	---	12.0	7.6	9.6	10.8	8.9	9.8
8	---	---	---	---	---	---	11.4	8.2	9.4	11.1	8.8	9.8
9	---	---	---	---	---	---	9.4	8.6	9.0	11.1	8.5	9.7
10	---	---	---	---	---	---	10.8	8.5	9.7	10.8	8.7	9.6
11	---	---	---	---	---	---	11.1	9.3	10.2	11.1	8.1	9.5
12	---	---	---	---	---	---	11.6	9.8	10.8	11.1	8.3	9.4
13	---	---	---	---	---	---	11.1	9.7	10.3	11.1	7.9	9.2
14	---	---	---	---	---	---	10.2	9.1	9.5	10.8	8.3	9.2
15	---	---	---	---	---	---	9.9	9.1	9.4	10.4	8.1	9.1
16	---	---	---	---	---	---	10.5	9.2	9.8	10.1	7.8	8.9
17	---	---	---	---	---	---	10.7	9.2	10.0	9.9	7.9	8.9
18	---	---	---	---	---	---	10.8	9.8	10.3	9.9	8.7	9.2
19	---	---	---	---	---	---	11.1	10.0	10.4	10.8	8.7	9.6
20	---	---	---	---	---	---	11.4	9.6	10.4	10.4	8.1	9.3
21	---	---	---	---	---	---	11.3	9.2	10.3	10.3	8.0	8.9
22	---	---	---	---	---	---	11.1	8.7	10.0	10.0	7.9	8.9
23	---	---	---	---	---	---	11.3	9.0	10.0	10.5	8.0	8.8
24	---	---	---	---	---	---	12.0	9.2	10.4	9.8	7.5	8.6
25	---	---	---	---	---	---	12.8	9.5	10.8	9.4	7.8	8.5
26	---	---	---	9.9	8.0	9.0	13.2	9.2	10.9	9.4	7.4	8.3
27	---	---	---	8.7	7.6	8.0	12.7	8.8	10.1	9.7	7.6	8.6
28	---	---	---	10.8	8.8	9.9	13.0	8.0	10.4	9.9	7.1	8.5
29	---	---	---	11.4	10.0	10.7	8.6	7.6	8.0	8.9	7.0	8.1
30	---	---	---	11.9	10.1	10.9	10.2	8.3	9.5	8.9	7.0	8.0
31	---	---	---	12.1	10.1	10.8	---	---	---	8.7	7.2	7.9
MONTH	---	---	---	---	---	---	13.9	7.6	10.2	12.1	7.0	9.2
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.7	7.5	8.0	9.1	4.7	7.6	10.8	7.9	9.2	9.8	7.3	8.6
2	9.7	7.6	8.7	9.6	6.5	8.0	9.9	7.9	8.9	10.4	7.5	8.8
3	9.9	8.0	9.0	9.4	7.0	8.1	10.0	7.9	8.9	9.2	7.4	8.4
4	10.1	8.4	9.3	9.7	7.5	8.5	10.1	7.5	8.8	10.2	7.4	8.9
5	10.2	8.5	9.3	9.9	7.2	8.6	9.9	7.5	8.7	10.5	7.9	9.3
6	10.2	8.5	9.4	10.0	6.6	8.2	9.9	8.0	8.8	10.5	7.7	9.1
7	9.9	7.6	9.1	9.4	5.6	7.6	9.4	7.8	8.5	10.6	7.9	9.2
8	9.7	7.2	8.6	9.4	6.4	8.0	8.2	5.5	7.5	9.9	7.6	8.8
9	9.6	8.1	9.0	9.4	7.2	8.1	10.2	7.9	8.9	8.5	6.1	7.5
10	9.4	7.6	8.5	10.1	7.3	8.6	10.1	8.0	8.9	8.9	6.3	7.8
11	9.5	7.5	8.6	10.8	7.9	9.1	9.8	7.8	8.8	9.3	7.2	8.2
12	9.9	8.0	9.0	10.8	8.2	9.3	10.3	8.0	9.1	8.8	5.1	7.7
13	10.0	8.2	9.2	12.1	8.5	9.9	10.3	7.9	9.1	8.9	6.8	8.0
14	9.7	6.5	8.7	11.8	7.5	9.7	10.0	7.8	8.9	8.2	5.0	7.5
15	8.5	6.9	7.6	11.8	7.6	9.9	9.9	7.6	8.7	8.4	5.1	7.2
16	9.4	7.5	8.6	10.7	7.2	9.1	9.6	7.6	8.6	9.4	6.9	8.1
17	10.2	7.9	9.1	10.1	7.5	8.7	9.8	7.7	8.5	9.6	7.1	8.5
18	9.9	7.8	9.0	10.3	6.6	8.2	10.1	8.0	9.0	10.0	7.1	8.6
19	10.1	7.9	9.1	8.8	6.8	7.6	9.6	8.2	9.1	10.3	8.6	9.4
20	10.0	8.0	9.0	9.4	6.0	7.6	10.2	8.2	9.1	10.4	8.6	9.4
21	9.3	7.5	8.4	7.5	5.0	6.8	10.0	7.3	8.7	10.1	7.8	9.1
22	9.5	7.9	8.9	9.5	6.2	7.8	9.6	7.0	8.4	9.1	7.9	8.6
23	10.0	7.5	8.9	10.1	6.8	8.4	9.5	7.2	8.4	10.5	8.4	9.3
24	10.3	8.4	9.2	10.6	7.6	8.9	9.6	7.3	8.4	10.3	8.6	9.5
25	10.5	7.9	9.3	10.9	7.9	9.3	9.6	6.6	8.3	10.4	8.6	9.4
26	10.3	6.9	9.0	10.8	8.1	9.4	9.6	6.9	8.4	10.7	8.6	9.6
27	10.0	7.0	8.5	10.9	8.0	9.4	9.6	6.6	8.2	11.2	9.0	10.1
28	10.3	7.5	8.9	9.6	7.9	8.8	9.2	6.3	7.8	11.1	8.8	10.0
29	10.5	6.9	8.5	10.2	7.8	8.8	8.8	6.3	7.6	11.1	8.7	9.9
30	9.9	6.9	8.3	10.5	7.4	8.9	9.4	6.0	7.6	10.1	8.1	9.2
31	---	---	---	10.4	7.3	8.8	9.4	7.0	8.0	---	---	---
MONTH	10.5	6.5	8.8	12.1	4.7	8.6	10.8	5.5	8.6	11.2	5.0	8.8



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 mi<sup>2</sup>, of which 2.8 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 820 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: July 12-17 and ice periods, Dec. 3, 22-27, 31, Jan. 3, 4, 7, 24-31, Feb. 15 and 16. Records good except those for estimated daily discharges, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 410 ft<sup>3</sup>/s, Mar. 9, 1990, gage height, 7.26 ft; maximum gage height, 7.35 ft, June 29, 1990, backwater from vegetation; minimum, 9.4 ft<sup>3</sup>/s, Jan. 22, 1991, gage height, 3.73 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 275 ft<sup>3</sup>/s, Mar. 2, gage height, 6.42 ft; minimum, 9.4 ft<sup>3</sup>/s, Jan. 22, gage height, 3.73 ft, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	19	19	20	18	53	30	38	29	27	21	20
2	17	19	18	19	18	174	29	35	29	29	20	19
3	21	19	18	19	19	44	29	32	29	25	20	21
4	20	21	18	19	20	35	28	31	29	24	21	21
5	18	20	19	19	20	38	27	49	28	24	21	20
6	18	22	19	19	21	46	26	46	28	24	19	20
7	18	21	18	19	21	32	26	37	27	31	20	20
8	19	19	18	19	23	31	28	34	29	30	48	20
9	19	20	18	19	23	31	52	33	27	25	25	20
10	22	20	19	19	23	28	44	31	28	25	20	20
11	25	19	19	19	21	30	36	30	28	24	20	21
12	24	19	19	18	21	29	63	29	27	24	19	27
13	21	18	20	18	20	27	99	30	27	24	20	22
14	21	18	19	18	20	26	111	29	30	23	21	25
15	21	18	20	19	19	26	72	29	43	22	21	34
16	20	18	19	19	18	26	54	28	32	23	21	25
17	20	17	20	19	18	27	46	28	29	23	22	22
18	22	18	20	19	19	30	42	31	29	24	22	25
19	21	18	20	19	19	30	40	30	28	23	22	22
20	20	18	20	19	19	29	39	28	26	24	24	22
21	20	20	20	19	22	30	37	28	26	27	23	21
22	20	19	20	19	28	30	36	28	28	28	23	21
23	20	18	20	19	25	50	37	28	25	25	22	22
24	19	18	20	19	23	37	36	28	24	24	22	23
25	19	17	20	19	22	34	36	29	23	22	21	22
26	19	18	20	19	21	36	35	31	23	22	21	22
27	18	24	20	18	21	54	35	29	23	22	21	22
28	18	22	20	18	21	42	36	28	24	21	21	21
29	18	19	20	17	---	35	65	28	23	22	20	21
30	19	19	20	17	---	33	44	30	23	22	22	21
31	19	---	20	18	---	32	---	30	---	22	21	---
TOTAL	615	575	600	580	583	1205	1318	975	824	755	684	662
MEAN	19.8	19.2	19.4	18.7	20.8	38.9	43.9	31.5	27.5	24.4	22.1	22.1
MAX	25	24	20	20	28	174	111	49	43	31	48	34
MIN	17	17	18	17	18	26	26	28	23	21	19	19
CFSM	.49	.47	.48	.46	.51	.96	1.08	.77	.68	.60	.54	.54
IN.	.56	.53	.55	.53	.53	1.10	1.21	.89	.75	.69	.63	.61
CAL YR 1990	TOTAL 8966	MEAN 24.6	MAX 218	MIN 17	CFSM .61	IN. 8.22						
WTR YR 1991	TOTAL 9376	MEAN 25.7	MAX 174	MIN 17	CFSM .63	IN. 8.59						

05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI--CONTINUED

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1989 to current year.

DISSOLVED OXYGEN: April 1990 to current year.

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; minimum observed, 0.0°C, Dec. 3, 12, 14-25, 1989, Mar. 8-9, 1990, Dec. 3-4, 22-27, 30-31, 1990, Jan. 3-4, 7, and Feb. 15-16, 1991.

DISSOLVED OXYGEN: Maximum observed, 18.3 mg/L, Apr. 28, 1991; minimum observed, 3.9 mg/L, July 2, 1991.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 24.0°C, June 27; minimum observed, 0.0°C, Dec. 3-4, 22-27, 30-31, Jan. 3-4, 7, and Feb. 15-16.

DISSOLVED OXYGEN: Maximum observed, 18.3 mg/L, Apr. 28; minimum observed, 3.9 mg/L, July 2.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					APR 1991				
03...	1410	20	625	14.5	25...	1319	35	580	12.5
NOV					JUN				
15...	1412	18	600	12.0	04...	1047	25	580	15.0
DEC					06...	1503	28	580	18.0
20...	1222	20	615	5.0	JUL				
FEB 1991					12...	0912	24	590	17.5
01...	0915	18	605	1.0	AUG				
MAR					20...	1302	23	515	16.0
19...	0950	29	570	6.0					

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	14.5	9.5	11.5	13.5	10.5	11.5	7.5	5.5	6.0	2.5	.5	1.5
2	14.0	9.0	11.5	13.5	12.0	12.5	5.5	3.5	4.5	2.0	.5	1.5
3	14.0	12.0	13.0	12.5	9.5	11.5	4.0	.0	.5	.5	.0	.0
4	14.0	10.0	12.0	9.5	8.0	8.5	2.0	.0	1.0	1.0	.0	.5
5	16.0	10.5	13.0	8.0	7.0	7.0	3.0	.5	2.0	2.5	.5	1.5
6	17.5	13.5	15.0	7.5	6.5	7.0	4.5	2.0	3.5	2.0	.5	1.0
7	14.5	10.0	12.0	7.5	6.0	7.0	4.0	1.5	3.0	1.0	.0	.5
8	9.5	8.0	9.0	6.0	4.5	5.5	5.0	2.5	4.0	3.5	.5	2.0
9	9.5	8.0	8.5	6.5	5.0	6.0	5.5	2.5	4.0	4.5	2.5	3.5
10	8.5	5.0	6.5	7.5	5.5	6.0	5.5	3.0	4.5	3.0	1.5	2.5
11	10.0	4.5	7.0	7.0	5.0	6.0	6.5	4.0	5.0	3.0	2.5	3.0
12	11.5	7.5	9.0	7.0	5.5	6.5	6.0	4.5	5.0	5.0	3.0	4.0
13	11.5	7.5	9.5	7.0	5.5	6.0	5.0	2.5	3.5	4.5	3.5	4.0
14	12.5	9.5	10.5	9.5	6.0	7.5	4.0	1.5	3.0	5.5	3.0	4.5
15	10.5	8.0	9.0	12.0	9.0	10.5	5.0	2.5	4.0	6.5	5.5	5.5
16	12.5	8.5	10.5	11.5	8.0	10.0	4.5	3.5	4.0	6.0	4.5	5.0
17	14.5	11.0	12.5	8.0	6.0	7.5	5.0	4.5	5.0	5.0	3.0	4.0
18	12.0	6.5	9.0	8.5	7.0	7.5	5.5	4.5	5.0	4.0	1.5	3.0
19	9.5	5.5	7.0	9.0	7.0	8.0	4.5	4.0	4.5	7.0	3.5	5.0
20	9.5	7.5	8.5	9.0	7.0	8.0	6.0	4.5	5.0	6.0	2.5	4.5
21	11.5	8.0	9.5	12.0	9.0	11.0	5.5	2.0	4.0	2.5	.5	1.0
22	10.5	6.5	8.0	10.0	8.0	8.5	2.0	.0	.5	.5	.5	.5
23	11.0	7.5	9.0	7.5	6.0	7.0	.0	.0	.0	2.0	.5	1.0
24	11.0	8.0	9.0	7.0	5.5	6.5	.0	.0	.0	1.0	.5	.5
25	10.0	7.5	8.5	8.0	6.5	7.0	.5	.0	.0	.5	.5	.5
26	10.5	7.5	8.5	9.0	5.5	6.5	.0	.0	.0	1.0	.5	.5
27	10.5	8.5	9.0	10.5	9.5	10.0	1.0	.0	.5	1.5	.5	1.0
28	10.0	7.5	8.5	9.0	5.5	7.0	3.5	1.0	2.5	3.5	1.0	2.5
29	10.0	7.0	8.5	6.0	4.5	5.5	4.5	2.5	4.0	3.0	1.0	2.0
30	12.5	9.0	10.5	6.5	5.0	5.5	2.5	.0	.5	1.0	.5	.5
31	12.5	10.0	11.0	---	---	---	.5	.0	.5	1.5	.5	1.0
MONTH	17.5	4.5	9.8	13.5	4.5	7.8	7.5	.0	2.9	7.0	.0	2.2





05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	13.8	8.5	10.6	---	---	---	---	---	---	---	---	---
2	13.2	7.9	10.2	---	---	---	---	---	---	---	---	---
3	10.1	7.4	8.3	10.6	8.3	9.2	---	---	---	---	---	---
4	13.4	7.6	10.1	14.5	9.7	11.1	---	---	---	---	---	---
5	13.4	8.1	10.2	14.0	10.3	11.6	---	---	---	---	---	---
6	12.9	7.9	9.7	14.6	10.9	11.9	---	---	---	---	---	---
7	13.1	8.1	10.0	15.7	11.1	12.8	---	---	---	---	---	---
8	10.6	9.1	9.5	15.1	11.9	13.1	---	---	---	---	---	---
9	11.1	8.8	9.6	15.3	11.9	12.9	---	---	---	---	---	---
10	10.3	9.1	9.5	15.8	11.6	12.9	---	---	---	---	---	---
11	13.0	9.4	10.6	15.4	11.3	12.6	---	---	---	---	---	---
12	---	---	---	15.1	11.3	12.5	---	---	---	---	---	---
13	---	---	---	15.0	10.8	12.3	---	---	---	---	---	---
14	---	---	---	14.0	9.4	11.3	---	---	---	---	---	---
15	---	---	---	13.4	8.7	10.4	---	---	---	---	---	---
16	---	---	---	12.6	8.5	10.0	---	---	---	---	---	---
17	---	---	---	13.7	9.5	11.0	---	---	---	---	---	---
18	---	---	---	13.0	9.4	10.6	---	---	---	---	---	---
19	---	---	---	13.4	9.4	10.6	---	---	---	---	---	---
20	---	---	---	12.9	9.2	10.4	---	---	---	---	---	---
21	---	---	---	9.2	8.3	8.6	---	---	---	---	---	---
22	---	---	---	12.9	8.3	10.1	---	---	---	---	---	---
23	---	---	---	12.9	9.4	10.8	---	---	---	---	---	---
24	---	---	---	12.8	9.8	10.9	---	---	---	---	---	---
25	---	---	---	13.5	9.6	10.9	---	---	---	---	---	---
26	---	---	---	11.6	9.2	10.5	---	---	---	---	---	---
27	---	---	---	9.2	8.5	8.8	---	---	---	---	---	---
28	---	---	---	13.0	9.0	10.7	---	---	---	---	---	---
29	---	---	---	13.7	10.8	11.8	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	14.4	9.0	11.3	15.1	8.9	11.5
2	---	---	---	---	---	---	14.8	8.7	11.3	16.7	8.3	11.8
3	---	---	---	---	---	---	15.2	8.3	11.3	17.0	8.2	11.8
4	---	---	---	---	---	---	13.3	8.2	10.1	17.4	7.8	11.9
5	---	---	---	---	---	---	15.6	7.1	10.7	10.4	7.5	8.6
6	---	---	---	---	---	---	14.4	6.7	9.8	11.8	8.0	9.8
7	---	---	---	---	---	---	14.1	6.6	9.5	15.0	7.9	11.1
8	---	---	---	---	---	---	13.1	6.5	8.7	15.6	7.8	10.5
9	---	---	---	---	---	---	9.1	7.2	8.5	15.7	7.0	10.7
10	---	---	---	---	---	---	13.3	8.3	10.4	14.6	6.8	10.1
11	---	---	---	---	---	---	12.2	8.3	10.0	14.5	6.3	9.7
12	---	---	---	---	---	---	11.9	9.1	10.3	14.2	6.1	9.5
13	---	---	---	---	---	---	10.2	8.9	9.6	13.9	6.2	9.3
14	---	---	---	---	---	---	9.2	8.4	8.7	12.5	6.2	8.7
15	---	---	---	---	---	---	10.0	8.1	8.9	12.3	6.1	8.8
16	---	---	---	---	---	---	11.3	7.8	9.3	11.8	6.1	8.6
17	---	---	---	---	---	---	12.1	7.7	9.5	11.0	6.4	8.4
18	---	---	---	---	---	---	11.6	7.8	9.5	10.5	7.8	8.8
19	---	---	---	---	---	---	13.3	8.3	10.0	12.9	7.7	9.9
20	---	---	---	---	---	---	13.9	7.7	10.4	12.9	6.7	9.7
21	---	---	---	---	---	---	14.6	7.4	10.4	11.7	6.6	8.2
22	---	---	---	---	---	---	15.4	7.0	10.4	11.7	6.0	8.6
23	---	---	---	---	---	---	14.9	6.9	10.4	11.4	6.0	8.1
24	---	---	---	---	---	---	16.7	7.0	11.2	11.8	5.8	8.1
25	---	---	---	---	---	---	17.5	7.0	11.1	10.7	5.8	7.6
26	---	---	---	12.2	7.4	9.4	18.0	6.9	11.7	11.4	5.5	7.7
27	---	---	---	8.4	7.4	7.7	16.8	6.8	10.5	11.4	5.5	8.0
28	---	---	---	12.0	8.4	10.1	18.3	6.7	11.5	12.7	5.5	8.4
29	---	---	---	12.9	9.4	11.0	8.4	6.6	7.3	12.8	5.6	8.5
30	---	---	---	13.4	9.3	11.1	13.7	7.7	10.4	12.0	5.6	8.3
31	---	---	---	13.7	9.3	10.8	---	---	---	11.5	5.9	8.2
MONTH	---	---	---	---	---	---	18.3	6.5	10.1	17.4	5.5	9.3

05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	12.8	6.7	9.0	12.6	4.9	8.5	14.1	6.3	9.8	13.2	6.5	9.2
2	12.7	6.7	9.2	12.4	3.9	7.5	11.7	6.1	8.5	13.3	6.7	9.3
3	13.1	6.9	9.4	12.6	4.8	8.5	12.6	6.2	8.7	11.5	6.3	8.3
4	14.1	6.9	10.2	12.7	5.4	8.8	14.7	6.6	10.0	13.3	6.4	9.3
5	14.3	7.0	10.1	14.3	5.7	9.5	14.6	6.4	9.9	12.1	7.0	9.3
6	14.2	7.0	10.2	14.2	5.4	9.2	12.4	6.6	8.9	13.7	6.9	9.7
7	14.4	6.5	10.1	14.4	4.6	8.1	10.7	6.8	8.2	13.2	6.6	9.4
8	13.9	6.2	9.6	9.9	4.3	7.0	7.5	6.7	7.0	12.1	6.7	8.7
9	12.9	6.1	8.9	13.9	5.7	9.1	12.4	6.6	9.1	13.0	6.0	8.8
10	13.6	6.4	9.0	14.3	6.1	9.7	13.4	6.6	9.4	12.3	5.7	8.5
11	13.6	5.5	9.2	---	---	---	13.8	6.8	9.7	10.8	6.7	8.3
12	14.0	5.9	9.2	---	---	---	13.5	6.6	9.6	10.0	6.9	7.9
13	14.7	5.9	9.7	---	---	---	13.7	6.5	9.5	12.4	6.7	8.8
14	13.3	5.7	8.7	---	---	---	13.9	6.5	9.6	10.4	5.9	7.8
15	10.4	5.5	7.4	---	---	---	14.0	6.1	9.4	9.6	5.5	6.9
16	13.9	6.2	9.5	---	---	---	12.8	6.2	8.8	11.2	5.8	8.0
17	14.2	6.3	9.6	---	---	---	13.0	6.2	9.0	12.2	7.1	8.9
18	14.1	6.2	9.7	---	---	---	14.4	6.3	9.6	12.1	7.5	9.5
19	---	---	---	13.1	5.2	8.7	12.4	6.5	9.3	12.1	8.7	10.3
20	---	---	---	14.2	5.5	9.0	14.7	7.4	10.6	13.6	9.5	11.1
21	13.2	5.7	8.6	13.6	5.3	8.2	14.8	6.6	9.9	13.5	9.6	11.2
22	10.3	5.9	7.7	13.7	5.1	8.5	14.0	6.1	9.5	11.1	9.1	10.2
23	14.9	6.7	10.4	14.4	4.8	9.1	13.7	6.3	9.5	12.7	10.0	11.3
24	14.8	6.4	10.1	14.2	5.8	9.5	14.5	6.6	9.9	11.2	9.8	10.5
25	14.8	6.0	9.9	13.7	6.2	9.7	14.2	6.2	9.4	12.7	9.9	10.7
26	14.5	5.2	9.5	14.3	6.8	10.2	14.0	5.9	9.2	13.1	9.9	11.0
27	14.2	4.9	8.9	15.7	6.9	10.8	13.5	5.8	9.0	13.3	10.0	11.5
28	13.9	4.7	8.9	11.3	6.5	8.5	12.9	5.9	8.9	---	---	---
29	13.7	4.9	8.5	14.3	7.0	9.9	12.4	5.8	8.7	13.4	10.0	11.5
30	12.8	4.7	8.3	15.8	7.1	10.7	12.6	5.9	8.2	---	---	---
31	---	---	---	15.4	6.7	10.4	12.7	4.8	8.3	---	---	---
MONTH	---	---	---	---	---	---	14.8	4.8	9.2	---	---	---

## 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 mi<sup>2</sup>, of which 2.8 mi<sup>2</sup> probably is noncontributing.

## WATER-DISCHARGE RECORDS

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 4, 23-27, 31, Jan. 3-5, 22-31, and Feb. 14-16. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--37 years, 33.2 ft<sup>3</sup>/s, 10.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,750 ft<sup>3</sup>/s, July 3, 1954, gage height, 6.58 ft; minimum, 4.8 ft<sup>3</sup>/s, Nov. 29, 1958, gage height, 1.39 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
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Mar. 2	0845	*312	*3.65	No other peak greater than base discharge.			
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Minimum daily discharge, 18 ft<sup>3</sup>/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	20	22	21	20	69	29	45	30	29	24	24
2	18	20	21	20	20	223	28	41	31	34	24	23
3	22	20	21	20	20	65	27	37	31	27	23	24
4	21	23	21	20	21	48	26	35	30	26	23	24
5	19	22	21	20	22	50	23	59	29	25	22	24
6	19	25	20	21	22	66	23	59	29	25	21	24
7	19	22	20	22	23	44	23	48	28	33	22	23
8	20	21	20	21	27	40	25	44	29	37	53	23
9	21	22	21	21	27	39	61	41	27	28	32	24
10	25	22	21	21	27	34	52	38	28	28	24	23
11	28	21	22	21	24	36	40	36	28	26	22	24
12	27	21	23	21	24	34	62	34	26	26	22	35
13	23	21	24	21	23	31	130	34	25	26	22	26
14	23	21	23	21	23	29	135	34	29	25	23	32
15	23	21	23	22	23	30	94	33	51	24	23	45
16	22	22	21	21	22	29	68	32	35	25	24	31
17	23	21	22	20	22	29	56	31	30	25	25	25
18	26	21	23	21	22	36	51	38	29	25	25	29
19	23	21	22	21	23	35	46	36	27	25	25	24
20	22	21	22	20	24	33	45	33	25	25	27	23
21	23	24	23	20	32	33	41	35	25	27	26	22
22	22	22	22	20	47	32	40	34	30	28	26	23
23	22	22	22	20	37	60	41	34	25	24	26	24
24	21	21	21	20	30	41	38	33	24	23	26	24
25	21	21	21	20	28	36	36	34	23	23	26	25
26	20	21	21	20	26	37	35	35	24	22	27	24
27	20	29	21	19	25	61	35	32	24	22	27	24
28	20	27	22	19	24	48	36	31	26	23	26	23
29	20	23	21	19	---	37	78	30	25	25	25	22
30	20	22	19	19	---	35	54	32	25	24	28	22
31	20	---	21	19	---	32	---	31	---	24	26	---
TOTAL	672	660	667	631	708	1452	1478	1149	848	809	795	763
MEAN	21.7	22.0	21.5	20.4	25.3	46.8	49.3	37.1	28.3	26.1	25.6	25.4
MAX	28	29	24	22	47	223	135	59	51	37	53	45
MIN	18	20	19	19	20	29	23	30	23	22	21	22
CFSM	.51	.51	.50	.48	.59	1.09	1.15	.87	.66	.61	.60	.59
IN.	.58	.57	.58	.55	.62	1.26	1.28	1.00	.74	.70	.69	.66

CAL YR 1990	TOTAL	9980	MEAN	27.3	MAX	268	MIN	17	CFSM	.64	IN.	8.67
WTR YR 1991	TOTAL	10632	MEAN	29.1	MAX	223	MIN	18	CFSM	.68	IN.	9.24

WATER-QUALITY RECORDS

REMARKS.--Bacteria analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

LOCATION.--Lat 43°11'54", long 90°26'26", 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.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder. Datum of gage is 666.77 ft above National Geodetic Vertical Datum of 1929. 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.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36,600 ft<sup>3</sup>/s, Apr. 1, gage height, 7.92 ft; minimum daily, 3.750 ft<sup>3</sup>/s Sept. 2.

1.1	3,570	6.0	24,400
2.0	6,200	8.0	37,200
4.0	14,000		

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6780	8500	7260	4900	5400	5800	36000	12900	19300	6470	5200	4590
2	5690	8130	7370	5000	6200	6200	36300	13300	23000	6310	5150	3750
3	6110	7530	8220	6000	7400	7000	32000	14300	24900	6180	5410	3860
4	5890	7180	8710	5800	8000	6400	22400	14300	26600	5290	5310	4100
5	6090	7590	6730	7000	8200	6800	14900	14600	28400	4750	5490	4460
6	6390	7430	7630	7000	8400	7000	12400	15800	30500	5030	5990	4320
7	7190	6830	6970	6800	9200	7200	10600	16500	32200	5230	7310	4460
8	7600	7100	6170	7000	9600	7600	10800	15100	30000	5340	7700	4530
9	7540	7300	6060	6400	9400	8000	11500	13400	19100	5320	7630	4720
10	7190	6280	6620	6200	9800	8370	12700	13200	14900	5130	5960	4440
11	7720	5960	7570	6400	9600	8290	15200	13000	13600	6710	6650	4510
12	8200	6160	7110	7200	8000	8330	21200	13400	12000	6660	6890	5440
13	7980	6130	6590	6600	6400	8050	25000	13800	10900	6310	6330	6930
14	7290	6540	6540	6200	7000	7850	25100	13800	10400	5840	5430	6670
15	6650	6900	6610	5400	7400	8100	23600	14500	11500	5110	5250	6330
16	6990	6130	5950	5400	7000	7690	25800	13600	12300	5000	4930	6880
17	7060	6490	6470	6200	5400	7570	27400	11000	11400	4960	5130	6620
18	6920	6260	7260	6800	6000	7680	25600	10700	10200	5000	5070	7240
19	7490	5580	6970	7000	6400	7640	21300	10400	8690	5390	4980	7490
20	8420	5020	6610	6800	6000	7780	18300	10400	6770	9580	4640	7110
21	8590	5010	6880	7000	5800	8400	16400	11400	6100	11300	4680	5400
22	9110	5090	7000	7200	6400	8800	17200	11300	7370	11100	4960	4960
23	9540	6110	6400	7600	6400	9660	15700	10500	8960	9590	4830	4520
24	10500	6240	4100	6600	7000	10200	14500	10100	12000	8370	4470	4350
25	11100	6680	4200	7000	6200	11000	13200	10000	15000	6820	4980	4530
26	11700	7190	4600	8000	6400	11600	12400	10100	13100	6050	4720	4980
27	11300	7710	5200	7000	6000	16500	12100	9600	10700	5170	4610	5880
28	11200	6690	5200	7200	5800	16600	11700	10300	7340	4930	4600	5600
29	11100	6240	5400	7800	---	19500	12100	11600	7200	5210	4450	5410
30	9020	6800	6000	7600	---	25800	13300	12700	6140	4860	4430	5670
31	9050	---	5400	5800	---	31400	---	14700	---	4810	4450	---
TOTAL	253400	198800	199800	204900	200800	318810	566700	390300	450570	193820	167630	159750
MEAN	8174	6627	6445	6610	7171	10280	18890	12590	15020	6252	5407	5325

## WISCONSIN RIVER BASIN

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05407000 WISCONSIN RIVER AT MUSCODA, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-67, 1971, 1975 to current year. National Stream-Quality Accounting  
Network data collection began in October 1974.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML) (31673)
OCT 1990											
24...	0940	10600	220	8.1	9.0	8.0	11.3	748	100	31	53
DEC											
11...	1045	7400	240	7.9	1.5	4.8	13.2	740	97	K13	K11
MAR 1991											
20...	0915	7800	335	7.9	5.0	4.9	12.2	744	98	23	87
APR											
23...	1130	17100	165	8.0	10.5	3.6	10.7	731	100	K11	21
JUN											
13...	1100	10900	215	8.1	25.0	6.0	8.4	739	105	150	75
AUG											
14...	1010	5490	215	8.5	23.5	4.4	8.8	746	106	97	63

DATE	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LITY 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)
OCT 1990											
24...	88	21	8.6	9.9	2.2	85	--	70	15	14	0.10
DEC											
11...	95	22	9.8	9.3	1.9	99	--	81	16	11	0.10
MAR 1991											
20...	120	27	12	12	2.6	114	--	94	16	17	<0.10
APR											
23...	70	16	7.2	5.6	2.9	70	--	58	11	9.9	<0.10
JUN											
13...	79	19	7.7	7.6	2.2	81	--	66	11	11	0.20
AUG											
14...	94	22	9.5	6.9	2.2	95	2	80	12	11	0.10

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1990											
24...	1.8	127	117	<0.010	0.400	0.010	0.020	1.1	0.070	0.030	0.020
DEC											
11...	4.4	151	126	<0.010	0.700	0.080	0.070	0.80	0.070	0.010	0.010
MAR 1991											
20...	11	181	160	0.020	1.20	0.170	0.140	0.90	0.080	0.050	0.040
APR											
23...	6.0	116	97	<0.010	0.860	0.030	<0.010	0.90	0.110	0.020	<0.010
JUN											
13...	3.1	108	103	0.020	0.390	0.020	0.020	1.1	0.050	0.020	<0.010
AUG											
14...	3.9	147	117	<0.010	<0.050	0.020	0.020	0.60	0.020	0.100	0.030

K RESULTS BASED ON COUNT OUTSIDE OF THE ACCEPTABLE RANGE (NON-IDEAL COLONY COUNT).

## WISCONSIN RIVER BASIN

05407000 WISCONSIN RIVER AT MUSCODA, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 1990											
24...	0940	10600	20	<1	17	<0.5	<1.0	1	<3	3	480
MAR 1991											
20...	0915	7800	20	<1	24	<0.5	<1.0	<1	<3	4	580
APR											
23...	1130	17100	40	<1	19	<0.5	<1.0	1	<3	3	270
AUG											
14...	1010	5490	20	<1	15	<0.5	<1.0	<1	<3	4	64

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 1990										
24...	2	<4	11	0.2	<10	1	<1	38	<6	7
MAR 1991										
20...	4	<4	17	<0.1	<10	3	<1	43	<6	14
APR										
23...	1	<4	7	<0.1	10	<1	<1	30	<6	7
AUG										
14...	<1	<4	3	<0.1	<10	2	<1	39	<6	13

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990							
24...	0940	10600	220	9.0	43	1230	32
DEC							
11...	1045	7400	240	1.5	24	480	32
MAR 1991							
20...	0915	7800	335	5.0	20	421	54
APR							
23...	1130	17100	165	10.5	33	1520	39
JUN							
13...	1100	10900	215	25.0	22	647	80
AUG							
14...	1010	5490	215	23.5	16	237	83



## WISCONSIN RIVER BASIN

341

05408000 KICKAPOO RIVER AT LA FARGE, WI

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Dec. 4, 1939, nonrecording gage on highway bridge at same datum.

REMARKS.--Estimated daily discharge: Ice period listed in rating table below. Records good except those for ice affected period, which is poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--53 years, 176 ft<sup>3</sup>/s, 8.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft<sup>3</sup>/s, July 1, 1978, gage height, 14.92 ft; minimum, 1.8 ft<sup>3</sup>/s, Mar. 24, 1951 (unusual regulation); minimum daily, 36 ft<sup>3</sup>/s, Nov. 3, 1939.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Apr. 15	0045	*970	*6.59				

Minimum daily discharge, 98 ft<sup>3</sup>/s, Sept. 2, 6, and 7.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Apr. 1-7; stage-discharge relation affected by ice Dec. 3 to Mar. 9.)

2.2	90	4.0	359
3.0	188	6.0	813

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	119	113	120	120	150	173	190	211	115	112	99
2	117	119	113	120	120	230	164	173	195	113	108	98
3	126	123	110	120	130	220	159	162	181	108	111	99
4	170	130	100	120	140	180	158	159	168	107	113	101
5	140	126	110	120	150	190	158	190	156	109	110	99
6	133	122	120	120	150	230	154	326	150	107	106	98
7	126	121	120	120	160	200	149	216	146	103	108	98
8	121	119	120	120	160	180	312	206	143	105	348	100
9	120	118	120	120	160	160	568	312	141	107	329	113
10	120	118	130	120	150	138	339	228	140	113	159	111
11	133	119	130	120	140	141	244	200	140	107	137	104
12	135	117	130	120	140	177	227	188	135	284	127	206
13	132	116	120	120	140	148	337	182	133	175	122	170
14	130	115	110	130	130	145	678	178	133	133	119	143
15	129	115	130	130	120	149	699	166	168	120	116	410
16	127	115	120	130	130	158	368	164	171	114	115	183
17	124	115	120	130	130	152	280	206	141	126	132	147
18	136	115	120	130	130	199	241	207	133	204	125	145
19	149	115	120	130	130	202	250	250	129	138	119	138
20	136	115	120	130	130	214	232	188	124	124	116	126
21	133	128	110	120	150	230	203	173	131	123	114	122
22	135	141	100	120	170	245	193	173	134	138	112	121
23	131	127	110	120	160	562	211	194	129	179	109	117
24	129	122	110	110	140	488	194	169	124	126	108	116
25	125	121	110	110	130	282	177	162	121	119	106	122
26	124	118	110	110	130	237	171	328	118	116	106	122
27	123	119	110	120	130	240	182	327	117	112	104	116
28	121	123	110	120	140	240	178	211	113	113	103	113
29	120	118	120	120	---	204	179	188	112	128	102	111
30	120	112	120	120	---	187	231	297	113	125	102	110
31	120	---	120	120	---	180	---	219	---	118	102	---
TOTAL	4003	3601	3606	3760	3910	6658	7809	6532	4250	4009	4000	3958
MEAN	129	120	116	121	140	215	260	211	142	129	129	132
MAX	170	141	130	130	170	562	699	328	211	284	348	410
MIN	117	112	100	110	120	138	149	159	112	103	102	98
CFSM	.49	.45	.44	.46	.52	.81	.98	.79	.53	.49	.49	.50
IN.	.56	.50	.50	.53	.55	.93	1.09	.91	.59	.56	.56	.55

CAL YR 1990	TOTAL 63734	MEAN 175	MAX 1900	MIN 80	CFSM .66	IN. 8.91
WTR YR 1991	TOTAL 56096	MEAN 154	MAX 699	MIN 98	CFSM .58	IN. 7.85

## WISCONSIN RIVER BASIN

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. May 1933 to Oct. 19, 1938, nonrecording gage at same site at datum 1.7 ft higher. Oct. 20, 1938 to September 1982, recording gage at site 1.2 mi downstream at datum 0.36 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected period listed in rating table below. Records good except for ice-affected period, which is poor. Data-collection platform and gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years, 481 ft<sup>3</sup>/s, 9.51 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft<sup>3</sup>/s, July 3, 1978, gage height, 14.81 ft; minimum observed, 161 ft<sup>3</sup>/s, Aug. 9, 1936, gage height, 0.76 ft, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Apr. 16	1600	*1,240	*10.44				

Minimum daily discharge, 270 ft<sup>3</sup>/s, Jan. 30, 31, and Feb. 1.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 11-23, Mar. 27 to Apr. 8, Apr. 21 to May 6, May 8-25, and Sept. 2-10; stage-discharge relation affected by ice Dec. 3 to Mar. 10.)

5.5	258	9.0	882
6.0	333	11.0	1,430
7.0	486		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	328	339	341	340	270	350	519	623	686	352	331	280
2	326	339	336	340	280	360	500	597	619	353	318	276
3	339	345	340	340	280	380	481	543	581	350	314	280
4	358	358	340	340	280	410	467	520	547	339	316	287
5	389	366	330	340	290	400	460	517	509	334	316	285
6	396	362	330	340	300	390	455	573	480	336	308	279
7	361	354	340	340	320	420	447	687	460	331	305	277
8	347	347	340	340	340	440	462	652	446	325	383	282
9	342	346	350	340	340	420	789	594	436	323	538	295
10	343	346	360	340	340	420	1110	642	430	322	686	310
11	355	346	360	340	340	434	990	635	425	339	481	314
12	361	345	350	340	340	454	777	569	422	357	389	377
13	369	341	340	340	340	488	793	542	413	444	363	354
14	365	338	330	340	330	488	914	531	427	497	347	442
15	356	336	340	340	320	460	1150	520	543	385	335	429
16	354	337	350	340	320	458	1230	498	507	351	326	622
17	356	337	350	340	330	465	1140	487	499	334	330	576
18	359	335	340	340	330	483	856	545	450	361	338	423
19	360	331	340	340	340	518	746	603	418	473	345	388
20	376	329	340	340	350	546	715	626	404	421	332	379
21	388	339	330	330	360	550	688	569	401	368	321	362
22	375	351	320	320	370	565	636	518	429	359	316	347
23	372	369	320	320	360	655	609	498	449	359	309	340
24	367	365	320	310	350	867	610	503	407	380	304	338
25	359	351	330	300	340	971	596	499	391	366	300	342
26	354	345	330	300	340	769	557	658	379	333	296	345
27	349	347	330	300	340	680	552	821	371	323	290	345
28	344	348	330	300	350	663	572	816	363	322	288	338
29	342	348	340	290	---	643	575	666	356	340	285	329
30	341	348	340	270	---	584	583	619	351	351	284	326
31	339	---	340	270	---	542	---	686	---	349	283	---
TOTAL	11070	10388	10477	10110	9190	16273	20979	18357	13599	11177	10677	10567
MEAN	357	346	338	326	328	525	699	592	453	361	344	352
MAX	396	369	360	340	370	971	1230	821	686	497	686	622
MIN	326	329	320	270	270	350	447	487	351	322	283	276
CFSM	.52	.50	.49	.47	.48	.76	1.02	.86	.66	.52	.50	.51
IN.	.60	.56	.57	.55	.50	.88	1.14	.99	.74	.61	.58	.57

CAL YR 1990	TOTAL 164785	MEAN 451	MAX 2110	MIN 250	CFSM .66	IN. 8.92
WTR YR 1991	TOTAL 152864	MEAN 419	MAX 1230	MIN 270	CFSM .61	IN. 8.28

## RESERVOIRS IN WISCONSIN RIVER BASIN

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 ft<sup>3</sup>. Drainage area, 34.4 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 26 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 16.9 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 12.1 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 28.8 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. This reservoir includes 18 lakes controlled by the same dam. Drainage area, 142 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 22.9 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 2.47 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 48.4 mi<sup>2</sup>.
- 05390700 Little St. Germain Lake on Little St. Germain Creek, lat 45°53'57", long 89°27'08", 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 ft<sup>3</sup>. Drainage area, 19 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 73.1 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 86.2 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 744 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 19.8 mi<sup>2</sup>.
- 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 Rhineland city limits, used as a reservoir since 1908, has a usable capacity of 218,000,000 ft<sup>3</sup>. Drainage area, 95 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 72.5 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 15.2 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 310 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 544 mi<sup>2</sup>.
- 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 ft<sup>3</sup>. Drainage area, 158 mi<sup>2</sup>.

## WISCONSIN RIVER BASIN

## RESERVOIRS IN WISCONSIN RIVER BASIN--CONTINUED

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 ft<sup>3</sup>. Drainage area, 363 mi<sup>2</sup>.

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 ft<sup>3</sup>. Drainage area, 4,900 mi<sup>2</sup>.

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 Strong's Prairie, and 3.5 mi northeast of Necedah, used as a reservoir since 1950, has a total capacity of 19,880,000,000 ft<sup>3</sup>. Drainage area, 5,970 mi<sup>2</sup>.

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 ft<sup>3</sup>. Drainage area, 7,056 mi<sup>2</sup>.

## MONTH-END CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1990 to SEPTEMBER 1991

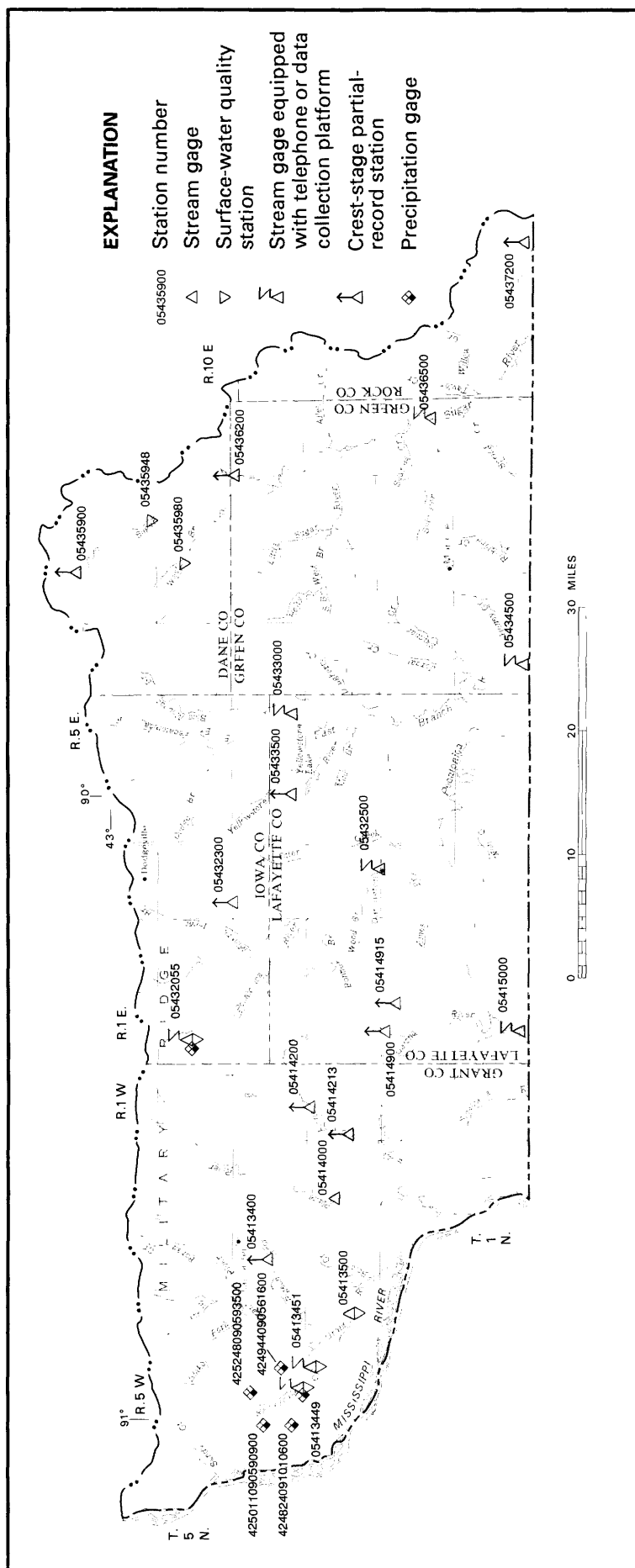
	LAC VIEUX DESERT	TWIN LAKES	BUCKATABON LAKE	SEVENMILE LAKE	LOWER NINEMILE LAKE	BURNT ROLLWAYS RESERVOIR	LONG LAKE	DEERSKIN LAKE
SEPT. 30.....	209	255	114	62	99	575	185	20
OCT. 31.....	273	286	113	60	97	539	225	23
NOV. 30.....	205	231	92	44	68	490	153	19
DEC. 31.....	104	150	56	0	18	343	13	21
JAN. 31.....	35	28	35	0	28	87	0	14
FEB. 28.....	12	0	24	0	40	0	2	11
MAR. 31.....	94	59	55	13	83	157	106	16
APR. 30.....	256	189	116	55	100	588	293	22
MAY 31.....	348	288	116	66	97	611	263	25
JUNE 30.....	355	286	116	63	101	558	237	17
JULY 31.....	334	269	115	63	95	588	202	16
AUG. 31.....	297	245	113	59	96	514	166	13
SEPT. 30.....	311	270	114	61	95	549	168	17

	SUGAR CAMP RESERVOIR	LITTLE ST. GERMAIN LAKE	BIG ST. GERMAIN LAKE	PICKEREL LAKE	RAINBOW LAKE	SOUTH PELICAN LAKE	NORTH PELICAN LAKE	MINOCQUA LAKE
SEPT. 30.....	396	69	155	265	2,088	266	142	493
OCT. 31.....	453	68	159	263	2,117	292	154	485
NOV. 30.....	336	64	65	225	1,990	246	125	384
DEC. 31.....	257	48	11	175	1,830	213	54	185
JAN. 31.....	67	30	8	154	1,450	185	26	68
FEB. 28.....	0	22	10	151	907	178	23	18
MAR. 31.....	219	54	79	236	916	257	102	136
APR. 30.....	414	75	159	269	2,142	295	157	370
MAY 31.....	452	73	162	275	2,146	361	156	525
JUNE 30.....	424	71	159	272	2,159	300	133	519
JULY 31.....	412	72	161	271	1,980	289	142	516
AUG. 31.....	421	68	160	261	1,450	283	132	496
SEPT. 30.....	404	72	161	267	1,341	261	136	493

	SQUIRREL LAKE	WILLOW RESERVOIR	LAKE NOKOMIS	SPIRIT RIVER FLOWAGE	BIG EAU PLEINE RESERVOIR	LAKE DUBAY	PETENWELL FLOWAGE	CASTLE ROCK FLOWAGE
SEPT. 30.....	170	3,175	1,712	708	4,319	4,088	17,624	5,696
OCT. 31.....	170	3,208	1,758	699	4,400	4,104	17,395	5,735
NOV. 30.....	123	3,120	1,694	623	4,382	4,082	17,624	5,652
DEC. 31.....	53	2,885	1,413	549	4,178	4,141	17,064	5,562
JAN. 31.....	12	2,202	1,039	389	3,526	3,825	14,506	5,412
FEB. 28.....	13	1,673	741	269	2,709	2,935	14,218	2,978
MAR. 31.....	79	2,027	1,225	683	4,346	4,002	17,844	5,929
APR. 30.....	172	3,277	1,766	706	4,385	4,372	18,240	6,028
MAY 31.....	170	3,280	1,804	717	4,364	4,400	18,336	6,472
JUNE 30.....	169	3,169	1,766	709	4,322	4,057	17,430	5,703
JULY 31.....	170	3,172	1,676	708	4,334	4,153	17,536	5,760
AUG. 31.....	170	2,587	1,306	457	3,819	4,122	17,571	5,754
SEPT. 30.....	166	2,280	1,126	470	3,551	4,060	17,439	5,664



## PECATONICA-SUGAR RIVER BASIN

Base from U.S. Geological Survey  
State base map, 1968

## GRANT RIVER BASIN

425248090593500 RATTLESNAKE CREEK RAIN GAGE #1, ON HOLLY ROAD, NEAR BLOOMINGTON, WI

LOCATION.--Lat 42°52'48", long 90°59'35", in NE 1/4 SW 1/4 sec.29, T.5 N., R.5 W., Grant County, Hydrologic Unit 07060003, on Holly Road, 0.6 mi north of intersection with Maine Road, near Bloomington.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 16, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Nov. 9, Dec. 15, 17, 19, 20, Jan. 1, 5, 9, 11, 12, 14, Feb. 9, 27, and Mar. 8. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Dec. 29, Mar. 1, 12, 13, and 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 4.06 in., June 14.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00
2	---	.04	.00	.00	.00	.13	.00	.00	.00	---	.00	.00
3	---	.61	.00	.00	.00	.00	.00	.01	.00	---	.60	.91
4	---	.04	.00	.00	.00	.00	.02	.00	.00	---	.00	.00
5	---	.01	.00	.00	.00	.00	.00	.69	.00	---	.00	.00
6	---	.00	.00	.00	.00	.00	.00	.01	.00	---	.10	.00
7	---	.00	.00	.00	.00	.00	.00	.01	.00	---	.50	.00
8	---	.00	.00	.00	.00	.00	1.16	.06	.00	---	1.96	.84
9	---	.00	.00	.00	.00	.00	.23	.00	.00	.00	.01	.00
10	---	.00	.00	.00	.00	.00	.00	.00	.64	.00	.00	.00
11	---	.00	.00	.00	.00	.00	.01	.00	.01	.17	.00	.27
12	---	.00	.00	.00	.00	.00	1.81	.00	.00	.50	.00	.57
13	---	.00	.00	.00	.00	.00	.01	1.01	.27	.00	.00	.13
14	---	.00	.00	.00	.00	.00	.32	.00	4.06	.00	.00	.78
15	---	.00	.00	.00	---	.00	.00	.14	1.99	.00	.00	.08
16	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.40	.00
17	.82	.00	.00	.00	.00	.47	.00	.37	.00	.00	.00	.26
18	.06	.00	.00	.00	.05	.00	.17	.22	.00	.02	.00	.04
19	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00
20	.43	.36	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.10	.32	.00	.00	.00	.00	.00	.05	.25	.03	.02	.00
22	.00	.00	.00	.00	.00	.70	.16	.01	.00	.05	.00	.00
23	.00	.00	.00	.00	.00	.26	.19	.11	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19
25	.00	.00	.00	.00	.00	.00	.00	1.26	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00	.00
27	.00	.34	.00	.00	.00	1.10	.32	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.01	.02	.00	.00	.63	.00	.00
29	.00	.00	.00	.00	---	.00	.28	.52	.00	.00	.01	.00
30	.00	.00	.00	.00	---	.00	.02	.19	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.51	---	.00	.00	---
TOTAL	---	1.72	0.00	0.00	---	3.00	4.80	5.19	7.28	---	3.60	4.07

## GRANT RIVER BASIN

347

425011090590900 RATTLESNAKE CREEK RAIN GAGE #2, ON DODGE ROAD, NEAR NORTH ANDOVER, WI

LOCATION.--Lat 42°50'11", long 90°59'09", in NW 1/4 SE 1/4 sec.8, T.4 N., R.5 W., Grant County, Hydrologic Unit 07060003, on Dodge Road, 0.3 mi west of intersection with Maine Road, near North Andover.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 16, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Nov. 7-9, Dec. 4-5, 15, 17-18, 20, Jan. 4-5, 12, 14-15, and Feb. 9. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 Dec. 29, Mar. 1, 12, 13, and 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.32 in., June 14.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00
2	---	.03	.00	.00	.00	.18	.00	.00	.00	.00	.00	.00
3	---	.52	.00	.00	.00	.00	.00	.01	.00	.00	.24	.85
4	---	.01	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
5	---	.01	.00	.00	.00	.00	.00	.69	.00	.00	.00	.00
6	---	.00	.00	.00	.00	.00	.00	.01	.00	.00	.10	.00
7	---	.00	.00	.00	.00	.00	.00	.00	.00	.15	1.16	.00
8	---	.00	.00	.00	.00	---	1.06	.03	.00	.01	2.06	.81
9	---	.00	.00	.00	.00	.00	.24	.00	.00	.04	.00	.00
10	---	.00	.00	.00	.00	.00	.00	.00	.38	.00	.00	.00
11	---	.00	.00	.00	.00	.00	.01	.00	.00	.12	.00	.12
12	---	.00	.00	.00	.00	.00	1.95	.00	.00	.52	.00	.35
13	---	.00	.00	.00	.00	.00	.02	1.00	.25	.01	.00	.54
14	---	.00	.00	.00	.00	.00	.32	.00	2.32	.00	.00	.49
15	---	.00	.00	.00	.00	.00	.00	.12	2.22	.00	.00	.05
16	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.38	.00
17	.56	.00	.00	.00	.00	.42	.00	.28	.00	.00	.00	.20
18	.07	.00	.00	.00	.07	.00	.13	.16	.00	.00	.00	.01
19	.00	.00	.00	.00	.00	.01	.09	.00	.00	.00	.00	.00
20	.53	.31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.08	.27	.00	.00	.00	.00	.00	.16	.47	.06	.12	.00
22	.00	.00	.00	.00	.00	.70	.17	.00	.05	.07	.00	.00
23	.00	.00	.00	.00	.00	.18	.16	.15	.02	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.18
25	.00	.00	.00	.00	.00	.00	.00	1.07	.00	.00	.00	.01
26	.00	.00	.00	.00	.00	.18	.00	.06	.00	.00	.00	.00
27	.00	.31	.00	.00	.00	1.20	.24	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.02	.00	.00	.55	.00	.00
29	.00	.00	.00	.00	---	.00	.30	.30	.00	.00	.01	.00
30	.00	.00	.00	.00	---	.00	.03	.17	.00	.00	.02	.00
31	.00	---	.00	.00	---	.00	---	.31	---	.00	.00	---
TOTAL	---	1.46	0.00	0.00	0.07	---	4.77	4.54	5.78	1.53	4.09	3.61

## GRANT RIVER BASIN

424944090561600 RATTLESNAKE CREEK RAIN GAGE #3, ON HUDSON ROAD, NEAR NORTH ANDOVER, WI

LOCATION.--Lat 42°49'44", long 90°56'16", in SW 1/4 SW 1/4 sec.11, T.4 N., R.5 W., Grant County, Hydrologic Unit 07060003, on Hudson Road, 0.6 mi east of intersection with Wisconsin Highway 133, near North Andover.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 16, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Nov. 7, 9, Dec. 15, 17, 19, 20, Jan. 4-5, 12, 14, and Mar. 8. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Dec. 28, 29, Mar. 1, 12, 13, and 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.63 in., June 14.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00
2	---	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00	.00
3	---	.38	.00	.00	.00	.00	.00	.01	.00	.00	.02	.77
4	---	.02	.00	.00	.00	.00	.01	.00	.00	.00	.06	.00
5	---	.00	.00	.00	.00	.00	.00	.71	.00	.00	.52	.00
6	---	.00	.00	.00	.00	.00	.00	.01	.00	.00	.07	.00
7	---	.00	.00	.00	.00	.00	.00	.00	.00	.81	.34	.00
8	---	.00	.00	.00	.00	.00	.93	.06	.00	.00	2.07	.78
9	---	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
10	---	.00	.00	.00	.00	.00	.00	.00	.38	.00	.00	.00
11	---	.00	.00	.00	.00	.00	.01	.00	.01	.10	.00	.10
12	---	.00	.00	.00	.00	.00	1.88	.00	.00	.49	.00	.35
13	---	.00	.00	.00	.00	.00	.02	.86	.41	.00	.00	.24
14	---	.00	.00	.00	.00	.00	.33	.00	2.63	.00	.00	.37
15	---	.00	.00	.00	.00	.00	.00	.26	1.40	.00	.00	.03
16	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.39	.00
17	.17	.00	.00	.00	.00	.55	.00	.26	.00	.00	.00	.17
18	.05	.00	.00	.00	.07	.00	.09	.15	.00	.00	.00	.10
19	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00
20	.47	.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.06	.15	.00	.00	.00	.00	.00	.50	.82	.01	.08	.00
22	.00	.00	.00	.00	.00	.76	.14	.01	.00	.09	.00	.00
23	.00	.00	.00	.00	.00	.09	.18	.10	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.19
25	.00	.00	.00	.00	.00	.00	.00	.95	.00	.00	.00	.01
26	.00	.00	.00	.00	.00	.21	.00	.06	.00	.00	.00	.00
27	.00	.26	.00	.00	.00	1.37	.23	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.03	.00	.00	.18	.00	.00
29	.00	.00	.00	.00	---	.00	.16	.19	.00	---	.07	.00
30	.00	.00	.00	.00	---	.00	.02	.19	.00	---	.00	.00
31	.00	---	.00	.00	---	.00	---	.38	---	.00	.00	---
TOTAL	---	1.06	0.00	0.00	0.07	3.16	4.44	4.71	5.78	---	3.62	3.11



## GRANT RIVER BASIN

349

424824091010600 RATTLESNAKE CREEK RAIN GAGE #4, ON PRIDE ROAD, NEAR NORTH ANDOVER, WI

LOCATION.--Lat 42°48'24", long 91°01'06", in NE 1/4 SE 1/4 sec.24, T.4 N., R.6 W., Grant County, Hydrologic Unit 07060003, on Pride Road, 0.1 mi south of intersection with Fairview Road, near North Andover.

PERIOD OF RECORD.--October 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established on Oct. 16, 1990. Recorded precipitation interpreted as collector snowmelt; rainfall estimated to be 0.00 for Nov. 8, 9, Dec. 15, 17-20, Jan. 5-6, 9, 12, and 14. Recorded precipitation interpreted as a combination of collector rainfall and snowmelt; rainfall estimated to be 0.00 for Dec. 28, 29, Mar. 1, 12, 13, and 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.89 in., June 14.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00
2	---	.01	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00
3	---	.47	.00	.00	.00	.00	.00	.00	.00	.00	.05	.77
4	---	.01	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
5	---	.01	.00	.00	.00	.00	.00	.64	.00	.00	.00	.00
6	---	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00
7	---	.00	.00	.00	.00	.00	---	.00	.00	.77	.99	.00
8	---	.00	.00	.00	.00	.00	.86	.05	.00	.00	1.86	.81
9	---	.00	.00	.00	.00	.00	.38	.00	.00	.00	.00	.00
10	---	.00	.00	.00	.00	.00	.00	.00	.50	.00	.00	.00
11	---	.00	.00	.00	.00	.00	.01	.00	.00	.07	.00	.10
12	---	.00	.00	.00	.00	.00	.91	.00	.00	.70	.00	.38
13	---	.00	.00	.00	.00	.00	.04	.62	.27	.00	.00	.56
14	---	.00	.00	.00	.00	.00	.42	.00	2.89	.00	.00	.26
15	---	.00	.00	.00	.00	.00	.00	.10	1.42	.00	.00	.04
16	.06	.00	.00	.00	.00	.00	.00	.01	.00	.00	.42	.00
17	.44	.00	.00	.00	.00	.47	.00	.26	.00	.00	.00	.18
18	.03	.00	.00	.00	.08	.01	.21	.21	.00	.01	.00	.01
19	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00
20	.53	.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.08	.21	.00	.00	.00	.00	.00	.57	.89	.04	.16	.00
22	.00	.00	.00	.00	.00	.74	.13	.00	.00	.07	.00	.00
23	.00	.00	.00	.00	.00	.06	.17	.09	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17
25	.00	.00	.00	.00	.00	.00	.00	.99	.00	.00	.00	.00
26	.00	.01	.00	.00	.00	.19	.00	.03	.00	.00	.00	.00
27	.00	.28	.00	.00	.00	1.18	.18	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.03	.03	.00	.59	.00	.00
29	.00	.00	.00	.00	---	.00	.25	.27	.00	.00	.05	.00
30	.00	.00	.00	.00	---	.00	.01	.15	.00	.00	.33	.00
31	.00	---	.00	.00	---	.00	---	.33	---	.00	.00	---
TOTAL	---	1.25	0.00	0.00	0.08	2.81	---	4.35	6.10	2.25	4.01	3.28

## GRANT RIVER BASIN

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI

LOCATION.--Lat 42°46'49", long 90°56'32", in SE 1/4 NE 1/4 sec.34, T.4 N., R.5 W., Grant County, Hydrologic Unit 07060003, on right bank 100 ft upstream of Atkinson Road, 2.7 mi southeast of North Andover.

DRAINAGE AREA.--42.4 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 5, 1987 to current year.

REVISED RECORD.--WDR WI-89-1: 1987-88.

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

REMARKS.--Estimated daily discharges: Ice periods listed in rating tables below. Records good except those for ice-affected periods, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft<sup>3</sup>/s, June 15, 1991, on basis of contracted-opening measurement, gage height, 11.20 ft; minimum daily, 5.0 ft<sup>3</sup>/s, Aug. 15, 16, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,000 ft<sup>3</sup>/s, June 15, on basis of contracted-opening measurement, gage height, 11.20 ft; minimum daily, 5.8 ft<sup>3</sup>/s, Dec. 4, result of freezeup.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3 to Feb. 5, Feb. 8 to Mar. 7, and Mar. 12-15.)

Oct. 1 to June 14 (2400)

1.7	4.1	2.3	37
1.8	6.8	2.6	69
1.9	11	3.0	125
2.0	16		

June 15(0015) to Sept. 30

1.9	14	3.0	125
2.0	18	3.5	216
2.3	38	4.0	333
2.6	69	5.0	638
		6.0	1,040

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.8	7.5	8.2	7.0	7.2	20	21	17	27	19	17	15
2	7.7	7.9	7.8	7.0	7.4	100	19	17	22	18	17	15
3	10	8.5	7.4	7.0	7.6	40	18	16	21	18	17	20
4	9.9	8.8	5.8	7.0	7.8	30	18	17	18	18	20	19
5	8.8	7.8	7.0	7.0	7.6	24	17	22	17	18	17	15
6	8.4	7.2	8.0	7.0	7.1	28	16	22	17	18	16	15
7	7.8	7.0	8.0	7.0	7.0	19	15	18	17	24	18	15
8	7.7	6.6	8.0	7.0	8.0	17	16	17	18	21	94	20
9	8.1	7.4	8.2	7.0	8.6	19	37	17	18	18	28	21
10	8.3	7.5	8.2	7.0	8.6	16	23	16	22	18	20	17
11	8.3	7.0	8.2	7.0	8.2	18	18	16	23	18	18	15
12	8.2	6.6	8.2	7.0	8.0	19	91	16	21	23	17	19
13	8.1	7.1	8.0	7.0	8.0	11	92	34	20	20	17	19
14	8.3	7.3	7.6	7.2	7.6	17	55	22	32	17	17	22
15	7.5	7.8	8.2	7.2	7.4	18	41	18	1030	17	17	22
16	7.6	7.8	8.2	7.2	7.2	19	31	17	59	17	17	18
17	7.6	7.3	8.2	7.2	7.4	26	28	17	39	17	20	16
18	9.6	7.7	8.2	7.0	8.0	54	26	20	33	17	17	16
19	8.4	7.9	8.2	7.0	8.4	47	27	17	30	17	16	15
20	9.0	7.8	8.2	7.0	9.0	40	25	15	27	17	16	14
21	11	11	7.6	6.6	9.8	39	22	16	73	17	16	15
22	8.8	9.7	7.2	6.6	12	36	22	19	38	18	16	15
23	7.8	8.7	7.2	6.4	11	56	24	16	24	16	15	15
24	7.4	8.1	7.0	6.4	9.6	30	22	16	22	16	15	15
25	7.1	8.1	6.6	6.4	9.0	25	20	15	21	16	15	16
26	7.1	7.8	6.4	6.4	8.8	24	19	39	20	16	15	15
27	7.2	10	7.2	6.6	8.8	94	22	22	19	16	15	14
28	7.0	9.0	9.0	7.0	8.6	37	19	19	19	18	15	14
29	7.2	7.9	7.8	7.2	---	27	20	17	19	20	15	14
30	7.4	8.1	7.2	7.0	---	24	20	21	19	18	15	14
31	7.3	---	7.0	6.8	---	23	---	24	---	17	16	---
TOTAL	252.4	238.9	238.0	214.2	233.7	997	844	595	1785	558	604	495
MEAN	8.14	7.96	7.68	6.91	8.35	32.2	28.1	19.2	59.5	18.0	19.5	16.5
MAX	11	11	9.0	7.2	12	100	92	39	1030	24	94	22
MIN	7.0	6.6	5.8	6.4	7.0	11	15	15	17	16	15	14
CFSM	.19	.19	.18	.16	.20	.76	.66	.45	1.40	.42	.46	.39
IN.	.22	.21	.21	.19	.21	.87	.74	.52	1.57	.49	.53	.43

CAL YR 1990 TOTAL 4372.6 MEAN 12.0 MAX 159 MIN 5.0 CFSM .28 IN. 3.84  
WTR YR 1991 TOTAL 7055.2 MEAN 19.3 MAX 1030 MIN 5.8 CFSM .46 IN. 6.19

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1987 to current year.

DISSOLVED OXYGEN: July 1987 to current year.

INSTRUMENTATION.--Continuous water temperature and dissolved oxygen recorder since July 17, 1987. Automatic pump sampler since July 17, 1987.

REMARKS.--Water-quality analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 32.0°C, July 10, 1989; minimum observed, 0.0°C, on many days.

DISSOLVED OXYGEN: Maximum observed, 18.3 mg/L, Apr. 29, 1988, May 7, 1989; minimum observed, 0.0 mg/L, Sept. 17, 1987, and June 30, 1991.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.0°C, June 30; minimum observed, 0.0°C, on many days.

DISSOLVED OXYGEN: Maximum observed, 16.8 mg/L, July 3; minimum observed, 0.0 mg/L, June 30.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH LAB (STAND- ARD UNITS) (00403)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 1990									
*15...	1358	--	7.5	8.5	--	11	1.5	2200	300
NOV									
*05...	1445	--	7.9	8.3	--	16	<1.0	8400	2700
DEC									
07...	1620	8.0	--	7.7	--	12	1.5	--	--
JAN 1991									
*04...	1125	7.0	--	8.3	--	<5	<3.0	--	40
FEB									
*19...	1100	8.4	--	8.2	--	7	1.8	--	170
APR									
12...	1615	--	74	8.0	--	--	--	--	--
12...	1815	--	196	8.1	--	--	--	--	--
12...	1900	--	236	8.3	--	--	--	--	--
12...	2045	--	288	8.3	--	--	--	--	--
13...	0215	--	179	8.6	--	25	--	--	--
*15...	1715	--	38	8.3	--	10	2.8	640	--
MAY									
*10...	0940	--	16	8.3	--	10	--	640	60
JUN									
*04...	1600	--	18	8.5	--	--	2.5	710	230
*15...	1456	--	196	--	--	81	--	--	--
*27...	1146	--	20	8.5	10.8	6	--	930	180
JUL									
*09...	1230	--	18	8.4	--	16	2.5	5700	120
*23...	1240	--	17	8.5	--	5	<1.0	900	150
AUG									
*07...	1315	--	17	8.4	--	6	1.2	1300	440
08...	0300	--	46	8.5	--	39	13	72000	80000
*09...	1010	--	28	8.2	--	39	4.3	160000	56000
*22...	1040	--	16	8.3	--	<5	1.2	--	--
SEP									
*10...	1430	--	16	8.3	--	25	3.4	20000	740

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## GRANT RIVER BASIN

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	ALKA- LINITY WAT WH TOT FET LAB MG/L AS CAC03 (00417)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)
OCT 1990									
15...	78	45	7.5	--	8	474	154	5	3
NOV									
05...	83	44	8.2	326	10	466	124	8	2
DEC									
07...	81	43	7.4	--	6	448	130	--	<2
JAN 1991									
04...	82	42	7.0	338	9	462	120	4	5
FEB									
19...	78	41	7.4	314	10	434	132	--	<2
APR									
12...	--	--	--	--	1350	1780	292	1150	200
12...	--	--	--	--	1160	1460	250	970	190
12...	--	--	--	--	408	780	158	336	72
12...	--	--	--	--	152	546	146	120	32
13...	--	--	--	--	73	494	136	58	15
15...	77	40	7.8	288	24	476	136	20	4
MAY									
10...	72	44	8.2	302	6	444	148	2	4
JUN									
04...	84	45	8.3	--	16	488	156	12	4
15...	39	22	3.8	--	790	1100	192	670	120
27...	74	45	7.9	310	10	494	172	8	2
JUL									
09...	--	--	--	314	11	500	170	9	2
23...	--	--	--	328	8	470	138	5	3
AUG									
07...	81	46	7.7	327	10	508	156	7	3
08...	--	--	--	287	528	968	220	472	56
09...	--	--	--	220	44	404	130	33	11
22...	72	45	7.8	--	6	420	104	3	3
SEP									
10...	79	43	8.4	--	6	482	142	2	4

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
OCT 1990								
15...	3.30	<0.100	E0.127	90	<20	180	40	<10
NOV								
05...	3.60	0.100	0.210	90	<20	240	55	<10
DEC								
07...	4.70	0.200	0.170	90	<20	210	46	<10
JAN 1991								
04...	5.00	0.200	0.090	90	<20	210	40	<10
FEB								
19...	4.72	0.202	0.110	70	<20	190	<40	<10
APR								
12...	3.94	1.00	3.63	--	--	--	--	--
12...	3.40	1.30	3.64	--	--	--	--	--
12...	4.41	1.08	2.28	--	--	--	--	--
12...	6.25	0.706	1.26	--	--	--	--	--
13...	7.39	0.361	0.640	--	--	--	--	--
15...	7.62	0.113	0.350	90	<20	380	110	<10
MAY								
10...	4.09	0.013	0.160	80	<20	170	76	<10
JUN								
04...	5.41	0.029	0.370	90	<20	380	81	20
15...	2.82	0.742	2.37	400	52	41000	1300	170
27...	6.70	0.021	0.110	100	<20	300	51	30
JUL								
09...	5.27	0.034	0.280	--	--	--	--	--
23...	5.64	0.025	0.180	--	--	--	--	--
AUG								
07...	5.42	0.038	0.130	100	<20	70	<40	<10
08...	4.72	0.262	0.570	--	--	--	--	--
09...	3.38	0.363	0.870	--	--	--	--	--
22...	4.71	0.023	0.100	90	<20	90	<40	<10
SEP								
10...	4.58	0.051	0.430	100	<20	200	48	<10

## GRANT RIVER BASIN

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05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ATRA- ZINE, TOTAL (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)
JUN 1991 *15...	1410	216	1.20	6.6	1.6	1	1	5.8

\* GRAB SAMPLE.

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990				
18...	1042	9.8	680	8.5
NOV				
20...	1056	7.5	700	5.0
JAN 1991				
04...	1115	7.6	740	0.0
FEB				
19...	1100	--	540	0.5
APR				
08...	1215	15	700	16.0
MAY				
29...	1205	17	750	23.5
JUN				
17...	1245	40	760	20.0
27...	1146	20	--	24.5
JUL				
12...	1118	26	730	23.0
AUG				
08...	1622	79	476	19.5
20...	1045	16	695	18.0

## GRANT RIVER BASIN

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.0	12.0	13.0	12.5	9.0	11.0	3.5	2.0	2.5	.00	.00	.00
2	15.0	10.5	13.0	14.0	12.0	13.0	2.0	.00	1.0	.00	.00	.00
3	15.5	14.0	15.0	13.5	9.0	11.5	.00	.00	.00	.00	.00	.00
4	15.0	11.5	13.0	9.0	6.5	7.5	.50	.00	.00	.00	.00	.00
5	17.0	12.0	14.5	7.0	5.5	6.0	.50	.00	.00	.00	.00	.00
6	19.5	15.5	17.5	5.0	4.0	4.5	.50	.00	.00	.00	.00	.00
7	18.0	13.5	15.5	4.0	2.5	3.5	.50	.00	.00	.00	.00	.00
8	13.5	9.5	11.5	2.5	1.0	1.5	.50	.00	.00	.00	.00	.00
9	10.0	8.5	9.5	4.5	1.5	3.0	1.0	.00	.00	.00	.00	.00
10	9.5	7.5	8.5	4.5	2.5	3.5	1.0	.00	.00	.00	.00	.00
11	10.0	5.5	7.5	4.5	2.0	3.0	1.0	.00	.50	.00	.00	.00
12	11.0	7.5	9.0	4.5	2.5	3.5	1.0	.00	.50	.00	.00	.00
13	11.0	7.0	9.0	4.5	3.0	4.0	.50	.00	.00	.00	.00	.00
14	13.0	10.5	11.5	6.5	2.5	4.5	.50	.00	.00	.50	.00	.00
15	11.0	8.5	10.0	10.0	6.5	8.0	1.0	.00	.50	.50	.00	.50
16	12.5	8.5	10.5	10.0	6.5	8.5	1.0	.50	.50	1.0	.00	.50
17	14.5	12.5	13.5	6.5	4.0	5.5	1.0	.00	.50	1.0	.00	.50
18	13.0	7.0	9.5	7.0	4.5	6.0	1.0	.00	.50	.50	.00	.00
19	8.5	5.0	7.0	6.5	4.5	5.5	1.0	.00	.50	1.5	.00	.50
20	8.5	6.5	7.5	8.0	4.0	5.5	1.0	.00	.50	.50	.00	.00
21	10.0	8.0	9.0	12.0	8.0	10.0	.00	.00	.00	.00	.00	.00
22	8.5	5.0	7.0	9.5	6.5	7.5	.00	.00	.00	.00	.00	.00
23	9.0	6.0	7.5	6.5	4.0	5.0	.00	.00	.00	.00	.00	.00
24	8.5	6.5	7.5	5.0	3.0	4.0	.00	.00	.00	.00	.00	.00
25	7.5	5.0	6.5	5.0	3.5	4.0	.00	.00	.00	.00	.00	.00
26	7.5	4.5	6.0	6.5	2.5	4.0	.00	.00	.00	.00	.00	.00
27	9.0	6.5	7.5	7.0	6.0	7.0	.00	.00	.00	.00	.00	.00
28	7.0	5.0	6.0	6.0	1.5	3.5	.00	.00	.00	.00	.00	.00
29	8.0	4.0	6.0	1.5	.50	1.0	.00	.00	.00	.00	.00	.00
30	11.0	7.5	9.5	2.5	.50	1.5	.00	.00	.00	.00	.00	.00
31	11.5	8.5	10.0	---	---	---	.00	.00	.00	.00	.00	.00
MONTH	19.5	4.0	10.0	14.0	.50	5.5	3.5	.00	.24	1.5	.00	.06
FEBRUARY			MARCH			APRIL			MAY			
1	.00	.00	.00	.50	.00	.50	10.5	5.0	7.5	11.5	9.5	10.5
2	.00	.00	.00	.50	.00	.00	11.5	6.0	8.5	15.0	7.5	11.0
3	.00	.00	.00	.50	.00	.00	11.5	7.5	9.5	13.0	10.5	11.0
4	.50	.00	.00	1.5	.00	.50	13.5	10.0	11.5	13.5	9.5	11.5
5	.50	.00	.00	2.0	.00	1.0	16.5	9.5	13.0	13.0	10.0	12.0
6	.50	.00	.50	2.0	.00	1.5	19.5	13.5	16.0	10.0	8.0	8.5
7	1.0	.00	.50	2.0	.00	.50	19.0	14.5	17.0	15.5	6.5	10.5
8	1.0	.00	.50	4.0	.00	2.0	18.0	15.5	16.5	16.0	12.0	13.5
9	1.5	.00	.50	4.0	1.5	2.5	15.5	8.5	12.0	20.5	12.5	16.0
10	1.0	.00	.00	4.0	.50	2.0	12.5	5.5	8.5	19.0	15.5	17.0
11	1.0	.00	.00	6.5	3.0	4.5	10.5	6.5	8.5	22.5	15.5	18.5
12	.50	.00	.00	4.5	.00	2.0	6.5	2.5	4.0	24.5	18.0	21.0
13	1.0	.00	.50	3.0	.00	1.0	6.5	3.0	5.0	23.5	19.0	21.0
14	1.0	.00	.00	3.5	.00	1.0	10.0	6.5	8.0	22.5	19.0	20.5
15	.00	.00	.00	4.5	.00	2.0	12.0	7.5	9.5	23.0	17.0	19.5
16	.50	.00	.00	4.5	2.0	3.0	12.5	7.5	10.0	21.5	19.0	20.0
17	.50	.00	.00	3.5	2.0	3.0	15.0	8.5	11.5	20.0	15.5	18.5
18	.50	.00	.00	5.5	1.5	3.5	13.0	9.5	11.0	15.5	11.5	13.0
19	1.5	.00	.50	8.0	1.0	4.5	9.5	8.5	9.0	16.5	11.0	13.0
20	2.0	.00	.50	8.0	3.5	6.0	13.5	7.5	10.0	21.0	13.5	16.5
21	2.0	.00	.50	12.0	6.5	9.5	13.5	8.5	11.0	20.5	17.5	19.0
22	1.0	.00	.50	10.5	8.0	8.5	14.0	8.0	11.0	24.5	18.0	20.5
23	.50	.00	.00	8.0	4.0	6.0	12.5	9.0	10.5	22.5	20.5	21.5
24	1.0	.00	.00	9.5	3.5	6.0	15.5	7.0	10.5	24.5	19.5	21.5
25	.50	.00	.00	10.5	6.0	8.5	13.0	10.5	12.0	22.0	20.0	21.0
26	.50	.00	.00	15.0	10.0	12.0	14.5	9.5	12.0	23.0	19.0	21.0
27	1.0	.00	.50	14.5	8.5	12.5	18.0	13.0	15.0	25.5	19.0	22.0
28	1.5	.00	.50	8.5	4.0	6.0	18.5	12.5	15.5	26.5	21.0	23.5
29	---	---	---	7.0	2.0	4.5	18.5	16.0	17.0	26.5	22.0	24.0
30	---	---	---	7.5	2.5	5.0	16.0	11.0	13.0	24.0	20.5	22.0
31	---	---	---	9.0	4.5	7.0	---	---	---	22.5	18.0	20.0
MONTH	2.0	.00	.20	15.0	.00	4.1	19.5	2.5	11.1	26.5	6.5	17.4

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

OXYGEN DISSOLVED (MG/L). WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	13.2	9.6	11.4
2	---	---	---	---	---	---	13.6	9.4	11.1	15.2	9.5	12.2
3	---	---	---	---	---	---	14.1	8.9	11.1	12.3	8.7	10.4
4	---	---	---	---	---	---	14.4	8.7	10.6	14.1	10.0	11.7
5	---	---	---	---	---	---	15.0	7.6	10.7	10.0	8.9	9.3
6	---	---	---	---	---	---	14.6	6.9	9.9	11.6	7.8	10.1
7	---	---	---	---	---	---	14.0	6.8	9.4	13.3	9.3	11.5
8	---	---	---	---	---	---	13.0	6.5	8.6	11.6	8.2	9.9
9	---	---	---	---	---	---	8.7	6.3	7.7	13.4	7.3	10.3
10	---	---	---	---	---	---	12.9	8.2	10.3	11.4	6.4	8.8
11	---	---	---	---	---	---	12.5	8.6	10.3	11.5	6.3	8.9
12	---	---	---	---	---	---	12.0	10.2	10.9	11.3	5.5	8.4
13	---	---	---	---	---	---	10.7	10.0	10.5	7.2	4.2	5.7
14	---	---	---	---	---	---	10.4	8.6	9.7	7.0	4.4	5.8
15	---	---	---	---	---	---	11.0	8.8	9.8	9.5	6.1	7.5
16	---	---	---	---	---	---	12.0	8.9	10.3	9.1	6.1	7.5
17	---	---	---	---	---	---	12.6	8.8	10.4	8.8	6.7	7.6
18	---	---	---	---	---	---	11.8	8.5	10.0	8.1	6.5	7.6
19	---	---	---	---	---	---	12.3	9.3	10.5	8.6	7.2	8.0
20	---	---	---	---	---	---	14.3	8.7	11.1	8.9	6.8	7.9
21	---	---	---	---	---	---	14.2	8.5	10.9	8.8	6.7	7.6
22	---	---	---	---	---	---	15.2	8.9	11.3	9.5	3.8	7.1
23	---	---	---	---	---	---	14.9	8.5	11.1	7.6	5.9	6.7
24	---	---	---	---	---	---	16.3	9.4	12.0	8.6	6.5	7.3
25	---	---	---	---	---	---	15.6	8.3	11.3	8.3	6.6	7.4
26	---	---	---	---	---	---	15.6	8.8	11.8	7.7	5.0	6.8
27	---	---	---	---	---	---	15.6	8.6	11.0	10.9	5.7	8.3
28	---	---	---	---	---	---	15.9	8.0	10.8	7.8	5.6	6.6
29	---	---	---	---	---	---	13.8	7.2	9.6	8.5	6.1	6.9
30	---	---	---	---	---	---	12.8	7.9	10.1	8.1	6.3	7.1
31	---	---	---	---	---	---	---	---	---	7.7	6.5	7.3
MONTH	---	---	---	---	---	---	---	---	---	15.2	3.8	8.4
JUNE			JULY			AUGUST			SEPTEMBER			
1	9.8	6.6	8.4	15.0	4.2	8.6	15.6	6.4	10.1	13.1	6.6	9.2
2	11.8	8.27	8.3	16.5	5.1	9.7	13.6	6.1	9.0	14.0	6.8	9.3
3	11.8	8.0	9.8	16.8	5.2	9.9	13.7	6.3	9.0	11.2	6.3	7.9
4	11.1	7.9	9.4	15.4	5.7	9.6	13.9	6.3	9.1	12.2	5.3	8.2
5	---	---	---	16.2	6.1	10.0	14.0	6.6	9.5	13.0	6.6	9.3
6	---	---	---	15.8	5.6	9.5	10.0	6.7	8.2	14.2	7.9	10.3
7	10.3	7.7	8.8	11.5	5.2	7.2	9.3	7.3	8.2	15.0	7.7	10.5
8	9.8	7.6	8.6	10.9	3.8	7.1	8.2	4.5	6.6	10.2	7.6	8.6
9	9.5	7.2	8.3	10.5	5.6	7.7	9.0	7.0	7.9	11.4	6.3	8.6
10	8.9	6.8	7.7	11.8	5.8	8.1	10.1	7.1	8.3	12.1	6.8	9.0
11	8.3	6.2	7.3	12.7	5.8	8.3	10.6	7.3	8.6	11.5	7.7	9.1
12	9.8	4.5	6.8	12.2	5.4	7.8	11.3	7.2	8.8	10.9	7.2	8.7
13	8.6	6.1	7.5	13.1	5.3	8.3	12.4	7.2	9.2	9.9	6.3	7.7
14	---	---	---	15.1	6.5	9.8	13.1	7.1	9.4	8.2	1.2	6.2
15	---	---	---	---	---	---	13.2	6.9	9.3	6.4	1.7	4.8
16	---	---	---	---	---	---	10.7	6.7	8.3	6.0	2.7	4.5
17	---	---	---	15.6	5.9	9.6	11.8	7.1	8.9	10.7	2.5	7.5
18	---	---	---	14.5	5.6	9.0	12.2	7.1	9.1	12.6	8.2	10.0
19	---	---	---	10.9	5.6	7.6	12.7	7.1	9.4	13.5	9.3	11.0
20	---	---	---	11.6	6.2	8.3	12.0	6.1	8.5	14.2	9.7	11.5
21	---	---	---	9.5	5.8	7.3	12.8	7.1	9.2	14.6	9.9	11.7
22	---	---	---	10.9	6.2	8.0	13.1	6.5	9.1	14.3	9.3	11.1
23	---	---	---	11.5	6.0	8.4	13.5	6.5	9.2	16.4	9.9	12.1
24	---	---	---	12.6	6.8	9.0	13.9	6.9	9.7	13.6	9.2	10.7
25	---	---	---	12.8	7.1	9.5	13.7	6.5	9.4	15.1	9.3	11.4
26	---	---	---	13.7	7.5	10.0	13.6	6.3	9.1	15.2	9.5	11.5
27	---	---	---	14.7	7.3	10.3	13.0	6.0	8.8	15.0	9.7	11.8
28	13.1	5.6	8.6	9.2	6.9	8.1	12.7	5.9	8.6	15.2	9.7	11.9
29	13.6	5.6	8.7	13.1	7.9	9.9	11.5	5.7	8.0	15.7	9.6	11.9
30	12.0	10.0	6.1	14.9	7.7	10.4	12.1	6.0	8.1	17.2	9.2	12.3
31	---	---	---	15.5	6.9	10.4	12.3	6.2	8.6	---	---	---
MONTH	---	---	---	---	---	---	15.6	4.5	8.8	17.2	1.2	9.6



05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--July 1987 to current year (during non-freezing periods).

GAGE.--Micrologger.

REMARKS.--Records good. Missing record June 14-26.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.96 in., Aug. 8, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.17 in., Apr. 11.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	---	---	---	---	---	.00	.35	.00	.00	.00
2	.00	.00	---	---	---	---	---	.00	.00	.00	.00	.00
3	.64	.40	---	---	---	---	---	.00	.00	.00	.34	.69
4	.00	.03	---	---	---	---	---	.00	.00	.00	.00	.00
5	.00	.02	---	---	---	---	---	.62	.00	.00	.00	.00
6	.00	.02	---	---	---	---	---	.00	.00	.00	.17	.00
7	.05	.08	---	---	---	---	---	.00	.00	1.13	.49	.00
8	.14	.00	---	---	---	---	.97	.08	.00	.00	1.90	.89
9	.00	.19	---	---	---	---	.44	.02	.00	.00	.00	.00
10	.18	.00	---	---	---	---	.00	.00	.62	.00	.00	.00
11	.00	.00	---	---	---	---	.00	.00	.00	.18	.00	.05
12	.00	.00	---	---	---	---	2.17	.00	.00	.54	.00	.29
13	.00	.01	---	---	---	---	.02	.62	.38	.00	.00	.22
14	.09	.02	---	---	---	---	.36	.00	---	.00	.00	.23
15	.00	.00	---	---	---	---	.01	.11	---	.00	.00	.01
16	.00	.00	---	---	---	---	.00	.02	---	.00	.39	.00
17	.16	.00	---	---	---	---	.00	.31	---	.00	.00	.14
18	.07	.00	---	---	---	---	.10	.24	---	.00	.00	.01
19	.00	.00	---	---	---	---	.12	.00	---	.09	.00	.00
20	.54	.00	---	---	---	---	.00	.02	---	.00	.00	.00
21	.08	---	---	---	---	---	.00	.52	---	.08	.10	.00
22	.00	---	---	---	---	---	.18	.00	---	.13	.00	.00
23	.00	---	---	---	---	---	.17	.03	---	.00	.00	.00
24	.00	---	---	---	---	---	.00	.00	---	.00	.00	.16
25	.00	---	---	---	---	---	.00	.00	---	.00	.00	.01
26	.00	---	---	---	---	---	.00	.00	---	.00	.00	.00
27	.00	---	---	---	---	---	.21	.00	.00	.00	.00	.00
28	.00	---	---	---	---	---	.05	.00	.00	.61	.00	.00
29	.00	---	---	---	---	---	.30	.02	.00	.00	.07	.00
30	.00	---	---	---	---	---	.00	.01	.00	.00	.00	.00
31	.00	---	---	---	---	---	---	.44	---	.00	.00	---
TOTAL	1.95	---	---	---	---	---	---	3.06	---	2.76	3.46	2.70

## GRANT RIVER BASIN

05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI

LOCATION.--Lat 42°46'02", long 90°55'44", in SE 1/4 NW 1/4 sec.2, T.3 N., R.5 W., Grant County, Hydrologic Unit 07060003, on right bank 300 ft upstream of Rattlesnake Road, 2.9 mi southwest of Beetown.

DRAINAGE AREA.--45.2 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to May 1991 (discontinued, destroyed by flood of June 1991).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 710 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-20, 27, 1989, May 9-11, 13, 20, 21, June 9-17, 22, 24-27, 29, July 3, 18, 19, Aug. 21, Sept. 7, 8, 13-16, Sept. 25 to Oct. 3, and Oct. 5-18, 1990, and ice-affected periods listed in rating tables below. Records are fair. Gage-height telemeter at station.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1990: Maximum discharge, 409 ft<sup>3</sup>/s, Mar. 8, gage height, 4.19 ft; maximum gage height, 4.57 ft, Feb. 5 (backwater from ice); minimum daily, 5.4 ft<sup>3</sup>/s, Aug. 16.

OCTOBER 1990 TO MAY 1991: Maximum discharge, 356 ft<sup>3</sup>/s, Apr. 12, gage height, 3.96 ft; minimum daily, 6.4 ft<sup>3</sup>/s, Dec. 4.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used June 17 and 22; stage-discharge relation affected by ice Nov. 17, 1989 to Mar. 4, 1990; and Dec. 2, 1990 to Mar. 8, and Mar. 12-15, 1991.)

Oct. 1, 1989 to June 22, 1990(2400)

June 23, 1990(0001) to May 31, 1991

1.9	6.4	2.7	73
2.1	14	2.9	119
2.3	25	3.2	185
2.5	39		

1.8	4.6	2.4	38
1.9	7.8	2.6	62
2.0	12	2.8	98
2.2	22	3.0	141

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	12	7.2	7.6	15	14	11	9.0	11	11	6.8	12
2	8.0	9.7	7.2	7.6	14	25	12	8.6	17	10	6.6	11
3	7.8	9.1	7.2	7.6	12	15	10	8.3	18	9.7	6.6	11
4	7.8	9.1	7.2	7.6	11	11	10	10	12	9.3	7.0	11
5	12	9.1	7.2	7.6	40	8.6	9.8	10	11	9.2	6.2	11
6	10	8.9	7.2	7.6	60	8.9	8.8	9.2	11	8.4	5.8	11
7	8.4	9.9	7.2	7.6	38	8.2	8.6	8.4	10	8.3	5.7	10
8	8.0	9.6	7.2	9.0	45	180	8.7	7.9	12	8.6	5.8	10
9	8.0	9.1	7.2	11	21	66	9.1	39	13	8.0	5.7	9.6
10	8.2	9.0	7.2	9.4	13	19	13	25	11	7.9	5.9	9.4
11	8.4	8.7	7.0	9.0	11	57	11	17	9.6	8.1	6.0	8.9
12	8.2	8.2	7.0	8.6	13	28	9.3	13	9.4	8.2	5.9	8.9
13	8.0	8.1	7.0	8.0	15	20	9.4	13	11	7.9	5.7	9.0
14	8.2	8.2	7.0	8.0	17	29	12	12	15	7.9	5.5	9.0
15	8.2	8.0	7.0	9.8	13	34	11	12	10	8.2	5.5	8.8
16	15	7.9	7.0	14	10	21	10	24	17	7.8	5.4	8.4
17	10	8.0	6.8	150	9.8	17	10	16	36	7.5	17	8.2
18	9.0	7.8	6.8	25	9.6	14	9.0	13	15	8.0	12	8.4
19	8.8	7.8	6.8	15	9.2	13	9.2	31	12	14	46	9.4
20	8.5	8.4	6.8	12	9.2	12	13	47	13	20	36	8.6
21	8.2	8.0	6.6	12	10	12	12	22	11	13	19	8.8
22	7.9	7.8	6.6	11	11	13	10	18	60	9.5	14	8.1
23	7.7	7.4	6.6	11	12	11	9.8	15	31	8.0	11	7.5
24	7.7	7.2	6.6	40	11	11	9.5	13	20	7.5	11	7.4
25	7.9	7.6	6.6	22	10	10	8.7	14	16	7.3	112	7.8
26	8.2	8.0	6.6	16	10	9.8	8.8	14	25	6.9	98	7.6
27	8.1	8.2	7.0	14	10	9.4	12	13	23	7.3	40	7.8
28	9.0	7.6	7.0	15	12	9.3	13	18	15	8.4	21	8.0
29	10	7.2	7.6	12	---	9.3	12	17	15	11	16	7.6
30	17	7.2	7.6	11	---	9.3	9.8	12	13	8.3	14	8.0
31	16	---	7.6	12	---	9.4	---	11	---	7.4	13	---
TOTAL	286.4	252.8	217.6	518.0	471.8	714.2	310.5	500.4	503.0	282.6	576.1	272.2
MEAN	9.24	8.43	7.02	16.7	16.8	23.0	10.3	16.1	16.8	9.12	18.6	9.07
MAX	17	12	7.6	150	60	180	13	47	60	20	112	12
MIN	7.7	7.2	6.6	7.6	9.2	8.2	8.6	7.9	9.4	6.9	5.4	7.4
CFSM	.20	.19	.16	.37	.37	.51	.23	.36	.37	.20	.41	.20
IN.	.24	.21	.18	.43	.39	.59	.26	.41	.41	.23	.47	.22

WTR YR 1990 TOTAL 4905.6 MEAN 13.4 MAX 180 MIN 5.4 CFSM .30 IN. 4.04

## GRANT RIVER BASIN

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05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO MAY 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	7.8	8.2	8.8	8.4	25	26	20				
2	8.0	7.8	8.2	8.8	8.6	120	24	19				
3	11	8.6	8.0	8.8	9.0	50	22	18				
4	9.9	11	6.4	8.8	8.8	40	22	19				
5	9.2	9.6	7.6	8.8	8.6	30	21	24				
6	8.8	8.9	8.4	8.8	8.6	34	20	25				
7	8.0	8.6	8.4	8.8	8.6	28	19	20				
8	8.0	8.4	8.4	8.8	8.8	25	20	19				
9	8.4	9.0	8.6	8.8	9.2	24	47	19				
10	8.6	9.4	8.6	8.8	9.2	21	28	17				
11	8.8	9.0	8.6	8.8	8.8	22	23	17				
12	8.6	8.5	8.6	8.8	8.6	22	113	17				
13	8.4	8.2	8.4	9.0	8.4	14	133	34				
14	8.4	8.2	8.2	9.0	8.4	20	78	24				
15	7.8	8.2	8.4	9.2	8.2	22	54	19				
16	8.0	8.5	8.6	9.4	8.2	23	39	19				
17	8.0	8.0	8.8	9.4	9.2	29	33	19				
18	10	8.1	8.8	9.4	10	63	30	21				
19	8.9	8.0	8.8	9.2	11	56	31	20				
20	8.6	8.3	8.8	9.0	12	48	28	17				
21	12	11	8.6	8.8	12	45	25	18				
22	9.4	10	8.4	8.4	14	39	24	21				
23	8.5	9.1	8.4	7.8	12	69	26	18				
24	7.8	8.6	8.2	7.6	11	37	25	18				
25	7.5	8.5	8.0	7.6	10	29	22	18				
26	7.3	8.2	7.8	7.4	9.6	27	21	41				
27	7.5	10	8.8	7.6	9.4	111	24	25				
28	7.1	9.7	11	8.0	9.4	47	22	21				
29	7.3	8.3	9.4	8.2	---	34	23	19				
30	7.5	8.2	8.8	8.0	---	29	22	22				
31	7.8	---	8.8	8.0	---	28	---	25				
TOTAL	263.1	263.7	263.0	266.6	268.0	1211	1045	653				
MEAN	8.49	8.79	8.48	8.60	9.57	39.1	34.8	21.1				
MAX	12	11	11	9.4	14	120	133	41				
MIN	7.1	7.8	6.4	7.4	8.2	14	19	17				
CFSM	.19	.19	.19	.19	.21	.86	.77	.47				
IN.	.22	.22	.22	.22	.22	1.00	.86	.54				

CAL YR 1990 TOTAL 4938.6 MEAN 13.5 MAX 180 MIN 5.4 CFSM .30 IN. 4.06

## GRANT RIVER BASIN

05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1989 to June 1991 (discontinued).

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1989 to June 1991.

DISSOLVED OXYGEN: April 1990 to June 1991.

INSTRUMENTATION.--Continuous water temperature recorder since Oct. 20, 1989, and dissolved oxygen recorder since Apr. 1, 1990. Automatic pumping sampler since Oct. 20, 1989.

REMARKS.--Water-quality analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

## EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 32.5°C, July 4, 1990; minimum observed, 0.0°C, on many days in 1989, 1990, and 1991 winter periods.

DISSOLVED OXYGEN: Maximum observed, 17.3 mg/L, May 2, 1991; minimum observed, 4.5 mg/L, Aug. 18, 1990.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 28.0°C, June 12; minimum observed, 0.0°C, on many days.

DISSOLVED OXYGEN: Maximum observed, 17.3 mg/L, May 2; minimum observed, 4.8 mg/L, May 25.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	PH LAB (STANDARD UNITS) (00403)	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)		
OCT 1990											
*15...	1320	7.8	8.6	12	<1.0	80	45	7.9	0.2		
DATE		RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)		
OCT 1990											
15...		10	2.80	<0.100	88	<20	220	<40	<10		
DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH LAB (STANDARD UNITS) (00403)	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG) (00927)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA) (00929)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
NOV 1990											
*05...	1415	--	9.4	8.6	12	<1.0	80	43	7.6	8	--
DEC											
*07...	1510	8.4	--	8.2	11	1.5	77	42	7.0	14	--
JAN 1991											
*04...	1320	8.8	--	7.6	<5	<3.0	82	43	7.1	14	--
FEB											
*19...	1230	11	--	8.2	7	1.5	77	40	7.1	15	--
APR											
12...	1600	--	108	8.1	--	--	76	39	7.4	1400	--
12...	1700	--	198	7.8	--	--	74	42	6.2	3970	--
12...	1830	--	253	7.9	--	--	81	42	7.4	2810	--
12...	1930	--	303	7.8	--	--	88	42	7.2	3300	--
12...	2300	--	356	7.6	--	--	64	31	5.5	2770	--
13...	0145	--	262	7.7	--	--	60	28	5.8	2100	--
13...	1730	--	82	8.2	--	--	65	32	6.8	556	--
*15...	1630	--	47	8.2	14	2.2	72	37	7.7	32	--
MAY											
*10...	0910	--	18	8.4	13	--	67	43	7.7	8	--
JUN											
*04...	1700	--	19	8.5	--	3.4	82	44	8.4	30	516

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, VOLA- TILE ON IGNI- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)
NOV 1990											
05...	--	--	--	2.90	<0.100	0.160	90	<20	200	<40	<10
DEC											
07...	--	--	--	4.40	<0.100	0.200	80	<20	420	45	20
JAN 1991											
04...	--	--	--	4.60	0.100	0.100	90	<20	310	41	<10
FEB											
19...	--	--	--	4.33	0.122	0.110	70	<20	250	<40	<10
APR											
12...	--	--	--	3.88	0.436	5.74	300	27	26000	1600	240
12...	--	--	--	2.64	0.627	8.26	800	75	79000	3500	720
12...	--	--	--	3.47	0.654	5.32	600	45	52000	2200	350
12...	--	--	--	2.60	1.48	7.36	700	63	62000	2800	400
12...	--	--	--	2.42	1.50	6.53	500	53	49000	2100	310
13...	--	--	--	2.99	1.33	5.66	500	47	43000	2000	260
13...	--	--	--	6.38	0.539	1.57	200	<20	12000	590	100
15...	--	--	--	7.21	0.174	0.450	90	<20	890	100	30
MAY											
10...	--	--	--	4.02	<0.013	0.140	80	<20	230	<40	<10
JUN											
04...	168	25	5	5.17	0.019	0.430	100	<20	790	89	40

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990				
18...	1155	11	660	8.5
NOV				
20...	1220	7.8	695	6.5
JAN 1991				
04...	1320	8.7	750	0.0
FEB				
19...	1235	11	650	0.5
APR				
11...	1135	22	980	8.0
MAY				
29...	0920	19	750	23.0

## GRANT RIVER BASIN

05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, OCTOBER 1990 TO JUNE 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.5	12.0	13.5	13.0	8.5	11.0	3.5	1.0	2.5	.0	.0	.0
2	16.5	10.5	13.5	14.0	11.5	12.5	1.5	.0	.5	.0	.0	.0
3	16.0	13.5	15.0	13.0	9.0	11.5	.0	.0	.0	.0	.0	.0
4	16.0	11.5	13.5	9.0	6.5	8.0	.0	.0	.0	.0	.0	.0
5	18.5	12.5	15.0	8.0	5.0	6.5	.0	.0	.0	.0	.0	.0
6	20.5	15.5	17.5	5.5	4.0	5.0	.0	.0	.0	.0	.0	.0
7	17.5	14.0	15.5	5.0	2.0	3.5	.0	.0	.0	.0	.0	.0
8	14.0	10.0	11.5	3.0	.5	2.0	.0	.0	.0	.0	.0	.0
9	11.0	9.0	10.0	5.0	1.5	3.0	.0	.0	.0	.0	.0	.0
10	9.5	7.5	9.0	5.0	2.0	3.0	.0	.0	.0	.0	.0	.0
11	11.0	5.5	8.0	5.0	1.0	3.0	.0	.0	.0	.0	.0	.0
12	12.0	6.5	9.0	5.0	1.5	3.0	.0	.0	.0	.0	.0	.0
13	12.0	6.5	9.0	5.0	2.5	3.5	.0	.0	.0	.0	.0	.0
14	13.5	10.0	11.0	7.0	2.0	4.5	.0	.0	.0	.0	.0	.0
15	11.5	8.0	10.0	10.0	5.5	7.5	.0	.0	.0	.0	.0	.0
16	13.0	8.0	11.0	9.0	6.0	8.0	.0	.0	.0	.0	.0	.0
17	14.5	12.0	13.0	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0
18	12.0	7.5	9.5	7.0	4.5	6.0	.0	.0	.0	.0	.0	.0
19	10.0	5.5	7.5	7.0	4.0	5.5	.0	.0	.0	.0	.0	.0
20	8.5	6.5	7.5	8.0	3.5	5.5	.0	.0	.0	.0	.0	.0
21	10.5	7.5	8.5	12.0	8.0	10.0	.0	.0	.0	.0	.0	.0
22	9.0	5.0	7.0	8.5	6.0	7.0	.0	.0	.0	.0	.0	.0
23	9.5	5.5	7.5	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0
24	9.5	5.5	7.5	6.0	3.0	4.5	.0	.0	.0	.0	.0	.0
25	8.5	4.5	6.5	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0
26	8.5	4.0	6.0	7.0	2.5	4.0	.0	.0	.0	.0	.0	.0
27	9.0	5.5	7.0	7.5	5.5	6.5	.0	.0	.0	.0	.0	.0
28	8.5	4.5	6.0	5.5	1.5	3.5	.0	.0	.0	.0	.0	.0
29	9.0	3.5	6.5	2.0	.0	1.0	.0	.0	.0	.0	.0	.0
30	11.0	7.0	9.0	3.0	.0	1.5	.0	.0	.0	.0	.0	.0
31	12.0	7.5	9.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	20.5	3.5	10.0	14.0	.0	5.5	3.5	.0	.1	.0	.0	.0
FEBRUARY			MARCH			APRIL			MAY			
1	.0	.0	.0	.0	.0	.0	11.0	5.0	7.5	12.0	10.0	11.0
2	.0	.0	.0	.0	.0	.0	11.5	6.0	8.5	15.5	8.0	11.5
3	.0	.0	.0	.0	.0	.0	12.0	7.5	9.5	12.0	10.5	11.5
4	.0	.0	.0	.0	.0	.0	13.5	10.0	11.5	14.0	10.0	11.5
5	.0	.0	.0	.5	.0	.0	17.0	9.5	13.0	12.5	10.0	12.0
6	.0	.0	.0	1.0	.0	.5	20.0	13.5	16.0	10.0	8.0	9.0
7	.0	.0	.0	1.0	.0	.0	19.5	15.0	17.5	15.5	7.0	11.0
8	.0	.0	.0	3.0	.0	1.0	19.0	15.5	17.0	16.0	12.0	13.5
9	.0	.0	.0	4.0	1.0	2.0	15.5	9.0	12.5	20.5	13.0	16.5
10	.0	.0	.0	4.0	.0	2.0	13.0	6.5	9.5	19.5	15.5	17.5
11	.0	.0	.0	6.5	2.5	4.0	9.5	7.0	8.0	22.5	16.0	19.0
12	.0	.0	.0	4.0	.0	2.0	7.0	2.5	4.5	25.0	18.5	21.5
13	.0	.0	.0	3.0	.0	1.0	6.0	3.0	4.5	23.5	19.5	21.5
14	.0	.0	.0	4.0	.0	1.5	9.0	6.0	7.5	22.5	19.5	21.0
15	.0	.0	.0	4.5	.0	2.0	11.5	8.0	9.5	23.5	18.0	20.0
16	.0	.0	.0	4.5	2.0	3.0	12.5	8.0	10.5	22.0	19.5	20.5
17	.0	.0	.0	4.0	3.0	3.5	15.0	9.0	11.5	20.0	16.0	18.5
18	.0	.0	.0	5.0	2.0	3.5	12.5	10.0	11.0	16.0	12.0	13.5
19	.5	.0	.0	7.0	2.0	4.5	10.0	9.0	9.5	16.5	11.5	13.5
20	.5	.0	.0	7.5	4.5	6.0	13.5	8.0	10.5	20.5	13.5	17.0
21	.5	.0	.0	11.5	7.0	9.0	13.0	9.0	11.0	20.5	18.0	19.0
22	.0	.0	.0	10.0	8.0	9.0	14.5	8.5	11.5	24.0	18.5	21.0
23	.0	.0	.0	8.0	4.5	6.0	12.0	9.0	10.5	23.5	21.0	22.0
24	.5	.0	.0	9.0	3.5	6.0	15.0	7.5	11.0	25.0	20.5	22.5
25	.0	.0	.0	10.5	6.0	8.5	14.0	11.0	12.0	22.5	21.0	21.5
26	.0	.0	.0	14.5	9.5	12.0	14.5	10.0	12.5	23.0	20.0	21.5
27	.0	.0	.0	13.5	10.0	12.5	18.0	13.0	15.0	25.5	20.0	22.5
28	.5	.0	.0	10.0	4.5	6.5	19.5	13.0	16.0	27.0	21.5	24.0
29	---	---	---	7.0	2.5	4.5	19.0	15.5	17.0	27.5	22.5	24.5
30	---	---	---	7.5	2.5	5.0	15.5	11.5	13.5	25.0	21.5	23.0
31	---	---	---	9.0	4.5	6.5	---	---	---	22.5	19.0	21.0
MONTH	.5	.0	.0	14.5	.0	3.9	20.0	2.5	11.3	27.5	7.0	17.9

05413451 RATTLESNAKE CREEK NEAR BEETOWN, WI--CONTINUED

## WATER TEMPERATURE, DEGREES CELSIUS, OCTOBER 1990 TO JUNE 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	22.5	18.0	20.0	---	---	---	---	---	---	---	---	---
2	22.0	20.0	21.0	---	---	---	---	---	---	---	---	---
3	24.5	19.0	21.5	---	---	---	---	---	---	---	---	---
4	23.5	19.0	21.0	---	---	---	---	---	---	---	---	---
5	23.5	17.5	20.0	---	---	---	---	---	---	---	---	---
6	23.5	17.5	20.5	---	---	---	---	---	---	---	---	---
7	23.5	17.5	20.5	---	---	---	---	---	---	---	---	---
8	24.5	18.5	21.0	---	---	---	---	---	---	---	---	---
9	24.0	20.0	21.5	---	---	---	---	---	---	---	---	---
10	23.5	20.5	21.5	---	---	---	---	---	---	---	---	---
11	26.0	20.0	22.5	---	---	---	---	---	---	---	---	---
12	28.0	21.5	24.5	---	---	---	---	---	---	---	---	---
13	27.5	22.5	24.5	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.8	8.4	10.2	15.5	8.0	10.5	15.6	13.4	14.1	---	---	---
2	14.1	8.1	10.5	14.6	7.9	9.8	16.3	13.8	14.7	---	---	---
3	11.5	8.1	9.0	10.7	7.9	9.1	14.5	13.3	13.9	---	---	---
4	13.1	8.3	10.1	13.5	9.5	10.9	15.2	13.0	13.8	---	---	---
5	13.7	7.8	9.8	14.8	10.3	11.6	15.1	13.0	13.8	---	---	---
6	14.1	7.4	9.7	14.5	10.9	12.2	14.9	13.3	13.9	---	---	---
7	14.6	7.5	10.0	15.5	11.5	12.9	---	---	---	---	---	---
8	12.6	8.6	10.0	15.6	12.2	13.5	---	---	---	---	---	---
9	14.9	10.0	11.7	15.9	12.3	13.4	---	---	---	---	---	---
10	13.6	10.1	11.3	15.7	12.4	13.5	---	---	---	---	---	---
11	14.7	10.2	11.9	16.2	12.5	13.8	---	---	---	---	---	---
12	14.9	10.0	11.8	16.4	12.0	13.9	---	---	---	---	---	---
13	15.0	9.5	11.7	16.0	11.9	13.3	---	---	---	---	---	---
14	14.9	9.4	11.1	15.4	10.7	12.7	---	---	---	---	---	---
15	15.2	8.9	10.9	14.8	9.6	11.6	---	---	---	---	---	---
16	14.2	8.2	10.3	14.5	9.6	11.2	---	---	---	---	---	---
17	12.5	8.1	9.0	14.9	10.3	11.8	---	---	---	---	---	---
18	13.6	8.3	10.3	14.8	9.9	11.5	---	---	---	---	---	---
19	14.2	9.7	11.3	14.2	10.0	11.4	---	---	---	---	---	---
20	12.3	9.6	10.5	14.1	9.9	11.3	---	---	---	---	---	---
21	13.7	9.6	10.8	11.7	9.5	10.0	---	---	---	---	---	---
22	14.3	9.7	11.5	13.3	9.9	11.1	---	---	---	---	---	---
23	12.9	8.7	10.5	14.1	10.5	11.9	---	---	---	---	---	---
24	13.1	8.7	10.1	15.1	11.7	12.8	---	---	---	---	---	---
25	13.6	8.9	10.5	15.5	11.9	13.2	---	---	---	---	---	---
26	13.5	8.7	10.5	14.7	12.1	13.3	---	---	---	---	---	---
27	13.1	8.7	10.2	14.2	11.9	12.6	---	---	---	---	---	---
28	13.9	8.9	10.7	16.0	12.2	13.9	---	---	---	---	---	---
29	13.9	8.7	10.8	16.4	13.9	14.9	---	---	---	---	---	---
30	14.8	8.5	10.5	15.8	13.3	14.4	---	---	---	---	---	---
31	14.9	8.2	10.5	---	---	---	---	---	---	---	---	---
MONTH	15.2	7.4	10.6	16.4	7.9	12.3	---	---	---	---	---	---

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## 1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	15.6	9.3	12.0
2	---	---	---	---	---	---	13.9	10.0	11.6	17.3	9.0	12.8
3	---	---	---	---	---	---	14.5	9.5	11.5	16.2	9.0	11.8
4	---	---	---	---	---	---	14.8	9.2	11.0	16.3	8.9	11.7
5	---	---	---	---	---	---	15.0	8.3	11.1	13.2	8.7	10.1
6	---	---	---	---	---	---	14.6	7.6	10.3	12.9	9.4	10.7
7	---	---	---	---	---	---	14.0	7.3	9.8	17.0	8.7	12.6
8	---	---	---	---	---	---	14.0	7.2	8.9	17.2	8.4	11.4
9	---	---	---	---	---	---	8.6	6.8	8.0	16.5	7.0	11.1
10	---	---	---	---	---	---	12.5	8.6	10.2	13.3	6.9	9.6
11	---	---	---	---	---	---	12.0	8.8	10.2	12.9	6.1	8.9
12	---	---	---	---	---	---	---	---	---	11.3	5.5	7.9
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	11.7	9.0	10.2	---	---	---
17	---	---	---	---	---	---	12.0	8.7	10.2	9.8	6.8	8.3
18	---	---	---	---	---	---	11.2	8.6	9.7	10.3	8.4	9.4
19	---	---	---	---	---	---	12.3	9.5	10.6	11.9	8.8	10.2
20	---	---	---	---	---	---	13.8	9.3	11.2	11.3	7.4	9.5
21	---	---	---	---	---	---	13.5	7.8	10.6	10.0	5.4	8.1
22	---	---	---	---	---	---	14.6	8.7	11.0	9.1	5.9	7.5
23	---	---	---	---	---	---	14.5	8.6	10.8	9.8	5.9	7.3
24	---	---	---	---	---	---	15.8	8.8	11.9	9.8	6.2	7.6
25	---	---	---	---	---	---	15.5	8.5	11.0	9.0	4.8	7.4
26	---	---	---	---	---	---	15.7	8.6	11.5	6.9	4.9	6.1
27	---	---	---	---	---	---	15.1	8.1	10.4	8.7	5.5	7.0
28	---	---	---	---	---	---	15.9	7.5	10.7	9.8	6.0	7.3
29	---	---	---	---	---	---	13.5	7.4	9.3	10.1	6.1	7.4
30	---	---	---	---	---	---	13.8	8.0	10.3	10.0	6.1	7.5
31	---	---	---	---	---	---	---	---	---	8.4	6.4	7.3
JUNE				JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	11.8	7.1	9.1	---	---	---	---	---	---	---	---	---
6	12.4	7.0	9.2	---	---	---	---	---	---	---	---	---
7	12.9	6.9	9.4	---	---	---	---	---	---	---	---	---
8	13.2	6.6	9.4	---	---	---	---	---	---	---	---	---
9	13.5	6.6	9.0	---	---	---	---	---	---	---	---	---
10	12.9	6.6	8.4	---	---	---	---	---	---	---	---	---
11	12.9	6.1	9.0	---	---	---	---	---	---	---	---	---
12	13.8	4.9	8.7	---	---	---	---	---	---	---	---	---
13	13.6	5.1	8.5	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---



05413500 GRANT RIVER AT BURTON, WI  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

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 mi<sup>2</sup>.

## 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 only, published in WSP 1308.

REVISED RECORDS.--WSP 825: 1935, 1936. 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. Datum of gage is 606.43 ft above National Geodetic Vertical Datum of 1929. Oct. 17, 1934, to Sept. 30, 1947, nonrecording 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: June 17-24 and ice period listed in rating table below. Records good except for period of no gage-height record, which is fair, and ice-affected period, which is poor. Data-collection platform at station.

AVERAGE DISCHARGE.--57 years, 165 ft<sup>3</sup>/s, 8.33 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft<sup>3</sup>/s, July 16, 1950, gage height, 24.82 ft, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 21 ft<sup>3</sup>/s, Mar. 4, 1954, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
June 15	1600	*9,920	22.23	No other peak greater than base discharge.			

Minimum discharge, 42 ft<sup>3</sup>/s, Dec. 3, result of freezeup.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used June 16, 17, June 25 to July 1, July 8, Aug. 8, 9; stage-discharge relation affected by ice Dec. 3 to Mar. 2.)

4.1	46	8.0	442	14.0	1,420
5.0	120	10.0	721	16.0	1,930
6.0	220	12.0	1,040	18.0	2,900
				20.0	4,790

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	59	59	54	54	70	182	162	182	172	122	101
2	63	58	58	54	56	480	167	156	165	167	119	98
3	68	59	54	54	58	404	156	151	150	161	121	109
4	76	64	58	54	60	256	151	149	140	157	133	135
5	68	65	60	52	60	189	147	157	132	156	120	109
6	64	61	60	52	62	199	140	190	127	153	116	105
7	62	59	60	52	62	173	133	159	124	162	120	102
8	61	58	60	52	66	147	130	151	121	181	498	108
9	62	59	62	52	68	128	201	150	117	151	264	134
10	62	61	62	52	68	108	194	144	121	147	154	115
11	65	60	62	52	66	107	157	142	140	146	139	105
12	63	58	62	52	64	132	296	140	121	267	130	125
13	63	58	60	52	60	114	893	173	117	160	128	158
14	64	59	58	54	58	111	468	168	133	148	124	135
15	64	59	62	54	56	116	411	145	4590	143	122	143
16	62	59	62	54	54	115	326	144	957	140	121	127
17	62	57	62	54	56	116	283	141	450	137	132	112
18	65	56	62	52	58	210	255	150	350	138	126	113
19	68	57	62	52	62	240	246	154	280	137	119	111
20	63	57	62	52	64	225	230	138	240	138	117	106
21	70	64	56	50	74	216	212	135	270	136	116	105
22	69	70	54	49	84	199	204	143	380	137	116	105
23	63	64	54	48	82	300	207	135	240	133	112	104
24	62	60	52	48	74	238	204	134	220	125	110	105
25	59	59	50	48	68	190	185	130	208	122	109	109
26	58	58	48	48	66	175	179	289	200	121	109	106
27	58	63	50	49	66	450	183	212	193	120	107	102
28	58	68	52	52	66	400	182	168	185	123	106	101
29	57	61	60	54	---	263	172	155	180	143	103	101
30	59	58	60	52	---	218	177	164	175	131	106	100
31	59	---	56	52	---	200	---	166	---	125	104	---
TOTAL	1961	1808	1799	1606	1792	6489	7071	4895	11008	4577	4223	3389
MEAN	63.3	60.3	58.0	51.8	64.0	209	236	158	367	148	136	113
MAX	76	70	62	54	84	480	893	289	4590	267	498	158
MIN	57	56	48	48	54	70	130	130	117	120	103	98
CFSM	.24	.22	.22	.19	.24	.78	.88	.59	1.36	.55	.51	.42
IN.	.27	.25	.25	.25	.25	.90	.98	.68	1.52	.63	.58	.47
CAL YR 1990	TOTAL 35523	MEAN 97.3	MAX 891	MIN 47	CFSM .36	IN. 4.91						
WTR YR 1991	TOTAL 50618	MEAN 139	MAX 4590	MIN 48	CFSM .52	IN. 7.00						

## GRANT RIVER BASIN

05413500 GRANT RIVER AT BURTON, WI--CONTINUED  
(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-67, 1977 to current year. National Stream-Quality Accounting Network data collection began in October 1986.

## PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Water years 1977-82, October 1983 to current year.

REMARKS.--Sediment records for periods of no ice cover during considerable discharge (greater than 300 ft<sup>3</sup>/s) are good because sampling and analysis effort were concentrated on high-discharge periods. Records for most remaining periods are fair because of infrequent (about twice per week) sampling. Records for high-flow periods during ice cover are poor. Monthly load values are good. 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, 7 mg/L, Mar. 2, 1978.

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, 9,130 mg/L, July 12; minimum observed, 18 mg/L, Feb. 4.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 32,800 tons, June 15; minimum daily, 2.5 tons, Jan. 23-27.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1990					JUN 1991				
01...	1635	--	65	45	*12...	1000	--	119	148
04...	1435	--	79	64	12...	1208	--	119	118
*05...	1232	--	67	41	13...	0800	--	116	142
05...	1247	--	67	51	15...	1552	--	9660	4670
05...	1250	--	67	61	*15...	1558	--	9860	4610
15...	1150	--	64	40	15...	1602	--	9760	4620
25...	0950	--	60	23	15...	1800	--	8090	3060
25...	1035	--	62	45	16...	1015	--	896	1160
25...	1100	--	59	21	16...	1915	--	641	687
NOV					17...	0840	--	452	600
*14...	1255	--	59	33	20...	0920	240	--	245
14...	1305	--	59	28	22...	0930	380	--	1280
DEC					24...	1020	--	196	201
13...	1009	60	--	45	*24...	1630	--	216	180
13...	1045	60	--	99	24...	1640	--	217	215
13...	1100	60	--	20	27...	0750	--	195	135
*26...	1405	--	49	25	JUL				
FEB 1991					01...	0900	--	172	129
*04...	1315	--	61	18	03...	0850	--	161	83
MAR					08...	0925	--	199	96
*18...	1400	--	233	338	12...	0710	--	539	9130
18...	1401	--	233	313	15...	0855	--	143	127
19...	0950	--	259	376	18...	0815	--	136	137
19...	1030	--	283	316	22...	0945	--	137	91
19...	1050	--	254	383	24...	1100	--	124	84
APR					29...	0945	--	147	105
01...	0925	--	183	92	AUG				
04...	1105	--	151	84	01...	0735	--	123	63
09...	1040	--	183	238	05...	0915	--	120	85
12...	0955	--	155	2680	08...	0830	--	307	1700
13...	1410	--	745	382	08...	1353	--	681	2130
21...	1055	--	212	117	08...	1355	--	684	2050
25...	0845	--	185	93	08...	1450	--	785	2240
25...	1000	--	185	63	*08...	1500	--	799	2240
25...	1045	--	187	86	08...	1504	--	803	2270
25...	1055	--	185	97	13...	0825	--	129	132
29...	1030	--	171	91	16...	0810	--	121	148
MAY					19...	0850	--	117	69
02...	1000	--	155	58	22...	0820	--	116	79
07...	0825	--	160	21	26...	0900	--	109	83
10...	0910	--	144	24	27...	0950	--	107	64
13...	1045	--	178	1260	27...	1100	--	112	66
16...	1310	--	144	68	27...	1112	--	107	42
*16...	1335	--	144	69	29...	0905	--	103	91
16...	1351	--	144	44	SEP				
20...	0935	--	138	62	03...	1000	--	102	112
23...	0845	--	135	74	04...	0935	--	143	135
27...	0835	--	213	391	04...	0955	--	142	122
30...	1030	--	161	197	06...	0810	--	104	110
JUN					09...	0955	--	141	151
08...	0855	--	120	140	12...	0930	--	116	138
*08...	1405	--	120	63	16...	0840	--	129	148
08...	1415	--	120	47	19...	1620	--	109	47
11...	0805	--	144	198	23...	1330	--	104	42
12...	0910	--	119	109	26...	1310	--	106	36
					30...	1000	--	100	33

## GRANT RIVER BASIN

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05413500 GRANT RIVER AT BURTON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAI, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCHI FECAI, KF AGAR (COLS. PER 100 ML) (31673)	
OCT 1990													
25...	1035	--	62	640	8.5	6.0	5.5	12.5	751	102	170	120	
DEC													
13...	1045	60	--	610	8.4	0.5	3.2	13.4	758	94	41	110	
MAR 1991													
19...	1030	--	283	730	8.2	5.0	55	13.2	747	106	5000	>10000	
APR													
25...	1045	--	187	655	8.4	11.5	14	10.0	740	95	150	77	
JUN													
12...	1000	--	119	665	8.4	24.5	31	7.1	732	89	6000	180	
AUG													
27...	1100	--	112	596	8.4	23.0	6.5	8.1	748	96	260	170	
DATE		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)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CaCO3 (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)
OCT 1990													
25...	330	77	34	10	4.3	337	10	292	29	26	0.10	5.2	
DEC													
13...	320	74	34	10	2.5	320	18	292	28	23	0.20	11	
MAR 1991													
19...	280	67	28	11	10	285	--	234	25	28	<0.10	10	
APR													
25...	330	78	34	8.6	2.6	312	10	272	26	22	0.20	6.2	
JUN													
12...	330	79	33	9.0	2.5	346	2	288	18	22	0.10	11	
AUG													
27...	330	72	36	8.4	2.3	322	2	268	26	20	0.10	3.5	
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	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 DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1990													
25...	364	372	0.010	2.30	<0.010	0.010	0.60	0.140	0.100	0.090	45	36	
DEC													
13...	376	373	0.010	3.30	0.120	0.130	0.60	0.160	0.110	0.120	99	36	
MAR 1991													
19...	365	341	0.050	4.20	1.10	1.10	3.9	0.810	0.570	0.520	316	11	
APR													
25...	369	359	0.020	4.00	0.030	0.020	0.70	0.200	0.060	0.070	86	70	
JUN													
12...	360	364	0.030	3.80	0.020	<0.010	1.0	0.190	0.170	0.180	148	92	
AUG													
27...	339	341	0.020	2.80	0.020	<0.010	0.50	0.140	0.080	0.060	66	66	

## GRANT RIVER BASIN

05413500 GRANT RIVER AT BURTON, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 1990											
25...	1035	62	<10	<1	66	<0.5	<1.0	<1	<3	1	12
MAR 1991											
19...	1030	283	10	<1	67	<0.5	<1.0	<1	<3	8	43
APR											
25...	1045	187	<10	<1	65	<0.5	<1.0	1	<3	2	9
AUG											
27...	1100	112	10	<1	75	1	<1.0	1	<3	<1	5

DATE	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L AS V) (01085)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 1990										
25...	<1	7	41	<0.1	<10	1	<1	78	<6	8
MAR 1991										
19...	1	<4	73	<0.1	<10	4	<1	75	<6	13
APR										
25...	1	<4	50	<0.1	10	<1	4	82	<6	12
AUG										
27...	<1	<4	46	<0.1	<10	1	<1	82	<6	6

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)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					
05...	1232	--	67	610	15.0
25...	1035	--	62	640	6.0
NOV					
14...	1250	--	61	610	6.0
DEC					
13...	1045	60	--	610	0.5
26...	1410	--	49	770	0.0
FEB 1991					
04...	1315	--	61	610	0.5
MAR					
18...	1400	--	233	860	4.5
19...	1030	--	283	730	5.0
APR					
25...	1045	--	187	655	11.5
MAY					
16...	1327	--	148	652	21.5
JUN					
12...	1000	--	119	665	24.5
15...	1908	--	8530	195	23.0
24...	1630	220	216	717	22.5
JUL					
08...	1405	--	178	626	25.0
AUG					
08...	1515	--	746	517	19.5
27...	1100	--	112	596	23.0
SEP					
04...	0935	--	143	624	19.5

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SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

## PLATTE RIVER BASIN

05414000 PLATTE RIVER NEAR ROCKVILLE, WI

LOCATION.--Lat 42°43'52", long 90°38'25", in SW 1/4 sec.17, T.3 N., R.2 W., Grant County, Hydrologic Unit 07060003, on right bank just downstream from bridge on County Trunk Highway B, 0.8 mi upstream from Blakely Branch, 2.2 mi east of Rockville, 4.5 mi northeast of Potosi, and 15.2 mi upstream from mouth.

DRAINAGE AREA.--142 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929. 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 periods listed in rating table below. Records good except those for ice-affected periods, which are poor.

AVERAGE DISCHARGE.--57 years, 98.2 ft<sup>3</sup>/s, 9.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,500 ft<sup>3</sup>/s, July 16, 1950, gage height, 17.26 ft, from rating curve extended above 7,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow Nov. 24, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
June 15	0645	*3,350	*10.47	No other peak greater than base discharge.			

Minimum daily discharge, 22 ft<sup>3</sup>/s, Dec. 22.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-15, and Dec. 21 to Mar. 2.)

3.1	22	5.0	307
3.5	58	6.0	651
4.0	112	8.0	1,490
4.5	181		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	38	37	36	34	66	126	126	113	98	68	58
2	35	38	36	36	36	450	115	120	106	95	66	57
3	42	38	30	36	36	198	109	116	101	92	67	80
4	50	40	37	36	37	128	107	115	95	90	66	83
5	42	40	39	35	38	113	103	130	90	89	64	66
6	39	39	37	35	38	144	99	142	86	87	63	63
7	37	38	37	35	38	109	94	123	84	108	66	61
8	37	37	37	35	40	98	93	118	84	102	337	68
9	38	39	37	35	41	103	142	116	84	87	118	79
10	39	40	37	35	42	91	126	112	87	85	85	67
11	43	39	37	35	40	96	109	110	96	84	77	63
12	43	37	37	35	36	119	239	107	89	235	72	101
13	39	37	36	35	35	102	614	114	90	96	70	93
14	39	37	36	36	33	96	471	109	113	88	69	79
15	39	37	42	36	28	93	389	104	1490	83	69	77
16	38	36	40	36	36	92	291	103	446	81	69	69
17	39	35	40	36	36	100	224	102	258	80	75	65
18	44	35	41	36	36	163	192	114	188	80	74	67
19	42	35	40	36	37	171	178	112	159	79	80	64
20	41	35	39	36	37	168	159	100	143	79	68	61
21	41	42	34	36	39	166	148	99	160	78	67	60
22	40	43	22	35	46	152	142	104	141	80	65	60
23	38	39	35	34	47	207	147	97	127	77	62	59
24	38	37	34	33	42	162	139	95	119	72	61	60
25	37	36	34	32	37	138	127	97	113	70	60	62
26	38	36	34	32	35	129	122	170	109	68	60	60
27	37	42	33	33	34	337	156	127	106	68	59	57
28	36	44	34	35	34	265	138	115	102	71	59	56
29	36	39	36	34	---	187	140	108	99	78	59	55
30	37	37	40	34	---	153	139	118	98	73	62	56
31	38	---	38	33	---	141	---	116	---	70	63	---
TOTAL	1217	1145	1126	1082	1048	4737	5378	3539	5176	2723	2400	2006
MEAN	39.3	38.2	36.3	34.9	37.4	153	179	114	173	87.8	77.4	66.9
MAX	50	44	42	36	47	450	614	170	1490	235	337	101
MIN	35	35	22	32	28	66	93	95	84	68	59	55
CFSM	.28	.27	.26	.25	.26	1.08	1.26	.80	1.22	.62	.55	.47
IN.	.32	.30	.29	.28	.27	1.24	1.41	.93	1.36	.71	.63	.53

CAL YR 1990 TOTAL 23674 MEAN 64.9 MAX 4410 MIN 21 CFSM .46 IN. 6.20  
WTR YR 1991 TOTAL 31577 MEAN 86.5 MAX 1490 MIN 22 CFSM .61 IN. 8.27

## GALENA RIVER BASIN

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05415000 GALENA RIVER AT BUNCOMBE, WI

LOCATION.--Lat 42°30'49", long 90°22'40", in SW 1/4 sec.33, T.1 N., R.1 E., Lafayette County, Hydrologic Unit 07060005, on left bank at Buncombe, 0.6 mi upstream from Coon Branch, 1.5 mi upstream from Scrabble Branch, 2.0 mi upstream from Wisconsin-Illinois State line, and 3.5 mi southeast of Hazel Green.

DRAINAGE AREA.--125 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WSP 1438: 1942(P), 1943(M), 1944(P), 1945(M). WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 682.31 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1939, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except for ice-affected periods, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 78.4 ft<sup>3</sup>/s, 8.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,700 ft<sup>3</sup>/s, June 29, 1969, gage height, 19.57 ft from rating curve extended above 8,100 ft<sup>3</sup>/s on basis of slope-area measurements at gage heights 15.68 ft and 19.57 ft; minimum discharge, 0.8 ft<sup>3</sup>/s, Mar. 3, 1954.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of February 1937 reached a stage of about 17.1 ft, from information by local resident, discharge, 18,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	0815	*2,600	*9.29				

Minimum discharge, 18 ft<sup>3</sup>/s, Dec. 3, result of freezeup.

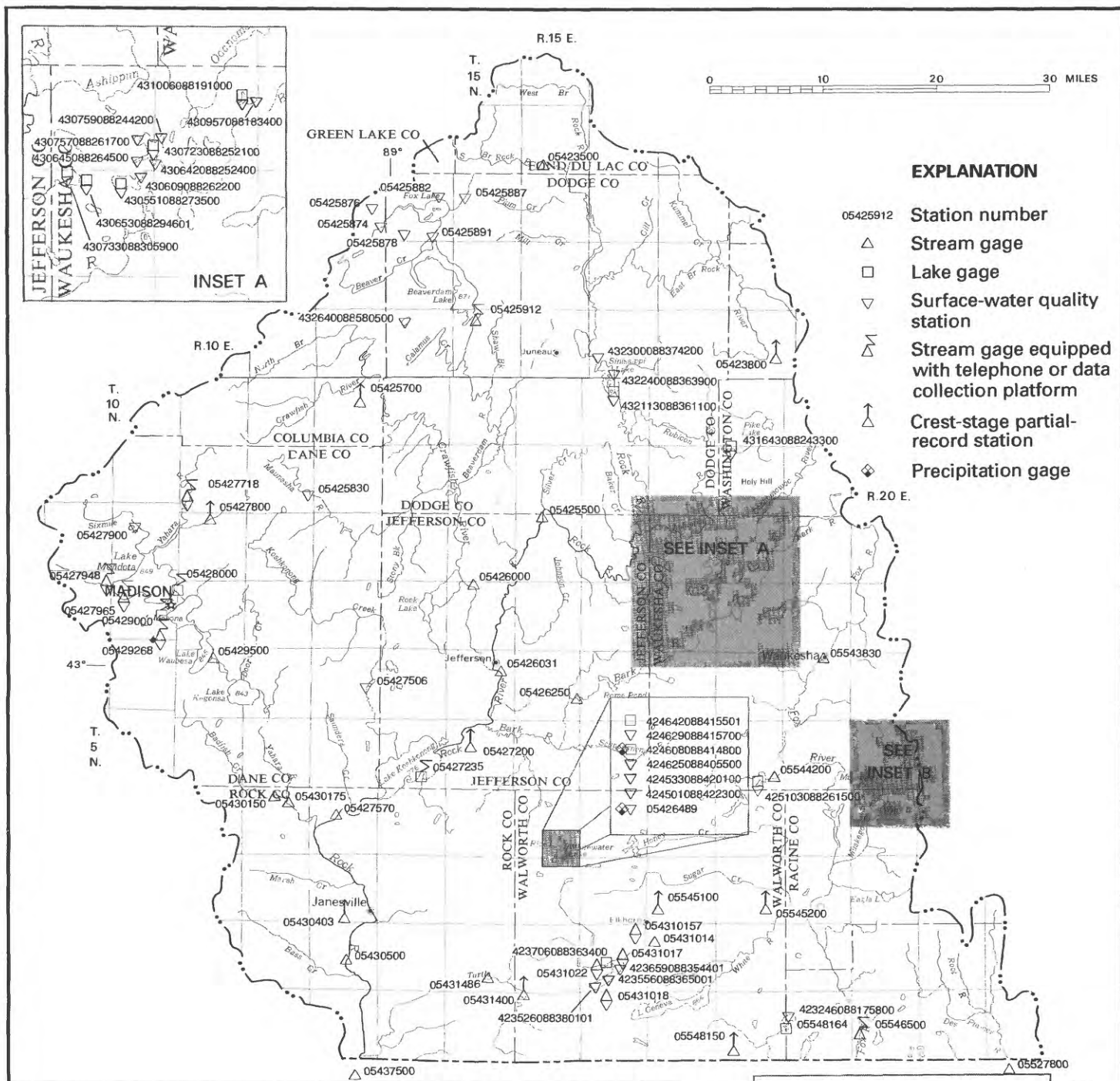
RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3 to Mar. 2, Mar. 9, 14, and 15.)

2.5	23	5.0	548
3.0	77	6.0	896
3.5	156	7.0	1,290
4.0	264		

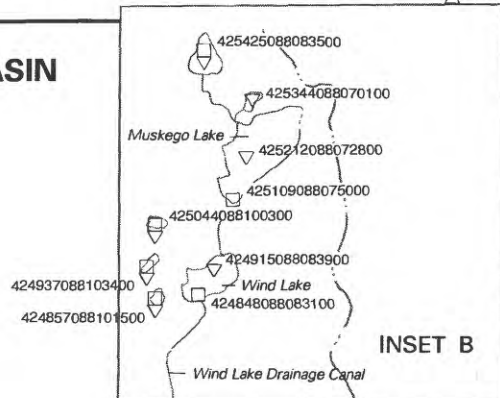
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	27	33	27	25	200	129	153	120	71	47	39
2	27	27	30	27	27	1200	116	139	119	70	46	38
3	33	27	29	27	29	290	111	128	94	67	46	44
4	47	34	27	27	32	174	109	124	85	66	48	49
5	34	34	31	27	33	158	106	152	79	66	44	41
6	31	33	30	27	33	262	100	155	77	65	44	40
7	29	30	30	27	33	140	96	128	75	74	48	39
8	28	28	31	27	34	127	110	117	74	70	406	39
9	30	31	32	27	34	120	208	115	73	65	102	46
10	35	33	32	27	33	115	162	109	75	64	65	41
11	50	32	32	27	32	116	134	106	79	63	57	39
12	37	29	31	27	31	142	147	103	75	84	52	58
13	32	27	31	27	30	89	502	116	71	70	51	57
14	32	27	30	28	29	96	364	107	78	63	49	79
15	32	28	30	28	28	100	288	99	794	58	49	77
16	29	27	31	28	26	110	227	97	169	56	48	78
17	30	25	31	28	26	129	197	98	120	55	52	54
18	34	25	32	28	27	276	180	113	107	55	49	58
19	30	26	32	27	28	265	169	106	98	54	48	52
20	29	25	31	27	29	228	153	95	91	55	46	46
21	30	32	28	27	32	218	143	118	89	55	46	44
22	29	39	27	26	38	188	137	117	129	58	45	44
23	28	32	26	26	38	233	148	100	93	57	42	43
24	28	29	26	25	34	179	137	97	85	52	41	44
25	27	28	26	25	31	150	122	94	81	50	40	46
26	27	27	25	24	30	179	118	195	78	48	40	43
27	27	47	25	25	30	259	137	112	76	47	40	41
28	25	58	28	26	30	211	177	96	73	48	39	40
29	26	37	30	26	---	165	397	90	72	55	39	39
30	27	33	30	25	---	146	182	99	72	52	41	39
31	27	---	28	25	---	140	---	96	---	49	45	---
TOTAL	958	937	915	825	862	6405	5306	3574	3401	1862	1855	1437
MEAN	30.9	31.2	29.5	26.6	30.8	207	177	115	113	60.1	59.8	47.9
MAX	50	58	33	28	38	1200	502	195	794	84	406	79
MIN	25	25	25	24	25	89	96	90	71	47	39	38
CFSM	.25	.25	.24	.21	.25	1.65	1.41	.92	.91	.48	.48	.38
IN.	.29	.28	.27	.25	.26	1.91	1.58	1.06	1.01	.55	.55	.43

CAL YR 1990 TOTAL 20506 MEAN 56.2 MAX 4100 MIN 16 CFSM .45 IN. 6.10  
WTR YR 1991 TOTAL 28337 MEAN 77.6 MAX 1200 MIN 24 CFSM .62 IN. 8.43



## ROCK-FOX RIVER BASIN





ROCK RIVER BASIN

373

05423500 SOUTH BRANCH ROCK RIVER AT WAUPUN, WI

LOCATION.--Lat 43°38'30", long 88°44'15", in NW 1/4 sec.33, T.14 N., R.15 E., Fond du Lac County, Hydrologic Unit 07090001, on left bank 260 ft upstream from U.S. Business Route 151 at Waupun, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--63.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1948 to September 1969. March 1987 to current year. Monthly discharge only for October 1948, published in WSP 1308.

REVISED RECORDS.--WDR WI-88-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 863.46 ft above National Geodetic Vertical Datum of 1929. October 1948 to September 1969, recording gage at site 150 ft downstream at same datum.

REMARKS.--Estimated daily discharge: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair.

AVERAGE DISCHARGE.--25 years (1949-69, 1988-91), 24.6 ft<sup>3</sup>/s, 5.25 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft<sup>3</sup>/s, Apr. 3, 1959, gage height, 7.97 ft, from rating curve extended above 650 ft<sup>3</sup>/s; minimum, no flow at times in 1949, 1953-54, 1958-59, 1963-64.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	1715	*444	*5.31	No other peak greater than base discharge.			
Minimum discharge, 2.9 ft <sup>3</sup> /s, Aug. 26, gage height, 1.85 ft.							

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 22-26, Jan. 3-8, 22-31, and Feb. 14-16.)

1.8	1.8	2.2	16
1.9	4.2	2.5	42
2.0	7.0	3.0	105
2.1	11	4.0	242
		5.0	393

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	23	26	15	10	54	75	47	22	16	27	3.4
2	22	23	23	13	9.8	384	70	43	57	14	23	3.5
3	25	23	18	12	10	241	65	39	35	12	20	6.5
4	28	25	13	12	10	193	62	38	30	11	18	5.3
5	29	26	16	12	10	151	62	45	24	10	15	5.1
6	28	28	17	10	10	193	59	51	21	9.6	13	4.7
7	27	28	18	11	12	118	55	49	18	8.8	12	4.3
8	24	27	20	11	14	102	53	48	16	8.4	37	3.9
9	24	27	23	11	18	93	107	49	14	7.9	33	4.1
10	29	27	25	11	22	78	130	46	14	7.7	28	3.8
11	36	28	27	12	21	90	105	41	13	7.1	23	4.3
12	35	27	29	12	16	87	90	38	12	19	19	11
13	34	26	31	12	15	75	88	34	11	14	16	7.1
14	36	25	30	12	14	74	143	31	31	13	14	7.7
15	36	25	29	12	13	84	154	29	127	11	12	7.3
16	34	25	28	13	12	89	118	27	95	9.7	11	8.5
17	34	24	29	11	12	97	99	26	74	12	11	7.0
18	37	22	28	11	12	120	86	24	56	9.7	10	8.5
19	40	23	26	11	12	144	78	24	43	9.5	8.9	6.4
20	38	22	27	11	13	141	71	23	34	8.4	7.2	6.1
21	38	29	30	11	15	134	66	22	29	101	7.8	5.1
22	35	30	27	11	27	128	62	24	27	89	7.6	5.6
23	34	27	24	11	28	162	61	23	24	78	7.2	5.4
24	31	26	21	11	22	152	59	22	21	61	7.4	5.5
25	30	24	19	10	19	128	55	19	18	43	6.3	5.8
26	29	23	18	10	17	115	51	19	16	34	6.2	5.3
27	27	31	16	10	16	118	49	19	14	28	5.3	5.2
28	25	29	15	10	15	113	49	17	12	26	5.7	4.9
29	24	27	17	10	---	97	48	17	14	32	5.6	4.7
30	24	26	15	10	---	85	49	17	12	32	5.1	4.9
31	23	---	15	10	---	80	---	16	---	31	4.2	---
TOTAL	939	776	700	349	424.8	3920	2319	967	934	773.8	426.5	170.9
MEAN	30.3	25.9	22.6	11.3	15.2	126	77.3	31.2	31.1	25.0	13.8	5.70
MAX	40	31	31	15	28	384	154	51	127	101	37	11
MIN	22	22	13	10	9.8	54	48	16	11	7.1	4.2	3.4

CAL YR 1990 TOTAL 13340.02 MEAN 36.5 MAX 313 MIN .54  
WTR YR 1991 TOTAL 12700.0 MEAN 34.8 MAX 384 MIN 3.4

## ROCK RIVER BASIN

432300088374200 SINISSIPPI LAKE, OFF SAM POINT, NEAR HUSTISFORD, WI

LOCATION.--Lat 43°23'00" long 88°37'42", in NW 1/4 NE 1/4 sec.31, T.11 N., R.16 E., Dodge County, Hydrologic Unit 07090001, 3 mi northwest of Hustisford.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled about 0.5 mi west of Sam Point. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 24 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 24	June 18	July 26	Aug. 14
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	9.10	9.47	9.48	9.22
Specific conductance (μS/cm)	587	558	516	514
pH (units)	8.2	8.2	8.6	8.7
Water temperature (°C)	12.7	26.1	23.4	26.0
Color (Pt-Co. scale)	55	---	---	---
Turbidity (NTU)	16	---	---	---
Secchi-depth (meters)	0.3	0.2	0.1	0.2
Dissolved oxygen	12.4	9.0	10.0	9.8
Hardness, as CaCO <sub>3</sub>	300	---	---	---
Calcium, dissolved (Ca)	63	---	---	---
Magnesium, dissolved (Mg)	36	---	---	---
Sodium, dissolved (Na)	12	---	---	---
Potassium, dissolved (K)	3.12	---	---	---
Alkalinity, as CaCO <sub>3</sub>	255	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	36	---	---	---
Fluoride, dissolved (F)	0.12	---	---	---
Chloride, dissolved (Cl)	31	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	<0.2	---	---	---
Solids, dissolved, at 180°C	382	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.296	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.016	---	---	---
Nitrogen, amm. + org., total (as N)	2.1	---	---	---
Phosphorus, total (as P)	0.201	0.320	0.500	0.430
Phosphorus, ortho, dissolved (as P)	0.007	---	---	---
Iron, dissolved (Fe) μg/L	<50	---	---	---
Manganese, dissolved (Mn) μg/L	<40	---	---	---
Chlorophyll a, phytoplankton (μg/L)	110	238	352	268

432240088639000 SINISSIPPI LAKE, OFF BUTTERNUT ISLAND, NEAR HUSTISFORD, WI

LOCATION.--Lat 43°22'40" long 88°63'90", in NE 1/4 SW 1/4 sec.32, T.11 N., R.16 E., Dodge County, Hydrologic Unit 07090001, 2.4 mi northwest of Hustisford.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled about 0.5 mi southeast of Butternut Island. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 24 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 24	June 18	July 26	Aug. 14
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	9.10	9.47	9.48	9.22
Specific conductance (μS/cm)	529	575	526	519
pH (units)	8.8	8.5	8.6	8.7
Water temperature (°C)	12.5	25.6	23.6	24.5
Secchi-depth (meters)	0.2	0.3	0.1	0.2
Dissolved oxygen	11.5	11.8	10.6	8.6
Phosphorus, total (as P)	0.246	0.310	0.500	0.490
Chlorophyll a, phytoplankton (μg/L)	190	162	341	201

## 375

LOCATION.--Lat 43°21'13" long 88°36'11", in NW 1/4 NE 1/4 sec.9, T.10 N., R.16 E., Dodge County, Hydrologic Unit 07090001, at Hustisford.

LAKE-STAGE RECORDS

GAGE.--Nonrecording gage. Datum of gage is 90.00 ft above datum assumed by Wisconsin Department of Natural Resources; gage readings have been reduced to elevation above this datum. Staff, mounted to abutment, is read by Richard Fink.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 9.50 ft, June 22; minimum observed, 9.00 ft, Sept. 2 and 7.

[illegible]

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled 0.25 mi southwest of Anthony Island at a lake depth of about 7 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 04 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 04		Apr. 24		June 18		July 26		Aug. 14	
Depth of sample (ft)	1.0	5.0	1.5	4.0	1.5	3.9	1.5	4.0	1.5	4.0
Lake stage (ft)	0.0		9.10		9.47		9.48		9.22	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	1176	1179	561	569	640	651	554	556	475	519
pH (units)	7.40	7.30	8.60	8.60	8.50	8.29	8.50	8.39	9.10	8.39
Water temperature ( $^{\circ}\text{C}$ )	1.10	2.20	11.80	11.20	25.10	24.23	23.60	23.49	25.60	24.07
Color (Pt-Co. scale)	---	---	60	---	---	---	---	---	---	---
Turbidity (NTU)	---	---	19	---	---	---	---	---	---	---
Secchi-depth (meters)	---	---	0.3	---	0.3	---	0.1	---	0.2	---
Dissolved oxygen	13.60	13.50	13.10	13.10	8.10	4.40	6.60	4.54	19.00	3.57
Hardness, as $\text{CaCO}_3$	---	---	290	---	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	61	---	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	33	---	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	12	---	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	3.76	---	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	256	---	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	36	---	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.12	---	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	31	---	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	<0.2	---	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	370	---	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	<0.015	---	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.016	---	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	2.50	---	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.246	---	0.310	---	0.500	---	0.320	---
Phosphorus, ortho, dissolved (as P)	---	---	0.006	---	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	---	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	---	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	210	---	122	---	316	---	208	---

2-4-91

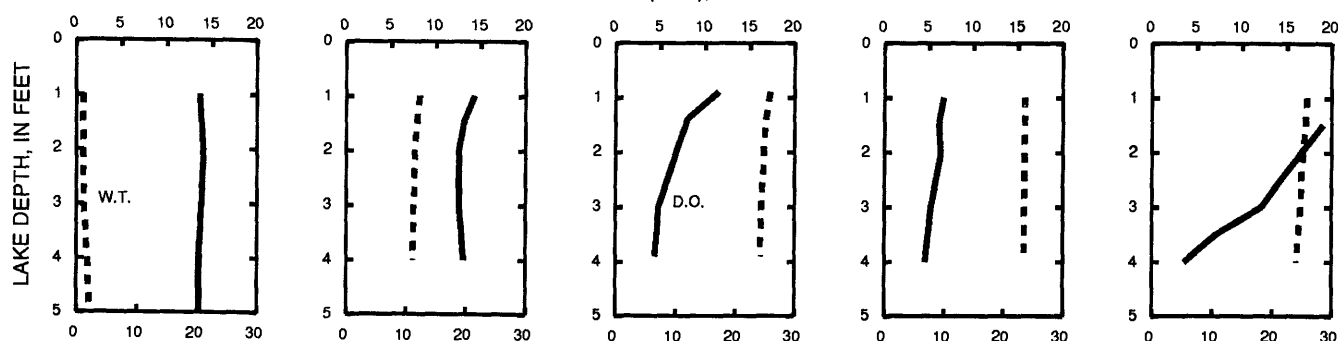
4-24-91

6-18-91

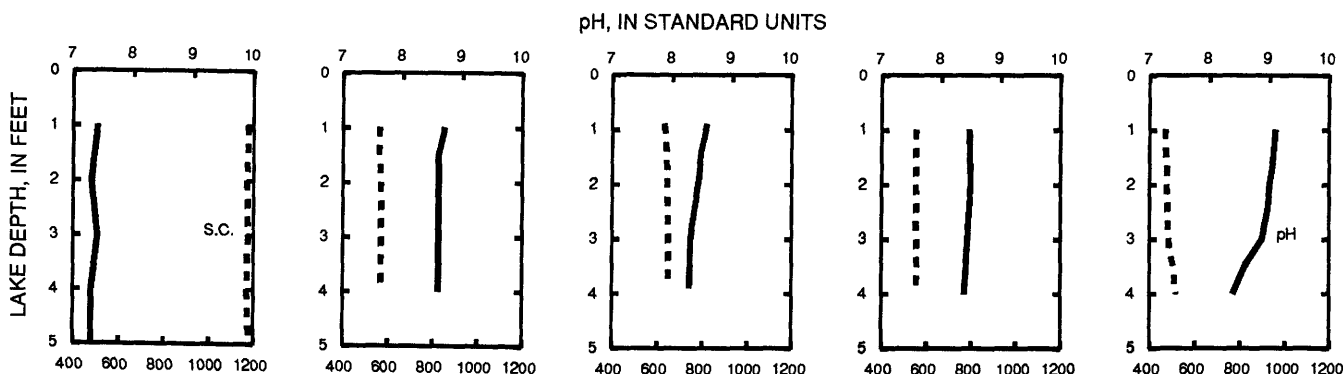
7-26-91

8-14-91

## 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

377

431643088243300 DRUID LAKE NEAR HARTFORD, WI

LOCATION.--Lat 43°16'43" long 88°24'33", in NW 1/4 NE 1/4 sec.6, T.9 N., R.18 E., Washington County, Hydrologic Unit 07090001, 3.2 mi southwest of Hartford.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--June to September 1991.

GAGE.--Staff read by Bill Noennig at his residence. Elevation of lake is 969 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 11.40 ft, June 16; minimum observed, 10.84 ft, Sept. 10.

GAGE HEIGHT, FEET, JUNE 1991 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	11.14	---	---
4	---	---	---	---	---	---	---	---	---	---	---	10.90
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	11.04	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	10.84
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	11.05	---	---
13	---	---	---	---	---	---	---	---	11.36	---	---	---
14	---	---	---	---	---	---	---	---	---	---	11.04	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	11.40	---	---	11.24
17	---	---	---	---	---	---	---	---	---	10.95	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	10.90	---
21	---	---	---	---	---	---	---	---	---	---	10.90	---
22	---	---	---	---	---	---	---	---	11.26	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	10.98	---	---
25	---	---	---	---	---	---	---	---	---	---	---	11.05
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	11.10	---	10.85	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	10.90	---	---

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled near center at a lake depth of about 54 ft. Lake ice-covered during February sampling.  
Water-quality analyses by Wisconsin State Laboratory of Hygiene.WATER-QUALITY DATA, FEBRUARY 04 TO AUGUST 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 04		Apr. 16		June 13		July 17		Aug. 20	
Depth of sample (ft)	3.0	48.0	1.5	52.0	1.5	49.0	1.5	51.0	1.5	52.0
Lake stage (ft)	---	---	---	---	11.36	---	10.95	---	10.90	---
Specific conductance ( $\mu\text{S}/\text{cm}$ )	636	684	601	616	605	627	579	634	558	646
pH (units)	8.1	7.4	8.4	8.5	8.7	7.9	8.6	7.7	8.6	7.6
Water temperature ( $^{\circ}\text{C}$ )	2.5	3.5	7.7	7.5	24.8	9.3	25.4	9.3	22.4	9.3
Color (Pt-Co. scale)	---	---	30	40	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.6	0.7	---	---	---	---	---	---
Secchi-depth (meters)	---	---	2.9	---	1.9	---	1.7	---	1.5	---
Dissolved oxygen	10.6	6.0	10.4	10.3	9.7	0.1	8.5	0.0	9.4	0.1
Hardness, as $\text{CaCO}_3$	---	---	320	320	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	68	69	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	36	36	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	9.0	9.0	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.3	2.3	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	270.8	274.0	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	37	37	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	<0.1	<0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	23	22	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	2.9	2.9	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	372	376	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.597	0.529	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.219	0.219	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	1.3	1.2	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.060	0.046	0.014	0.490	0.014	0.640	0.017	0.660
Phosphorus, ortho, dissolved (as P)	---	---	0.025	0.026	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	3.0	---	11.0	---	4.0	---	10.0	---

2-4-91

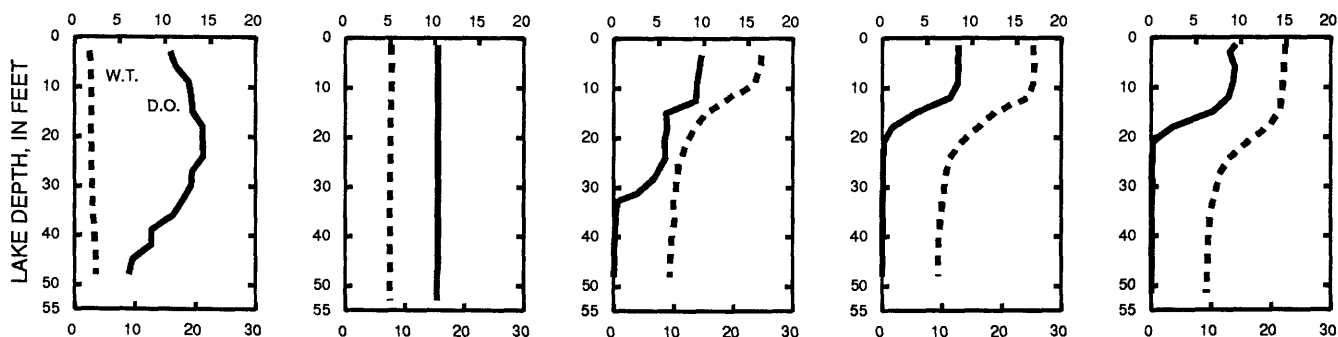
4-16-91

6-13-91

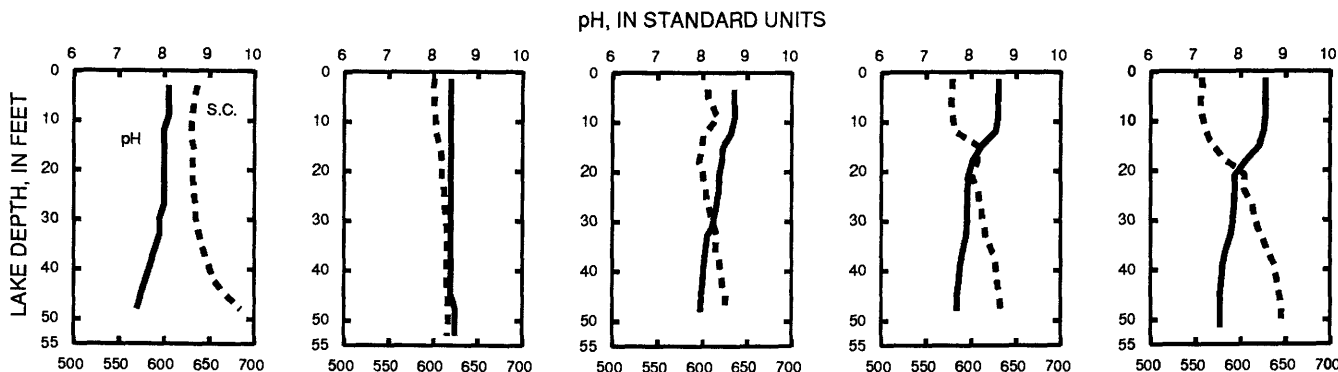
7-17-91

8-20-91

## 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

379

431006088191000 LAKE KEESUS, NORTH BAY, NEAR MERTON, WI

LOCATION.--Lat 43°10'06" long 88°19'10", in NW 1/4 SW 1/4 sec.12, T.8 N., R.18 E., Waukesha County, Hydrologic Unit 07090001, 1.4 mi northwest of Merton.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--April to September 1991.

GAGE.--Staff read by Laura Milbrath. Elevation of lake is 957 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 11.21 ft, Apr. 16; minimum observed, 10.50 ft, Sept. 3 and 9.

GAGE HEIGHT, FEET, APRIL TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	10.92	---	---
3	---	---	---	---	---	---	---	---	---	---	---	10.50
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	10.68	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	10.50
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	10.90	10.78	---
13	---	---	---	---	---	---	---	---	10.94	---	---	10.60
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	10.88	---	---
16	---	---	---	---	---	---	11.21	---	11.10	---	---	10.68
17	---	---	---	---	---	---	---	---	---	10.83	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	10.68	---
20	---	---	---	---	---	---	---	---	---	---	10.68	10.68
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	10.86	---	---
23	---	---	---	---	---	---	---	---	---	---	---	10.60
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	10.90	---	---	---
27	---	---	---	---	---	---	---	---	---	---	10.54	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	10.78	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in north bay at a lake depth of about 30 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 16 TO AUGUST 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 16	June 13	July 17	Aug. 20
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	11.21	10.94	10.83	10.68
Specific conductance (μS/cm)	353	334	327	328
pH (units)	8.3	8.9	8.8	8.7
Water temperature (°C)	8.3	25.0	25.4	23.9
Secchi-depth (meters)	2.0	1.1	2.7	2.0
Dissolved oxygen	10.4	10.0	8.2	8.7
Phosphorus, total (as P)	0.028	0.017	0.014	0.017
Chlorophyll a, phytoplankton (μg/L)	15.0	5.0	4.0	5.0

LOCATION.--Lat 43°09'57" long 88°18'34", in SW 1/4 SE 1/4 sec.12, T.8 N., R.18 E., Waukesha County, Hydrologic Unit 07090001, 1.2 mi north of Merton.

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled in east bay at a lake depth of about 46 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 16 TO AUGUST 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 16		June 13		July 17		Aug. 20	
Depth of sample (ft)	1.5	42.0	1.5	44.0	1.5	42.0	1.5	43.0
Lake stage (ft)	11.21		10.94		10.83		10.68	
Specific conductance (µS/cm)	358	371	334	398	327	412	329	432
pH (units)	7.8	8.1	8.8	7.5	8.6	7.2	8.8	7.1
Water temperature (°C)	8.2	8.1	24.2	9.4	25.5	9.5	23.4	9.4
Color (Pt-Co. scale)	10	10	---	---	---	---	---	---
Turbidity (NTU)	1.5	1.5	---	---	---	---	---	---
Secchi-depth (meters)	2.0		1.1		2.7		2.0	
Dissolved oxygen	10.1	9.8	10.0	0.1	8.0	0.0	8.9	0.1
Hardness, as CaCO <sub>3</sub>	170	180	---	---	---	---	---	---
Calcium, dissolved (Ca)	33	34	---	---	---	---	---	---
Magnesium, dissolved (Mg)	22	23	---	---	---	---	---	---
Sodium, dissolved (Na)	6.0	6.0	---	---	---	---	---	---
Potassium, dissolved (K)	1.88	2.10	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	165	165	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	9.0	9.0	---	---	---	---	---	---
Fluoride, dissolved (F)	0.09	<0.10	---	---	---	---	---	---
Chloride, dissolved (Cl)	13	13	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	0.3	0.4	---	---	---	---	---	---
Solids, dissolved, at 180°C	202	202	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.021	0.035	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.152	0.160	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.9	0.9	---	---	---	---	---	---
Phosphorus, total (as P)	0.027	0.030	0.016	0.520	0.014	0.400	0.016	0.500
Phosphorus, ortho, dissolved (as P)	0.002	0.003	---	---	---	---	---	---
Iron, dissolved (Fe) µg/L	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) µg/L	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton (µg/L)	13	---	5.0	---	4.0	---	5.0	---

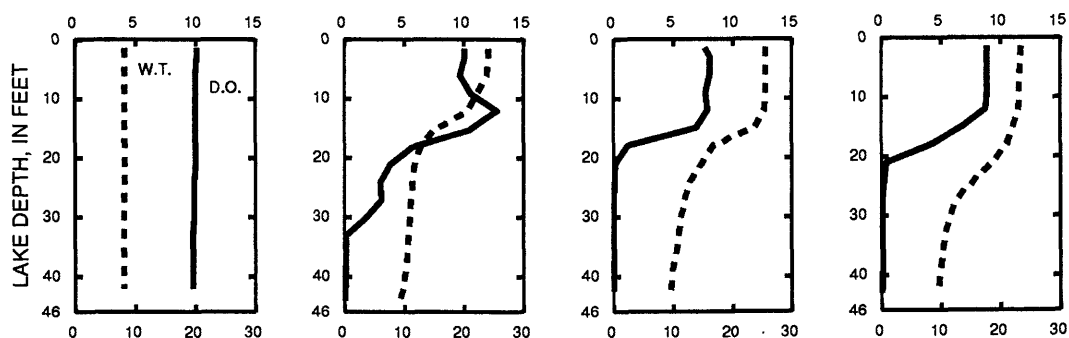
4-16-91

6-13-91

7-17-91

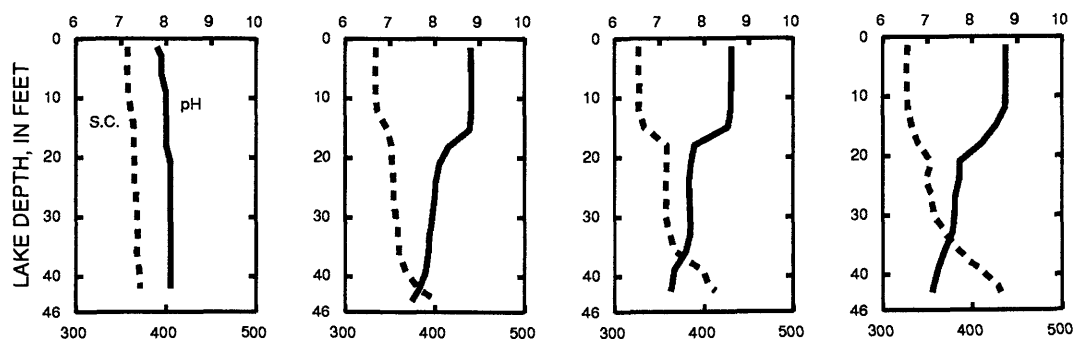
8-20-91

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



DRAINAGE AREA.--80.7 mi<sup>2</sup>.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 4.95 ft, Mar. 7; minimum observed, 4.36 ft, Dec. 19.

[illegible]

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1984 to current year.

REMARKS.--A detailed water quality management plan has been developed for Okauchee Lake by Southeastern Wisconsin Regional Planning Commission; previous water-quality data are available in this report. Lake sampled near center at a lake depth of about 88 feet. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 22		June 13		July 16		Aug. 21	
Depth of sample (ft)	3.0	89.0	1.5	89.0	1.5	88.0	1.5	90.0	1.5	91.0
Lake stage (ft)		4.41		4.78		4.78		4.62		4.66
Specific conductance ( $\mu\text{S}/\text{cm}$ )	524	555	513	506	517	532	499	538	477	565
pH (units)	8.3	7.6	8.3	8.2	8.5	7.9	8.5	7.7	8.5	7.5
Water temperature ( $^{\circ}\text{C}$ )	1.1	2.4	9.3	6.9	23.7	7.0	25.2	6.9	22.3	6.8
Color (Pt-Co. scale)	---	---	15	15	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.9	0.9	---	---	---	---	---	---
Secchi-depth (meters)	---	---	3.1	---	1.8	---	1.4	---	1.2	---
Dissolved oxygen	12.9	4.0	12.2	10.9	9.1	0.4	8.6	0.0	8.6	0.1
Hardness, as $\text{CaCO}_3$	---	---	270	270	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	50	50	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	35	35	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	10	10	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.29	2.33	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	224	224	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	36	36	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.09	0.05	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	24	24	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	0.40	0.90	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	320	348	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.25	0.22	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.041	0.103	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.60	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.015	0.017	0.006	0.016	0.010	0.020	0.009	0.020
Phosphorus, ortho, dissolved (as P)	---	---	0.003	0.004	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	6.0	---	4.0	---	4.0	---	5.0	---

2-5-91

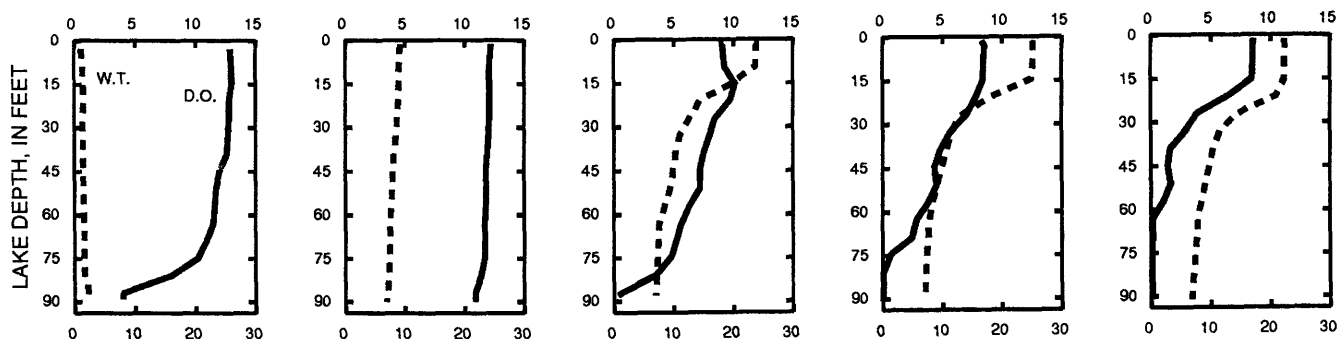
4-22-91

6-13-91

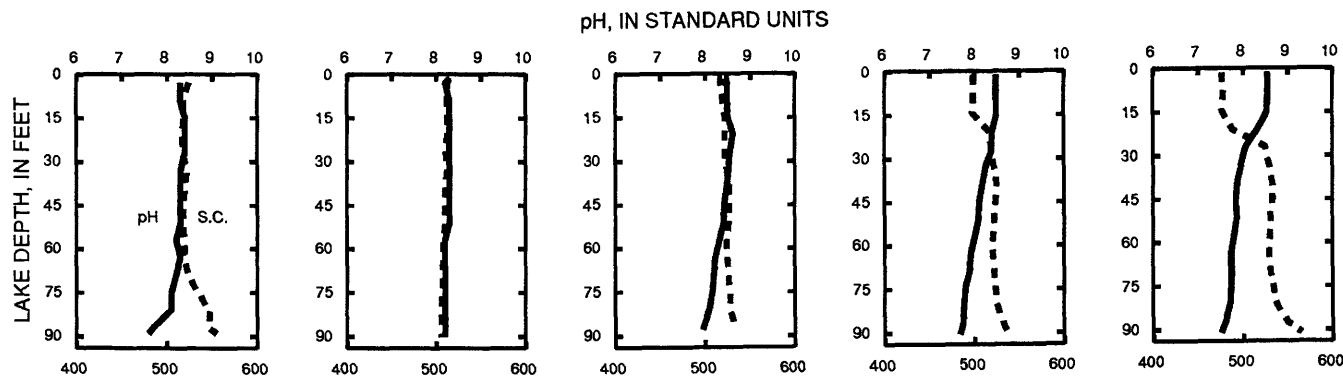
7-16-91

8-21-91

## 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 RECORDS

430759088244200 OKAUCHEE LAKE, NO. 1, NEAR OKAUCHEE, WI

LOCATION.--Lat 43°07'59", long 88°24'42", in NE 1/4 NW 1/4 sec.30, T.8 N., R.18 E., Waukesha County, Hydrologic Unit 07090001, near Okauchee.

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

REMARKS.--Sampling site is located in Crane's Nest Bay, in the northeast part of the lake, at a depth of 10 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 22 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 22	June 13	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	4.78	4.78	4.62	4.66
Specific conductance (μS/cm)	517	515	542	498
pH (units)	8.4	8.6	8.4	8.6
Water temperature (°C)	9.1	23.5	25.8	21.6
Secchi-depth (meters)	2.5	1.6	1.6	1.6
Dissolved oxygen	12.2	9.1	9.4	9.6
Phosphorus, total (as P)	0.011	0.006	0.015	0.013
Chlorophyll a, phytoplankton (μg/L)	5.0	4.0	4.0	6.0

430645088264500 OKAUCHEE LAKE, NO. 2, AT OKAUCHEE, WI

LOCATION.--Lat 43°06'45", long 88°26'45", in NE 1/4 NE 1/4 sec.35, T.8 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Okauchee.

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

REMARKS.--Sampling site is located in Lower Okauchee Lake, at a depth of 10 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 22 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 22	June 13	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	4.78	4.78	4.62	4.66
Specific conductance (μS/cm)	513	491	466	442
pH (units)	8.3	8.7	8.7	8.7
Water temperature (°C)	11.7	25.2	27.1	22.9
Secchi-depth (meters)	2.2	2.0	1.5	1.5
Dissolved oxygen	11.2	9.7	11.0	8.3
Phosphorus, total (as P)	0.012	0.009	0.016	0.023
Chlorophyll a, phytoplankton (μg/L)	5.0	4.0	6.0	6.0

430642088252400 OKAUCHEE LAKE, NO. 3, AT OKAUCHEE, WI

LOCATION.--Lat 43°06'42", long 88°25'24", in NE 1/4 NE 1/4 sec.36, T.8 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Okauchee.

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

REMARKS.--Sampling site is located in Ice House Bay, in the south bay of Okauchee Lake, at a depth of 10 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 22 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 22	June 13	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	4.78	4.78	4.62	4.66
Specific conductance (μS/cm)	508	512	491	457
pH (units)	8.4	8.6	8.5	8.6
Water temperature (°C)	11.1	25.0	26.4	22.1
Secchi-depth (meters)	1.7	1.6	1.4	1.5
Dissolved oxygen	11.1	9.4	9.1	8.8
Phosphorus, total (as P)	0.014	0.008	0.015	0.012
Chlorophyll a, phytoplankton (μg/L)	7.0	3.0	7.0	6.0

ROCK RIVER BASIN  
WATER-QUALITY RECORDS

430757088261700 OKAUCHEE LAKE, NO. 4, AT OKAUCHEE, WI

LOCATION.--Lat 43°07'57", long 88°26'17", in NW 1/4 NW 1/4 sec.25, T.8 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Okauchee.

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

REMARKS.--Sampling site is located near Crazyman's Island, in the northwest bay of Okauchee Lake, at a depth of 10 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 22 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 22	June 13	July 16	Aug. 21
Depth of sample (ft)	1.5	1.5	1.5	1.5
Lake stage (ft)	4.78	4.78	4.62	4.66
Specific conductance ( $\mu$ S/cm)	512	508	490	471
pH (units)	8.3	8.6	8.5	8.6
Water temperature ( $^{\circ}$ C)	9.6	23.8	25.6	22.5
Secchi-depth (meters)	2.8	1.4	1.2	1.3
Dissolved oxygen	12.1	9.0	8.6	8.9
Phosphorus, total (as P)	0.011	0.008	0.008	0.010
Chlorophyll a, phytoplankton ( $\mu$ g/L)	6.0	4.0	4.0	4.0

LOCATION.--Lat 43°05'51", long 88°27'35", in NW 1/4 SE 1/4 sec.2, T.7 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Oconomowoc.

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

GAGE.--Staff gage at outlet read by Martha Ibach. Datum of gage is 854.08 ft above National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 9.28 ft, Oct. 5, 1986; minimum observed, 6.84 ft, Feb. 5, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 8.13 ft, Sept. 22; minimum observed, 6.84 ft, Feb. 5.

[illegible]

## WATER-QUALITY RECORDS

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

REMARKS.--Lake sampled near center at a lake depth of about 60 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 07, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 15		June 05		July 10		Aug. 07	
Depth of sample (ft)	3.0	59.0	1.5	62.0	1.5	61.0	1.5	63.0	1.5	62.0
Lake stage (ft)	6.84		7.51		8.05		8.01		7.99	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	520	537	516	529	518	404	498	548	504	565
pH (units)	8.1	7.8	8.1	8.4	8.2	8.0	8.4	8.4	8.7	7.7
Water temperature ( $^{\circ}\text{C}$ )	1.1	2.6	7.4	7.3	22.9	8.9	25.5	9.0	23.0	9.0
Color (Pt-Co. scale)	---	---	10.0	5.0	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.5	0.6	---	---	---	---	---	---
Secchi-depth (meters)	---	---	4.6		2.4		4.2		2.1	
Dissolved oxygen	11.8	6.0	12.0	12.0	9.7	1.0	8.3	8.3	9.0	0.1
Hardness, as $\text{CaCO}_3$	---	---	250	250	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	45	45	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	34	34	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	12	12	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.28	2.31	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	218	218	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	33	33	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.07	0.09	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	28.0	27.0	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	3.0	3.0	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	300	306	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.202	0.153	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.113	0.110	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.60	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.008	0.008	0.007	0.011	0.007	0.122	0.007	0.097
Phosphorus, ortho, dissolved (as P)	---	---	0.004	0.004	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	3.0	---	2.0	---	2.0	---	2.0	---

2-5-91

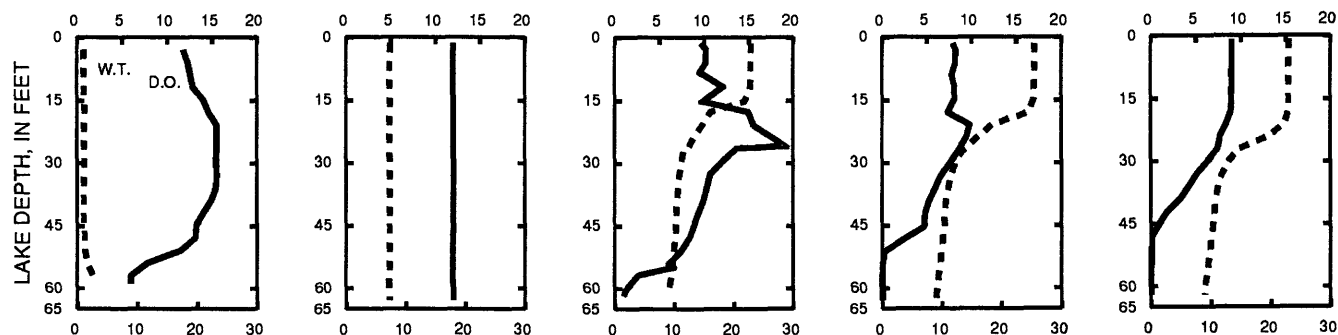
4-15-91

6-5-91

7-10-91

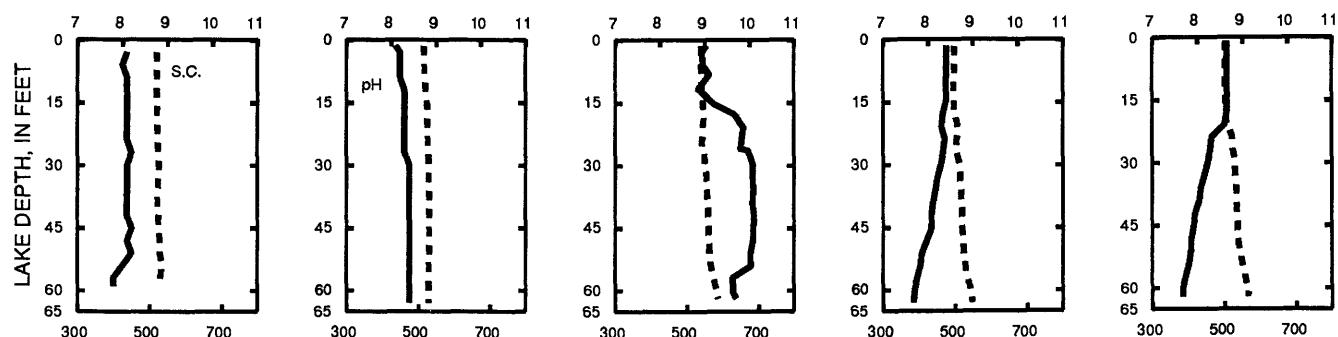
8-7-91

## 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

430609088262200 OCONOMOWOC LAKE NO. 2 (OFF HEWITT POINT) AT OCONOMOWOC, WI

## WATER-QUALITY RECORDS

LOCATION.--Lat 43°06'09", long 88°26'22", in NW 1/4 NW 1/4 sec.1, T.7 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Oconomowoc.

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

REMARKS.--Sampling site is located in northeast bay near Hewitt Point at a lake depth of about 48 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 07, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 15		June 05		July 10		Aug. 07	
Depth of sample (ft)	3.0	48.0	1.5	47.0	1.5	48.0	1.5	48.0	1.5	48.0
Lake stage (ft)		6.84		7.78		8.34		8.30		8.28
Specific conductance ( $\mu\text{S}/\text{cm}$ )	545	595	537	553	549	413	517	571	520	614
pH (units)	8.5	7.5	8.4	8.3	8.2	7.7	8.4	7.6	8.6	7.5
Water temperature ( $^{\circ}\text{C}$ )	1.6	3.3	7.8	6.9	23.2	8.7	25.7	8.9	22.9	8.9
Secchi-depth (meters)		---		4.4		2.2		3.2		2.8
Dissolved oxygen	11.6	2.8	12.0	10.7	9.8	1.0	8.6	0.0	9.5	0.1
Phosphorus, total (as P)	---	---	0.006	0.007	0.006	0.030	0.006	0.045	0.008	0.040
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	3.0	---	2.0	---	4.0	---	3.0	---

2-5-91

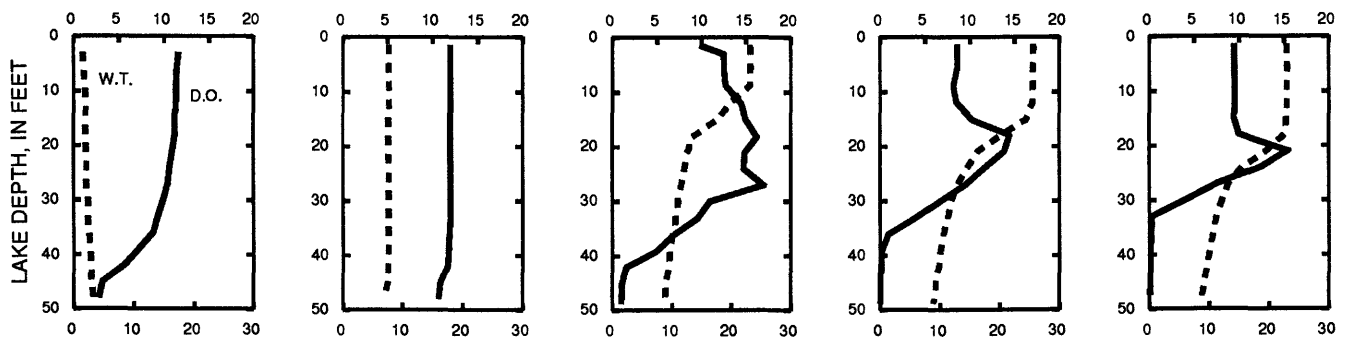
4-15-91

6-5-91

7-10-91

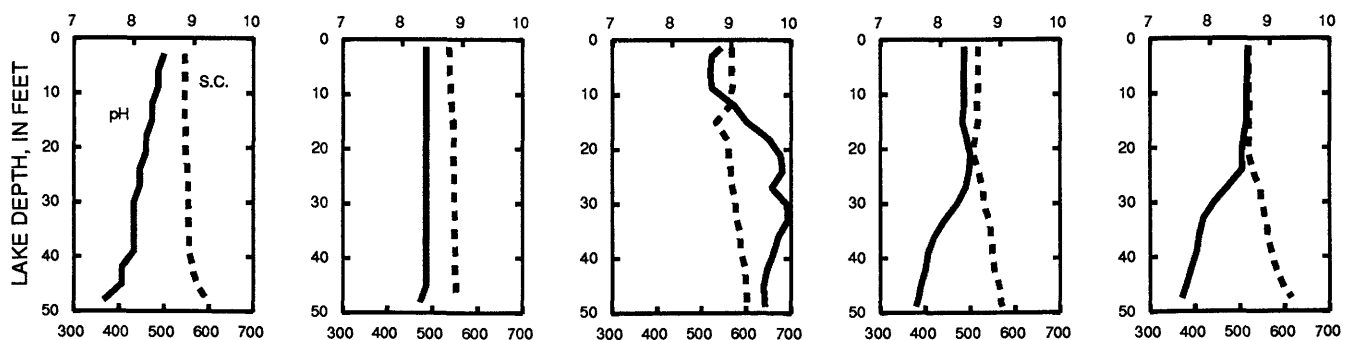
8-7-91

## 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

430653088294601 CENTER OF FOWLER LAKE AT OCONOMOWOC, WI

LOCATION.--Lat 43°06'53", long 88°29'46", in SE 1/4 NW 1/4 sec.33, T.8 N., R.17 E., Waukesha County,  
Hydrologic Unit 07090001, within City of Oconomowoc, at center of Fowler Lake.

DRAINAGE AREA.--87.8 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--January to December 1984, October 1986 to current year.

GAGE.--Staff gage at outlet read by City of Oconomowoc Engineering Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height observed, 9.45 ft, Oct. 6, 7, 9, 1986; minimum observed, 7.82 ft, Sept. 12, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 9.09 ft, Apr. 10; minimum observed, 8.02 ft, Sept. 3.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	8.40	---	---
2	8.65	---	---	8.75	---	---	9.06	8.80	---	8.76	---	---
3	---	---	---	---	---	---	---	---	---	---	---	8.02
4	---	---	---	---	8.79	---	---	---	---	---	---	---
5	---	---	8.77	---	---	---	---	---	8.95	---	---	---
6	---	8.80	---	---	---	---	---	---	---	---	8.22	---
7	---	---	---	---	---	8.95	---	---	---	---	8.21	---
8	---	---	---	---	---	---	---	8.63	---	---	---	---
9	---	---	---	---	---	---	---	---	---	8.80	---	---
10	---	---	---	8.70	---	---	9.09	---	---	8.78	---	---
11	---	---	---	---	---	---	---	---	8.70	---	---	---
12	8.69	---	8.80	---	---	---	---	---	---	---	---	8.78
13	---	---	---	---	8.76	---	---	---	---	---	---	---
14	---	8.84	---	---	---	9.00	---	---	---	---	8.24	---
15	---	---	---	---	---	---	---	8.45	---	---	---	---
16	---	---	---	8.72	---	---	9.08	---	---	8.54	---	---
17	8.72	---	---	---	---	---	9.06	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	8.79
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	8.78	8.98	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	8.88	---	8.16	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	8.72	---	---	8.73	---	---	---	8.80	---	8.52	---	---
24	---	---	---	---	---	---	8.94	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	8.75
26	---	8.75	---	---	---	---	---	---	8.71	---	---	---
27	---	---	---	---	8.83	9.02	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	8.10	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	8.76	---	---	8.84	---	---	---	---	---
31	8.77	---	---	---	---	---	---	8.82	---	8.44	---	---



430653088294601 CENTER OF FOWLER LAKE AT OCONOMOWOC, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--January to December 1984 and February 1987 to current year.

REMARKS.--Lake sampled near center at a lake depth of 52 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 04 TO AUGUST 07, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 04		Apr. 17		June 05		July 10		Aug. 07	
Depth of sample (ft)	3.0	50.0	1.5	48.0	1.5	48.0	1.5	49.0	1.5	48.0
Lake stage (ft)	8.79		9.06		8.95		8.78		8.21	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	504	578	510	532	510	366	486	531	478	550
pH (units)	8.3	7.6	8.2	8.2	7.9	7.6	8.4	7.6	8.9	7.6
Water temperature ( $^{\circ}\text{C}$ )	1.1	3.4	10.2	6.6	23.6	6.7	26.7	6.8	23.3	6.9
Color (Pt-Co. scale)	---	---	10	10	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.7	0.7	---	---	---	---	---	---
Secchi-depth (meters)	---	---	3.3		3.2		3.3		2.5	
Dissolved oxygen	10.8	3.0	11.7	9.6	9.6	1.1	8.2	0.0	9.5	0.1
Hardness, as $\text{CaCO}_3$	---	---	250	260	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	45	45	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	34	35	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	12	12	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.3	2.4	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	212	216	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	33	33	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	<0.10	<0.10	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	27	28	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	2.5	2.5	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	302	308	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.182	0.169	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.068	0.106	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.60	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.009	0.010	0.012	0.017	0.010	0.039	0.012	0.109
Phosphorus, ortho, dissolved (as P)	---	---	0.003	0.003	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	3.0	---	2.0	---	---	---	4.0	---

2-4-91

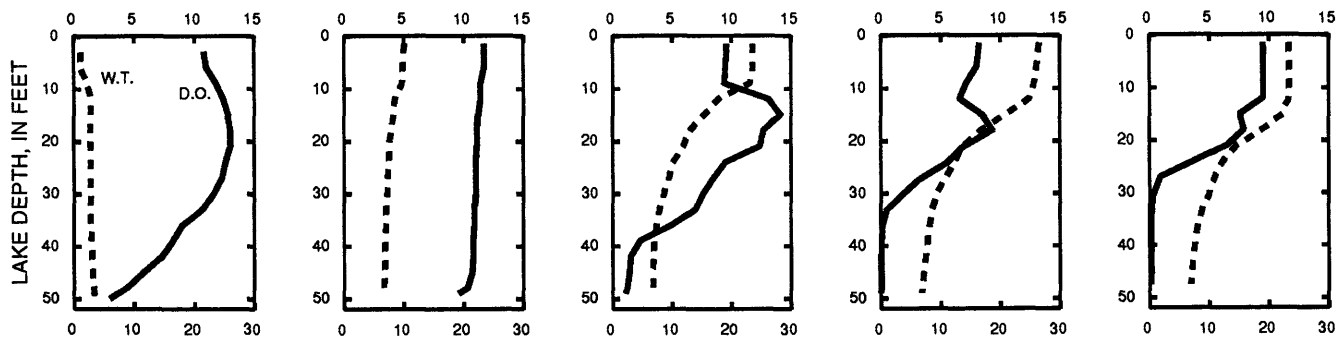
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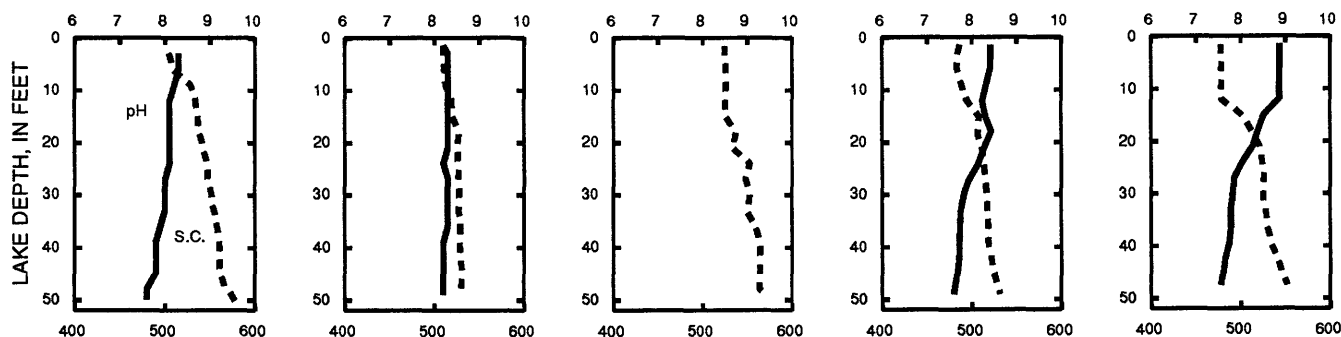
8-7-91

## 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

LOCATION.--Lat 43°07'33", long 88°30'59", in NW 1/4 SW 1/4 sec.29, T.8 N., R.17 E., Waukesha County, Hydrologic Unit 07090001, at Oconomowoc.

## LAKE-STAGE RECORDS

GAGE.--Staff gage at inlet. Previous measurements were made near the outlet at same datum.

REMARKS.--Lake levels controlled by town of Oconomowoc, Public Works Department. The Oconomowoc River flows through the lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height observed, 2.30 ft, Mar. 19, 1985; minimum observed, 0.76 ft, Apr. 11, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 2.12 ft, Apr. 15; minimum observed, 1.98 ft, Aug. 7.

[illegible]

430733088305900 LAC LA BELLE AT OCONOMOWOC, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1984 to August 1985, February to September 1991.

REMARKS.--A detailed water-quality management plan has been developed for Lac La Belle by Southeastern Wisconsin Regional Planning Commission; previous water-quality data are available in that report.

WATER-QUALITY DATA, APRIL 15 TO AUGUST 07, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 15		June 12		July 10		Aug. 07	
Depth of sample (ft)	1.5	42.0	1.5	45.0	1.5	45.0	1.5	44.0
Lake stage (ft)	2.12		2.02		2.08		1.98	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	509	527	508	538	486	546	499	593
pH (units)	8.3	8.3	8.6	7.9	8.5	7.7	8.7	7.5
Water temperature ( $^{\circ}\text{C}$ )	8.4	8.0	25.2	11.3	25.8	12.1	22.8	12.0
Color (Pt-Co. scale)	15.0	5.0	---	---	---	---	---	---
Turbidity (NTU)	2.2	1.2	---	---	---	---	---	---
Secchi-depth (meters)	1.6		2.1		1.8		1.6	
Dissolved oxygen	11.7	11.7	8.8	0.0	8.1	0.0	8.6	0.1
Hardness, as $\text{CaCO}_3$	240	240	---	---	---	---	---	---
Calcium, dissolved (Ca)	44	43	---	---	---	---	---	---
Magnesium, dissolved (Mg)	33	33	---	---	---	---	---	---
Sodium, dissolved (Na)	13	13	---	---	---	---	---	---
Potassium, dissolved (K)	2.23	2.35	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	207	209	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	33	33	---	---	---	---	---	---
Fluoride, dissolved (F)	0.09	0.09	---	---	---	---	---	---
Chloride, dissolved (Cl)	30	30	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	1.6	1.6	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	302	298	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	0.662	0.663	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.066	0.059	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.600	0.900	---	---	---	---	---	---
Phosphorus, total (as P)	0.011	0.015	0.006	0.012	0.008	0.017	0.007	0.031
Phosphorus, ortho, dissolved (as P)	0.003	0.003	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	5.0	---	4.0	---	2.0	---	4.0	---

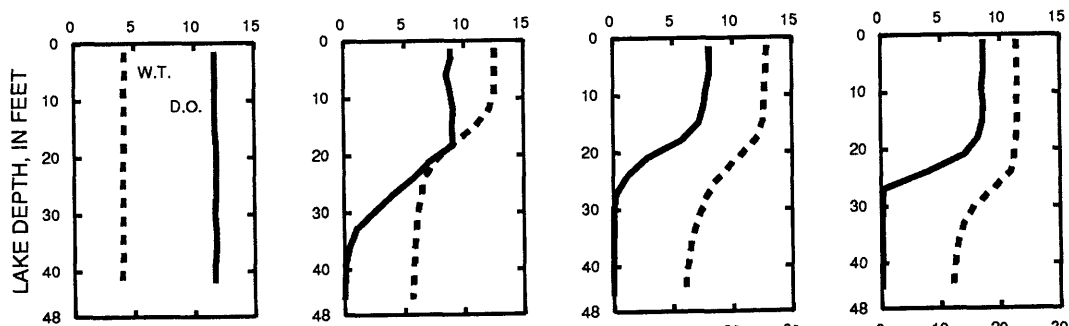
4-15-91

6-12-91

7-10-91

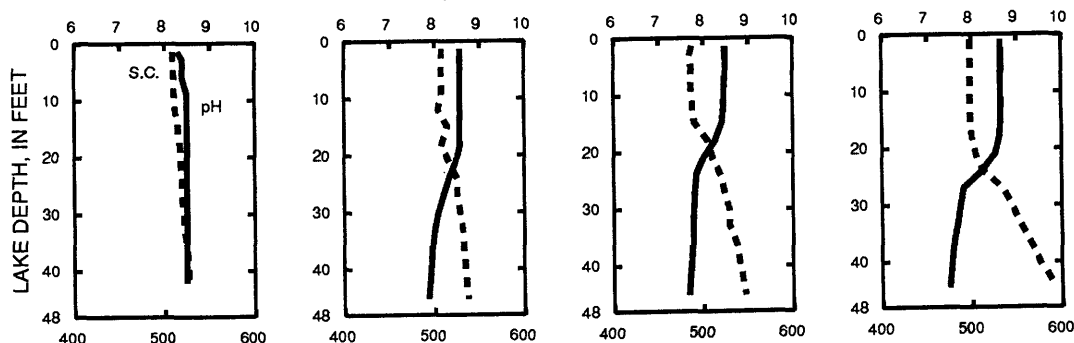
8-7-91

## 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

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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 26, 1933, nonrecording gage at site 700 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is poor. Some regulation caused by manipulation of gates at dams on Horicon Marsh, Lake Sinissippi, and other dams in the basin.

AVERAGE DISCHARGE.--54 years, (water years 1932-70, 1977-91), 476 ft<sup>3</sup>/s, 6.67 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,080 ft<sup>3</sup>/s, Mar. 31, 1979, gage height, 6.19 ft; maximum gage height, 6.32 ft, Apr. 4, 1959; minimum daily discharge, 0.9 ft<sup>3</sup>/s, Oct. 15, 1939, Sept. 9, 1944.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	1200	1,640	3.82	June 17	0930	1,140	3.28
Apr. 14	2230	*2,100	*4.23				

Minimum daily discharge, 59 ft<sup>3</sup>/s, Sept. 2, 10.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 2 to May 6; stage-discharge relation affected by ice Dec. 23 to Feb. 22.)

1.0	52	2.5	594
1.2	78	3.0	977
1.5	143	4.0	1,970
2.0	311	5.0	3,240

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	221	664	250	210	608	1740	1490	278	355	567	63
2	82	213	705	260	220	1460	1760	1400	346	361	497	59
3	89	209	749	250	230	1170	1780	1320	398	394	323	65
4	93	216	524	250	230	1150	1780	1220	403	446	219	65
5	93	218	566	250	240	1090	1800	1150	371	472	160	64
6	92	266	637	250	250	1190	1810	1060	325	461	129	70
7	97	374	620	250	250	1200	1790	890	291	402	121	70
8	99	508	691	240	260	1210	1780	693	266	324	171	68
9	96	560	608	240	260	1240	1870	510	240	295	177	64
10	123	487	430	240	260	1270	1990	534	223	272	216	59
11	148	390	338	240	250	1330	1920	571	211	257	242	60
12	235	328	303	250	250	1460	1860	590	201	239	224	250
13	387	301	308	250	250	1570	1870	583	193	221	197	304
14	489	287	287	250	250	1600	1980	486	220	207	179	306
15	525	272	312	250	260	1540	2080	358	436	194	164	331
16	547	254	333	250	260	1470	2040	277	734	175	152	478
17	589	254	362	260	260	1450	2010	229	879	154	138	497
18	619	242	380	260	270	1450	1990	223	896	141	129	565
19	669	228	466	260	280	1450	1960	225	930	134	120	522
20	687	223	549	250	300	1460	1920	218	938	129	124	415
21	706	237	584	240	350	1450	1900	246	932	136	121	349
22	723	232	541	230	450	1450	1870	265	946	130	110	294
23	731	226	400	220	602	1530	1830	275	933	154	101	249
24	775	232	350	220	593	1510	1810	289	915	244	90	220
25	745	218	310	210	619	1500	1770	294	882	375	81	196
26	650	230	300	210	601	1550	1720	295	856	455	76	182
27	453	259	290	210	552	1770	1680	295	846	501	72	186
28	313	357	290	200	495	1870	1640	284	819	529	72	184
29	243	508	280	200	---	1790	1600	275	745	566	70	171
30	218	616	270	200	---	1730	1550	273	555	564	71	160
31	223	---	250	200	---	1730	---	265	---	572	68	---
TOTAL	11627	9166	13697	7340	9302	44248	55100	17083	17208	9859	5181	6566
MEAN	375	306	442	237	332	1427	1837	551	574	318	167	219
MAX	775	616	749	260	619	1870	2080	1490	946	572	567	565
MIN	82	209	250	200	210	608	1550	218	193	129	68	59
CFSM	.39	.32	.46	.24	.34	1.47	1.90	.57	.59	.33	.17	.23
IN.	.45	.35	.53	.28	.36	1.70	2.12	.66	.66	.38	.20	.25

CAL YR 1990 TOTAL 191963 MEAN 526 MAX 2360 MIN 61 CFSM .54 IN. 7.37  
WTR YR 1991 TOTAL 206377 MEAN 565 MAX 2080 MIN 59 CFSM .58 IN. 7.92

## ROCK RIVER BASIN

393

05425830 MAUNESHA RIVER NEAR SUN PRAIRIE, WI

LOCATION.--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.

DRAINAGE AREA.--37.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to December 1990 (discontinued).

REMARKS.--Bacteria analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, OCTOBER TO DECEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ALKA- LITY (MG/L AS CACO3) (90410)
OCT 1990												
28...	1245	4.0	737	8.2	7.5	1.6	15.5	746	134	15	220	329
DEC												
08...	1300	6.1	768	7.8	1.0	2.0	10.8	739	79	18	80	333

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- PENDE (MG/L) (80154)
OCT 1990											
28...	40	30	0.10	0.010	5.00	0.030	0.80	0.050	0.040	0.020	7
DEC											
08...	51	33	<0.10	0.030	5.40	0.060	0.60	0.110	0.100	0.090	7

## ROCK RIVER BASIN

## 05425874 CAMBRA CREEK NEAR RANDOLPH, WI

LOCATION.--Lat 43°34'55", long 88°59'33", in NW 1/4 SE 1/4 sec.19, T.13 N., R.13 E., Dodge County, Hydrologic Unit 07090002, at bridge on Canada Island Road, 4.5 mi northwest of Fox Lake.

DRAINAGE AREA.--6.29 mi<sup>2</sup>.

PERIOD OF RECORD.-- June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUN 1991				AUG 1991			
27...	1330	0.93	0.460	08...	1110	4.7	0.620
JUL				08...	1720	4.1	0.550
02...	1305	1.1	0.620	14...	1420	1.1	0.360
21...	1100	17	0.870	SEP			
21...	1430	14	0.690	05...	1035	0.63	0.300
22...	1530	16	0.910	OCT			
29...	1335	2.6	0.460	01...	1045	0.77	0.170

## 05425876 TRIBUTARY NO. 2 TO CAMBRA CREEK NEAR FREISLAND, WI

LOCATION.--Lat 43°35'39", long 89°01'01", in NE 1/4 SW 1/4 sec.13, T.13 N., R.12 E., Dodge County, Hydrologic Unit 07090002, at bridge on State Highway 73, 3.7 mi northwest of Fox Lake.

DRAINAGE AREA.--2.02 mi<sup>2</sup>.

PERIOD OF RECORD.--June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUN 1991				AUG 1991			
25...	1200	0.51	0.050	08...	1130	1.7	0.140
JUL				08...	1535	1.8	0.120
02...	1540	--	0.080	08...	2135	2.0	0.100
21...	0255	1.3	0.430	09...	2136	1.4	0.060
21...	0655	7.1	1.43	12...	0935	0.79	0.050
21...	0750	9.9	1.01	14...	1445	0.62	0.050
21...	1115	8.3	0.430	SEP			
21...	1350	6.3	0.470	05...	1440	0.32	0.080
22...	0150	3.4	0.160	12...	0625	--	0.120
22...	0750	3.3	0.150	12...	1255	--	0.120
22...	1125	4.1	0.200	13...	1055	--	0.070
26...	1255	0.99	0.070	OCT			
				01...	1145	0.25	0.030

## 05425878 TRIBUTARY NO. 1 TO CAMBRA CREEK NEAR RANDOLPH, WI

LOCATION.--Lat 43°34'03", long 89°58'22", in SE 1/4 NW 1/4 sec.29, T.13 N., R.13 E., Dodge County, Hydrologic Unit 07090002, at bridge on County Trunk AA, 3.2 mi northeast of Fox Lake.

DRAINAGE AREA.--4.84 mi<sup>2</sup>.

PERIOD OF RECORD.--June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUN 1991				AUG 1991			
27...	1300	0.88	0.130	08...	1010	3.2	0.250
JUL				08...	1740	5.1	0.380
02...	1230	0.79	0.160	14...	1310	0.63	0.180
21...	1000	13	0.520	SEP			
21...	1345	14	0.530	05...	1025	0.22	0.410
22...	1510	11	0.450	OCT			
29...	1215	2.0	0.250	01...	1005	0.29	0.080

## 05425882 DREW CREEK NEAR FOX LAKE, WI

LOCATION.--Lat 43°36'18", long 88°52'30", in SW 1/4 SE 1/4 sec.11, T.13 N., R.13 E., Dodge County, Hydrologic Unit 07090002, at bridge on County Trunk F, 2.8 mi north of Fox Lake.

DRAINAGE AREA.--5.91 mi<sup>2</sup>.

PERIOD OF RECORD.--June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUN 1991				AUG 1991			
27...	1420	1.1	0.140	08...	0535	3.0	0.420
JUL				08...	1150	3.3	0.200
02...	1500	1.2	0.140	08...	1155	4.5	0.230
21...	0135	2.7	0.600	09...	1156	2.4	0.150
21...	0300	2.7	1.67	14...	1515	1.0	0.110
21...	0500	17	0.600	SEP			
21...	0755	32	0.560	05...	1420	0.60	0.140
21...	0955	43	0.790	13...	1115	--	0.200
21...	1025	48	1.63	OCT			
21...	1330	47	0.800	01...	1415	0.60	0.250
21...	2235	45	0.520				
22...	0630	6.9	0.350				
22...	1200	7.4	0.320				
26...	1230	1.8	0.130				

## ROCK RIVER BASIN

05425887 ALTO CREEK NEAR FOX LAKE, WI

LOCATION.--Lat 48°36'16", long 88°52'04", in SE 1/4 SE 1/4 sec.7, T.13 N., R.14 E., Dodge County, Hydrologic Unit 07090002, at bridge on County Trunk F, 3.4 mi northeast of Fox Lake.

DRAINAGE AREA.--8.69 mi<sup>2</sup>.

PERIOD OF RECORD.--June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUN 1991				AUG 1991			
27...	1500	5.2	0.050	08...	0405	E2.0	0.100
JUL				08...	1220	4.0	0.260
12...	1400	8.8	0.960	08...	1225	4.0	0.250
21...	0140	E6.0	0.120	08...	1825	E4.0	0.150
21...	0310	E26	2.05	10...	0625	E3.0	0.140
21...	1045	E30	6.93	12...	1225	E1.0	0.060
21...	1200	--	0.610	14...	1645	4.3	0.090
21...	1230	28	0.630	SEP			
22...	0030	E21	0.570	05...	1353	2.9	0.070
22...	1230	20	0.400	13...	1130	--	0.060
26...	1405	--	0.070	OCT			
				01...	1315	2.5	0.040

E Estimated.

05425891 BEAVERDAM RIVER (FOX LAKE OUTLET) AT FOX LAKE, WI

LOCATION.--Lat 43°33'32", long 88°55'13", in NE 1/4 NW 1/4 sec.35, T.13 N., R.13 E., Dodge County, Hydrologic Unit 07090002, at bridge on County Trunk P at Fox Lake.

DRAINAGE AREA.--58.1 mi<sup>2</sup>.

PERIOD OF RECORD.--June to October 1991.

## WATER-QUALITY DATA, JUNE TO OCTOBER 1991

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)
JUL 1991				SEP 1991			
02...	1755	8.6	0.240	05...	1305	23	0.140
22...	1420	8.7	0.160	OCT			
AUG				02...	0800	2.9	0.140
14...	1210	8.3	0.180				



## 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 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 839.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Mar. 27-28, and ice periods listed in rating table below. Records good except those for estimated daily discharges, which are fair, and those for Sept. 2-30, which are poor. Flow regulated by dam 0.8 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--6 years, 97.5 ft<sup>3</sup>/s, 8.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 754 ft<sup>3</sup>/s, Sept. 26, 1986, gage height, 9.35 ft; minimum daily, 0.64 ft<sup>3</sup>/s, Oct. 30, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 367 ft<sup>3</sup>/s, Apr. 15, gage height, 7.83 ft; minimum daily, 4.6 ft<sup>3</sup>/s, Sept. 6.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Aug. 1 to Sept. 30; stage-discharge relation affected by ice Dec. 15, Jan. 5, 6, and 12.)

4.8	3.5	6.0	78
5.0	8.4	6.5	138
5.1	12	7.0	213
5.4	27	7.5	301
5.7	48	8.0	403

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	57	109	26	21	54	155	91	21	25	21	13
2	46	59	102	26	21	98	155	87	23	17	19	13
3	49	66	190	25	22	108	127	72	23	17	20	18
4	55	67	223	25	23	141	84	70	27	15	20	16
5	49	111	239	25	23	207	50	72	29	15	17	8.2
6	49	113	217	30	23	261	37	83	28	14	14	4.6
7	51	139	170	56	23	310	40	77	26	16	13	8.7
8	50	130	166	49	24	322	50	72	25	15	30	14
9	51	133	163	33	24	318	147	63	22	15	28	19
10	59	137	127	32	24	312	227	41	24	12	27	37
11	47	130	94	33	25	304	222	38	23	11	26	24
12	49	156	69	33	25	299	241	40	20	16	25	27
13	48	84	44	34	25	297	259	42	16	15	26	19
14	53	44	27	29	26	288	275	42	26	13	25	20
15	54	38	23	25	26	281	315	42	46	11	26	24
16	50	49	24	25	26	275	329	42	50	10	21	27
17	52	38	25	24	26	274	315	43	55	11	25	22
18	90	34	25	23	37	277	306	36	78	11	23	30
19	55	37	25	24	65	277	316	44	116	10	26	25
20	51	31	26	23	71	275	301	43	147	13	18	18
21	64	36	26	23	70	271	288	27	188	30	16	14
22	57	38	26	22	70	260	231	21	192	24	21	14
23	57	54	26	22	69	261	188	20	177	33	17	19
24	80	36	26	22	68	260	154	20	124	32	17	17
25	81	40	26	22	67	182	117	20	75	28	18	20
26	57	32	26	22	43	93	114	20	34	27	19	24
27	65	41	25	21	32	60	111	20	17	24	19	15
28	57	62	26	21	32	110	118	19	14	24	18	13
29	30	93	28	21	---	130	89	20	15	27	18	11
30	18	96	27	21	---	124	88	18	14	25	19	13
31	40	---	26	21	---	129	---	18	---	23	20	---
TOTAL	1668	2181	2376	838	1031	6858	5449	1363	1675	579	652	547.5
MEAN	53.8	72.7	76.6	27.0	36.8	221	182	44.0	55.8	18.7	21.0	18.2
MAX	90	156	239	56	71	322	329	91	192	33	30	37
MIN	18	31	23	21	21	54	37	18	14	10	13	4.6
CFSM	.34	.46	.49	.17	.23	1.41	1.16	.28	.36	.12	.13	.12
IN.	.40	.52	.56	.20	.24	1.62	1.29	.32	.40	.14	.15	.13

CAL YR 1990 TOTAL 33455.4 MEAN 91.7 MAX 394 MIN 3.1 CFSM .58 IN. 7.93  
WTR YR 1991 TOTAL 25217.5 MEAN 69.1 MAX 329 MIN 4.6 CFSM .44 IN. 5.98

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to July 28, 1966, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is poor. Some diurnal fluctuation at lower flows, due to manipulation of gates on small dams upstream.

AVERAGE DISCHARGE.--60 years, 394 ft<sup>3</sup>/s, 7.02 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,140 ft<sup>3</sup>/s, Apr. 6, 1959, gage height, 11.15 ft; minimum observed, 0.2 ft<sup>3</sup>/s, Sept. 15, 1958, gage height, 1.11 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,250 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 9	1300	*1,950	*5.76	Apr. 19	1600	1,400	4.74
Mar. 29	1800	1,470	4.86				

Minimum daily discharge, 49 ft<sup>3</sup>/s, Sept. 9.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 22 to Mar. 2.)

1.6	40	3.5	778
1.8	68	4.0	1,030
2.0	110	5.0	1,540
2.5	283	6.0	2,080
3.0	510		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	140	235	100	130	410	1360	622	169	147	115	57
2	97	125	248	98	140	600	1280	595	194	161	112	50
3	81	162	264	98	150	1080	1200	542	256	164	110	55
4	125	178	184	96	160	1250	1130	497	289	167	106	66
5	116	193	187	120	170	1470	1040	480	280	170	90	56
6	118	168	207	110	180	1750	905	426	257	158	77	59
7	163	188	219	120	180	1890	859	418	233	154	76	61
8	146	183	229	110	200	1930	837	408	212	175	123	54
9	153	205	247	100	200	1940	897	396	186	156	153	49
10	150	233	266	100	200	1930	985	383	168	165	153	75
11	128	239	280	110	200	1850	1010	379	163	146	156	66
12	148	253	296	120	190	1770	1060	363	143	144	152	113
13	147	249	316	120	190	1720	1140	327	120	140	144	158
14	151	231	333	110	180	1600	1230	308	122	120	132	180
15	160	217	311	110	180	1420	1320	275	275	101	120	239
16	144	277	303	110	180	1370	1340	252	370	95	102	383
17	121	249	295	110	200	1400	1370	255	391	93	108	468
18	215	214	288	110	220	1440	1370	241	394	96	106	531
19	184	216	280	100	220	1360	1380	240	377	89	106	544
20	166	189	276	100	220	1290	1340	234	341	81	89	524
21	222	129	274	100	240	1230	1250	226	326	106	73	481
22	212	173	240	100	300	1220	1170	217	330	121	86	443
23	202	194	210	110	350	1150	1100	199	299	157	71	422
24	217	189	170	110	380	1230	1040	202	291	168	67	377
25	197	202	150	110	390	1210	962	212	283	177	65	330
26	165	179	120	110	380	1190	907	176	237	167	64	317
27	189	164	100	120	370	1280	846	192	221	150	66	274
28	193	179	110	120	350	1380	825	176	216	144	67	246
29	150	202	110	120	---	1440	746	163	192	151	63	215
30	174	152	100	130	---	1430	619	166	171	135	65	187
31	171	---	100	130	---	1390	---	167	---	114	69	---
TOTAL	4910	5872	6948	3412	6450	43620	32518	9737	7506	4312	3086	7080
MEAN	158	196	224	110	230	1407	1084	314	250	139	99.5	236
MAX	222	277	333	130	390	1940	1380	622	394	177	156	544
MIN	81	125	100	96	130	410	619	163	120	81	63	49
CFSM	.21	.26	.29	.14	.30	1.85	1.42	.41	.33	.18	.13	.31
IN.	.24	.29	.34	.17	.31	2.13	1.59	.48	.37	.21	.15	.35

CAL YR 1990 TOTAL 133775 MEAN 367 MAX 2720 MIN 56 CFSM .48 IN. 6.53  
WTR YR 1991 TOTAL 135451 MEAN 371 MAX 1940 MIN 49 CFSM .49 IN. 6.61

ROCK RIVER BASIN

399

05426031 ROCK RIVER AT JEFFERSON, WI

LOCATION.--Lat 42°59'46", long 88°48'26", in sec.2, T.6 N., R.14 E., Jefferson County, Hydrologic Unit 07090001, on right bank 30 ft downstream from bridge on State Highway 26, in Jefferson.

DRAINAGE AREA.--1,850 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage 774.97 ft above National Geodetic Vertical Datum of 1929 (levels by Wisconsin Department of Natural Resources). Auxiliary water-stage recorder 6.9 mi downstream from base gage to provide slope data.

REMARKS.--Estimated daily discharges: Period of ice effect, Dec. 25 to Mar. 1. Records good except for ice-affected period and discharges less than 200 ft<sup>3</sup>/s, which are poor.

AVERAGE DISCHARGE.--13 years, 1,309 ft<sup>3</sup>/s, 9.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft<sup>3</sup>/s, Apr. 1, 1979, gage height, 10.79 ft; maximum gage height, 10.84 ft, Apr. 2, 1979; minimum daily discharge, 42 ft<sup>3</sup>/s, Aug. 18, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,550 ft<sup>3</sup>/s, Mar. 7, gage height, 5.43 ft; maximum gage height, 5.80 ft, Apr. 16; minimum daily discharge, 93 ft<sup>3</sup>/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	375	766	380	350	1400	3180	2460	427	711	651	93
2	216	360	833	370	360	2430	3110	2390	487	600	649	97
3	240	341	793	370	380	2980	3030	2300	564	546	565	136
4	262	372	849	380	410	3090	2940	2190	646	566	430	131
5	273	380	832	370	420	3130	2900	2040	665	601	320	132
6	273	397	843	370	440	3030	2840	1980	618	584	258	128
7	237	444	889	380	450	3310	2740	1810	547	590	228	120
8	239	543	928	380	480	3130	2660	1620	494	563	348	129
9	241	658	940	390	500	2870	2700	1470	445	483	370	146
10	250	734	855	370	500	2940	2870	1240	412	438	361	136
11	284	707	745	360	500	2770	2960	1130	397	414	378	129
12	307	658	678	360	480	2840	3000	903	371	394	390	314
13	405	604	650	360	480	2840	3070	931	328	364	373	435
14	498	573	718	380	460	2990	3220	926	335	322	340	483
15	579	576	679	380	460	3000	3420	844	679	295	310	596
16	624	545	649	390	460	2940	3470	705	965	279	292	904
17	673	511	640	390	460	2900	3430	564	1160	270	278	1080
18	777	475	658	390	480	2960	3370	460	1250	255	261	1160
19	810	448	681	390	520	2900	3320	463	1290	246	229	1200
20	797	426	736	380	580	2830	3250	444	1300	243	210	1140
21	840	436	786	360	640	2780	3150	436	1290	311	218	1010
22	870	449	959	350	700	2720	3070	443	1310	311	202	888
23	883	448	890	340	980	2780	3000	450	1250	304	170	779
24	893	433	782	340	1100	2860	2940	459	1220	328	155	660
25	878	424	600	340	1100	2840	2890	450	1220	409	152	569
26	830	405	500	340	1100	2870	2810	448	1170	488	151	509
27	735	433	450	340	1100	3090	2730	462	1110	536	149	457
28	612	535	450	340	1100	3330	2690	465	1080	569	144	415
29	487	576	440	340	---	3380	2580	436	1010	626	147	392
30	424	711	430	340	---	3350	2510	445	883	644	141	364
31	397	---	420	350	---	3250	---	442	---	644	107	---
TOTAL	16060	14977	22069	11320	16990	90530	89850	31806	24923	13934	8977	14732
MEAN	518	499	712	365	607	2920	2995	1026	831	449	290	491
MAX	893	734	959	390	1100	3380	3470	2460	1310	711	651	1200
MIN	216	341	420	340	350	1400	2510	436	328	243	107	93
CFSM	.28	.27	.38	.20	.33	1.58	1.62	.55	.45	.24	.16	.27
IN.	.32	.30	.44	.23	.34	1.82	1.81	.64	.50	.28	.18	.30
CAL YR 1990	TOTAL 341144	MEAN 935	MAX 4270	MIN 190	CFSM .51	IN. 6.86						
WTR YR 1991	TOTAL 356168	MEAN 976	MAX 3470	MIN 93	CFSM .53	IN. 7.16						

## ROCK RIVER BASIN

05426250 BARK RIVER NEAR ROME, WI

LOCATION.--Lat 42°57'39", long 88°40'09", 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 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1979 to September 1982. October 1982 to September 1983 (fragmentary). October 1983 to present.

GAGE.--Water-stage recorder. Elevation of gage is 810 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 21 to Jan. 15, Aug. 25 to Sept. 17, and ice periods listed in rating table below. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--10 years (water years 1981-82, 1984-91), 86.0 ft<sup>3</sup>/s, 9.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 443 ft<sup>3</sup>/s, Apr. 6, 1982, gage height, 2.39 ft; maximum gage height, 2.40 ft Oct. 1, 1986; minimum, 3.0 ft<sup>3</sup>/s, Aug. 4, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 215 ft<sup>3</sup>/s, Mar. 29, gage height, 1.69 ft; minimum, 16 ft<sup>3</sup>/s, Aug. 5-7.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used June 30 to Aug. 24 and Sept. 18-26; stage-discharge relation affected by ice Jan. 21 to Feb. 4, Feb. 11-20, 25, and 26.)

0.5	12	1.0	73
0.6	18	1.5	171
0.7	28	2.0	293

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	47	78	68	52	100	206	122	75	37	35	17
2	29	47	76	68	54	175	199	112	73	28	29	17
3	30	46	67	68	60	176	189	118	72	45	27	17
4	34	55	67	68	64	175	174	122	70	44	25	25
5	30	69	79	70	68	164	156	117	66	47	17	31
6	31	79	78	72	71	154	127	117	62	51	16	30
7	30	83	78	72	73	153	127	114	59	50	16	23
8	28	83	78	70	77	143	133	115	58	43	31	21
9	28	87	78	68	80	131	157	116	56	43	26	22
10	30	89	78	66	80	124	169	111	53	43	24	25
11	35	89	78	66	76	124	172	109	46	40	24	40
12	38	90	81	68	68	123	174	107	31	43	24	70
13	40	94	83	70	66	131	191	100	30	40	24	86
14	44	124	82	68	66	119	191	87	47	40	24	82
15	46	108	83	68	64	109	191	70	54	41	26	80
16	52	92	83	66	64	107	187	72	45	42	33	82
17	86	87	83	66	62	104	192	73	43	42	34	82
18	76	82	84	65	60	107	201	76	43	41	32	80
19	67	76	85	65	66	97	205	80	42	49	31	79
20	70	69	80	65	68	110	194	76	39	43	29	77
21	69	68	74	64	77	116	185	73	40	48	29	76
22	63	64	68	62	82	122	173	73	46	51	30	75
23	63	57	64	60	85	132	150	78	46	36	28	61
24	60	58	62	60	82	130	141	85	46	34	27	33
25	58	58	60	58	76	137	141	85	44	35	24	35
26	58	58	60	58	68	174	138	85	46	38	22	44
27	54	62	60	56	68	195	149	83	45	38	20	68
28	47	70	62	54	69	200	161	79	43	36	18	66
29	47	75	66	54	---	206	151	75	42	38	17	53
30	47	77	68	52	---	215	142	74	40	36	17	27
31	47	---	68	52	---	214	---	78	---	36	17	---
TOTAL	1467	2243	2291	1987	1946	4467	5066	2882	1502	1278	776	1524
MEAN	47.3	74.8	73.9	64.1	69.5	144	169	93.0	50.1	41.2	25.0	50.8
MAX	86	124	85	72	85	215	206	122	75	51	35	86
MIN	28	46	60	52	52	97	127	70	30	28	16	17
CFSM	.39	.61	.61	.53	.57	1.18	1.38	.76	.41	.34	.21	.42
IN.	.45	.68	.70	.61	.59	1.36	1.54	.88	.46	.39	.24	.46
CAL YR 1990	TOTAL 28707	MEAN 78.6	MAX 239	MIN 22	CFSM .64	IN. 8.75						
WTR YR 1991	TOTAL 27429	MEAN 75.1	MAX 215	MIN 16	CFSM .62	IN. 8.36						

## ROCK RIVER BASIN

401

05426489 WHITEWATER LAKE INLET NEAR WHITEWATER, WI

LOCATION.--Lat 42°44'12", long 88°42'39", in NE 1/4 SW 1/4 sec.3, T.3 N., R.15 E., Walworth County, Hydrologic Unit 07090001, on south end of Whitewater Lake, about 600 ft north of Territorial Road in Walworth County park, and about 6.0 mi southeast of Whitewater.

DRAINAGE AREA.--0.50 mi<sup>2</sup>.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1990 to November 1991 (discontinued), discharge measurements only.

## WATER-QUALITY DATA, NOVEMBER 1990 TO NOVEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1990			
15...	1245	1.6	0.020
DEC			
18...	1255	1.5	0.040
JAN 1991			
25...	1225	1.4	0.010
FEB			
21...	1200	1.7	0.040
MAR			
02...	1105	<5.0	0.110
15...	1115	1.5	0.010
APR			
16...	1255	1.8	0.030
MAY			
16...	1130	1.5	0.030
JUN			
12...	1300	1.5	0.040
JUL			
16...	1100	1.3	0.020
AUG			
15...	1110	1.2	0.020
SEP			
18...	1300	1.2	0.010
OCT			
14...	0945	1.3	0.020
NOV			
19...	1300	1.5	0.020

## ROCK RIVER BASIN

05426489 WHITEWATER LAKE INLET NEAR WHITEWATER, WI

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October to November 1990 and April to November 1991 (discontinued).

GAGE.--Digital recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OCTOBER 1990 TO SEPTEMBER 1991.--Maximum daily rainfall, 1.70 in., Aug. 8.

EXTREMES FOR PERIOD OCTOBER TO NOVEMBER 1991.--Maximum daily rainfall, 2.52 in., Oct. 24.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	---	---	---	---	---	.00	.09	.16	.00	.00
2	---	.00	---	---	---	---	---	.00	.00	.00	.00	.00
3	---	.66	---	---	---	---	---	.00	.00	.05	.00	.91
4	---	.62	---	---	---	---	.04	.00	.00	.10	.00	.00
5	---	.57	---	---	---	---	.01	.47	.00	.00	.00	.01
6	---	.41	---	---	---	---	.01	.00	.00	.00	.00	.00
7	---	.03	---	---	---	---	.00	.00	.00	.24	.19	.01
8	---	.03	---	---	---	---	1.06	.02	.00	.00	1.70	.00
9	---	.15	---	---	---	---	.40	.00	.00	.00	.00	.01
10	---	.01	---	---	---	---	.00	.00	.00	.00	.00	.00
11	---	.03	---	---	---	---	.04	.00	.00	.00	.00	.29
12	---	.00	---	---	---	---	.16	.00	.54	.78	.00	.67
13	---	---	---	---	---	---	.09	.03	.00	.11	.00	.01
14	---	---	---	---	---	---	.55	.00	.51	.01	.00	.74
15	---	---	---	---	---	---	.46	.00	.35	.00	.00	.74
16	---	---	---	---	---	---	.00	.04	.00	.00	.04	.07
17	---	---	---	---	---	---	.00	.14	.01	.02	.05	.00
18	---	---	---	---	---	---	.00	.62	.00	.00	.00	.08
19	---	---	---	---	---	---	.01	.01	.00	.01	.00	.00
20	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
21	.09	---	---	---	---	---	.00	.00	.33	.94	.00	.01
22	.01	---	---	---	---	---	.00	.04	.01	.03	.00	.02
23	.00	---	---	---	---	---	.42	.03	.00	.00	.00	.01
24	.01	---	---	---	---	---	.00	.22	.00	.00	.00	.04
25	.01	---	---	---	---	---	.00	.29	.01	.00	.00	.00
26	.00	---	---	---	---	---	.00	.01	.00	.00	.00	.00
27	.00	---	---	---	---	---	.23	.00	.00	.00	.00	.00
28	.00	---	---	---	---	---	.01	.00	.00	.08	.00	.01
29	.00	---	---	---	---	---	.36	.02	.00	.23	.01	.00
30	.00	---	---	---	---	---	.00	.62	.00	.01	.05	.00
31	.00	---	---	---	---	---	---	.05	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.61	1.85	2.77	2.04	3.63

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY SUM VALUES

[illegible]

## ROCK RIVER BASIN

424501088422300 WHITEWATER LAKE, SOUTH BAY, NEAR WHITEWATER, WI

LOCATION.--Lat 42°45'01", Long 88°42'23", in SW 1/4 NE 1/4 sec.3, T.3 N., R.15 E., Walworth County, Hydrologic Unit 07090001, 5.7 mi southeast of Whitewater.

DRAINAGE AREA.--10.9 mi<sup>2</sup>, of which 8.5 mi<sup>2</sup> is non-contributing.

PERIOD OF RECORD.--April to November 1991 (discontinued).

WATER-QUALITY DATA, APRIL 03 TO JUNE 04, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 03		May 09		May 22		June 04	
Depth of sample (ft)	1.5	5.5	1.5	5.5	1.5	5.5	1.5	4.5
Lake stage (ft)	10.01		10.00		9.95		9.89	
Specific conductance (μS/cm)	419	420	401	407	322	354	292	294
pH (units)	8.4	8.4	8.8	8.6	9.4	8.8	9.5	9.3
Water temperature (°C)	8.6	8.4	14.2	12.2	22.2	16.6	24.4	23.5
Secchi-depth (meters)	1.2		0.9		1.1		1.0	
Dissolved oxygen	12.3	12.1	13.1	9.8	15.6	7.7	10.8	6.7
Phosphorus, total (as P)	0.023	0.029	0.039	0.053	0.028	0.046	0.048	0.065
Phosphorus, ortho, dissolved (as P)	0.004	0.003	0.004	0.007	0.004	0.014	0.014	0.011
Chlorophyll a, phytoplankton (μg/L)	9.0	---	23	---	3.0	---	6.0	---

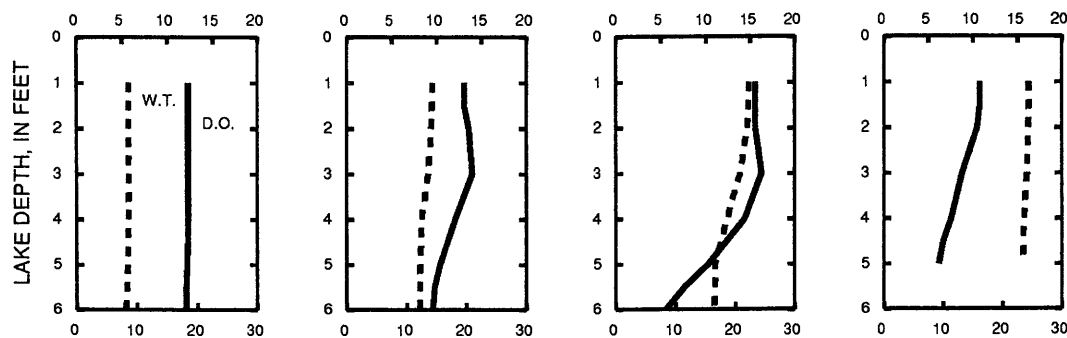
4-3-91

5-9-91

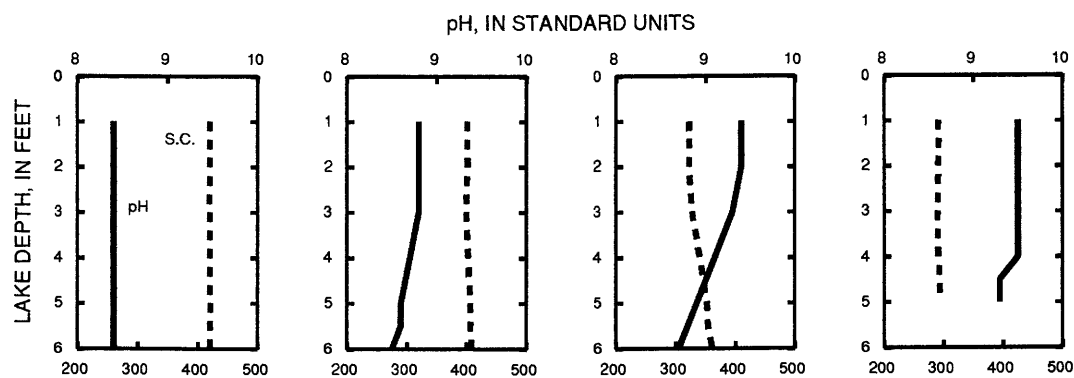
5-22-91

6-4-91

## 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



424501088422300 WHITEWATER LAKE, SOUTH BAY, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, JUNE 19 TO AUGUST 14, 1991  
(Milligrams per liter unless otherwise indicated)

	June 19		July 09		July 25		Aug. 14	
Depth of sample (ft)	1.5	4.5	1.5	3.5	1.5	4.0	1.5	3.5
Lake stage (ft)	9.72		9.39		9.31		9.21	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	289	295	305	313	324	325	318	322
pH (units)	9.6	9.5	9.6	9.3	9.2	9.2	9.4	9.3
Water temperature ( $^{\circ}\text{C}$ )	28.0	25.8	26.3	25.6	25.3	25.2	26.0	24.1
Secchi-depth (meters)	2.0		0.9		0.4		0.6	
Dissolved oxygen	15.6	9.1	11.4	7.5	6.4	5.7	14.7	11.7
Phosphorus, total (as P)	0.051	0.042	0.050	0.072	0.036	0.034	0.066	0.074
Phosphorus, ortho, dissolved (as P)	0.011	0.014	0.012	0.014	0.008	0.007	0.012	0.011
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	7	---	24	---	12	---	38	---

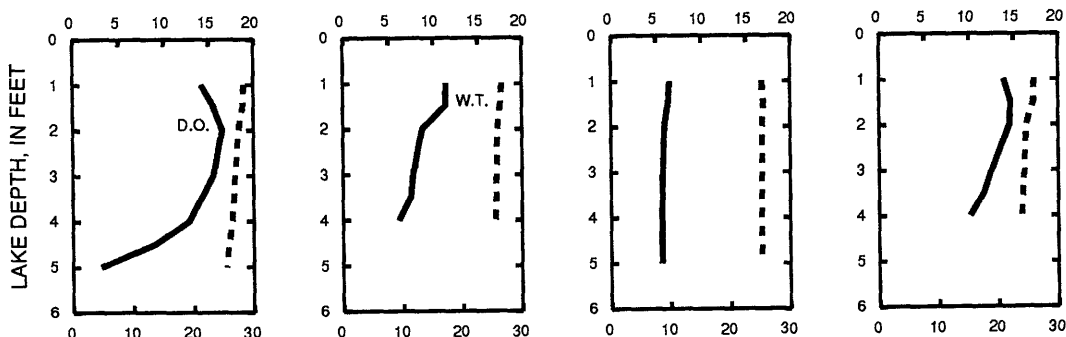
6-19-91

7-9-91

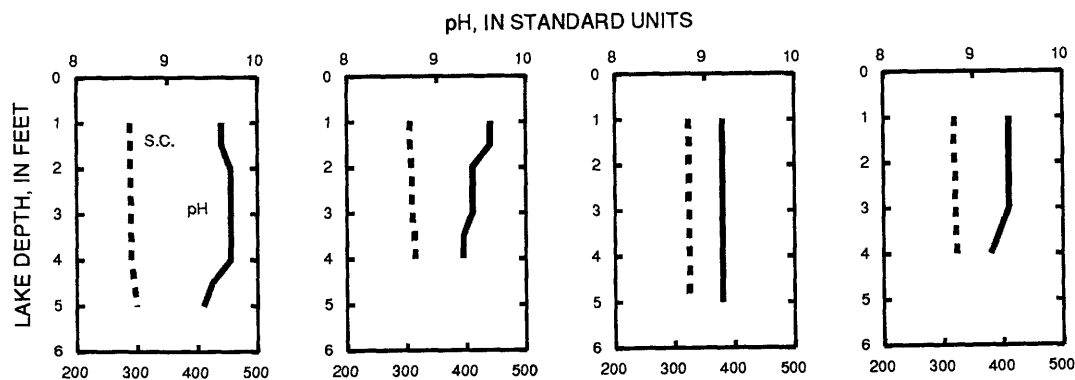
7-25-91

8-14-91

## 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

424501088422300 WHITEWATER LAKE, SOUTH BAY, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, AUGUST 27 TO NOVEMBER 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Aug. 27		Sept. 11		Sept. 25		Oct. 24		Nov. 20	
Depth of sample (ft)	1.5	3.5	1.5	3.5	1.5	3.5	1.5	3.5	1.5	3.5
Lake stage (ft)	9.04		8.91		8.94		8.99		9.31	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	324	326	333	336	332	333	356	358	350	350
pH (units)	9.3	9.2	9.3	9.3	9.5	9.6	9.6	9.6	9.3	9.3
Water temperature ( $^{\circ}\text{C}$ )	25.6	25.2	22.8	22.7	13.4	13.5	14.6	14.4	6.8	6.8
Secchi-depth (meters)	0.6		1.1		0.8		1.4		1.2	
Dissolved oxygen	11.0	8.6	8.9	8.2	9.4	9.4	10.0	9.5	13.7	13.7
Phosphorus, total (as P)	0.067	0.118	0.056	0.057	0.119	0.110	0.043	0.044	0.023	0.031
Phosphorus, ortho, dissolved(as P)	0.006	0.008	0.011	0.010	0.006	0.007	0.005	0.007	0.004	0.004
Chlorophyll a, phytoplankton( $\mu\text{g}/\text{L}$ )	40	---	30	---	22	---	9.0	---	6.0	---

8-27-91

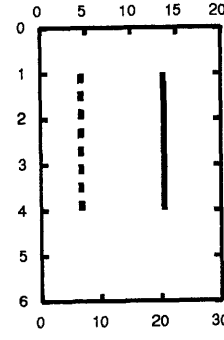
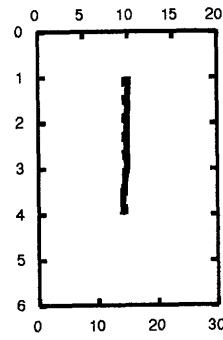
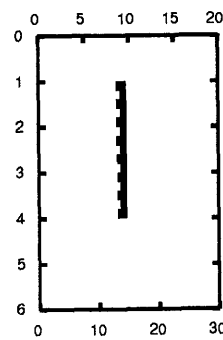
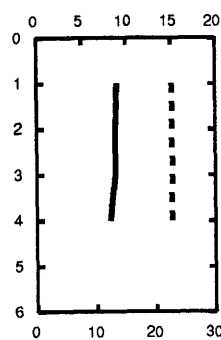
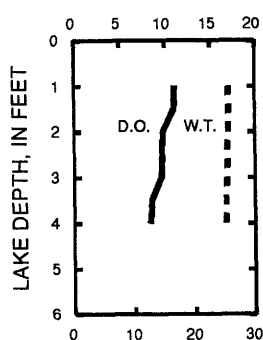
9-11-91

9-25-91

10-24-91

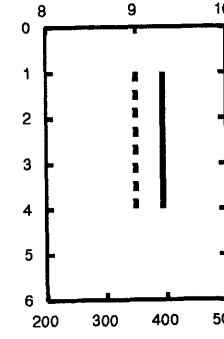
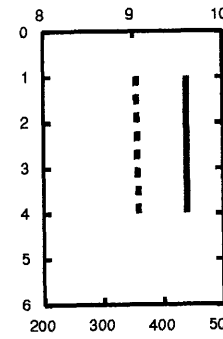
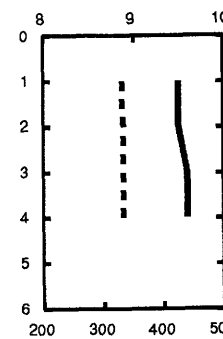
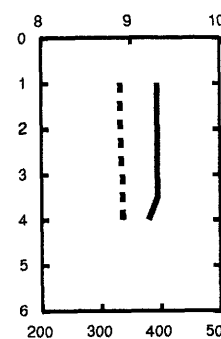
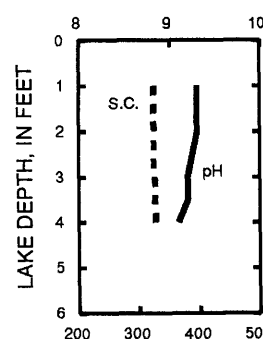
11-20-91

## 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

424533088420100 WHITEWATER LAKE, OFF HEART PRAIRIE, NEAR WHITEWATER, WI

LOCATION.--Lat 42°45'33", long 88°42'01", in NW 1/4 SW 1/4 sec.35, T.4 N., R.15 E., Walworth County, Hydrologic Unit 07090001, 5.3 mi southeast of Whitewater.

DRAINAGE AREA.--10.9 mi<sup>2</sup>, of which 8.5 mi<sup>2</sup> is non-contributing.

PERIOD OF RECORD.--April to November 1991 (discontinued).

WATER-QUALITY DATA, APRIL 03 TO MAY 22, 1991  
(Milligrams per liter unless otherwise indicated)

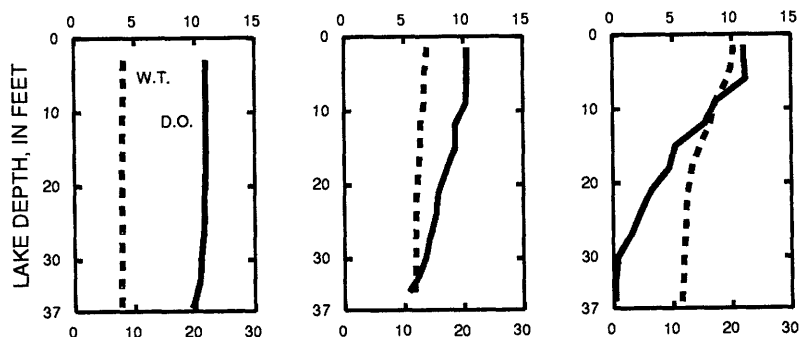
	Apr. 03		May 09		May 22		
Depth of sample (ft)	1.5	36.5	1.5	34.5	1.5	27.0	35.5
Lake stage (ft)	10.01		10.00		9.95		
Specific conductance (μS/cm)	394	407	396	412	377	418	426
pH (units)	8.2	8.2	8.4	8.0	8.7	7.8	7.7
Water temperature (°C)	8.2	7.8	14.0	11.8	20.3	12.1	11.5
Color (Pt-Co. scale)	10	10	---	---	---	---	---
Turbidity (NTU)	1.6	2.0	---	---	---	---	---
Secchi-depth (meters)	1.5		1.1		2.7		
Dissolved oxygen	10.9	9.7	10.3	5.4	11.0	1.5	0.2
Hardness, as CaCO3	210	200	---	---	---	---	---
Calcium, dissolved (Ca)	32	32	---	---	---	---	---
Magnesium, dissolved (Mg)	31	30	---	---	---	---	---
Sodium, dissolved (Na)	3.0	3.0	---	---	---	---	---
Potassium, dissolved (K)	0.80	0.82	---	---	---	---	---
Alkalinity, as CaCO3	193	193	---	---	---	---	---
Sulfate, dissolved (SO4)	13	13	---	---	---	---	---
Fluoride, dissolved (F)	0.08	<0.1	---	---	---	---	---
Chloride, dissolved (Cl)	11	11	---	---	---	---	---
Silica, dissolved (SiO2)	0.4	0.6	---	---	---	---	---
Solids, dissolved, at 180°C	216	218	---	---	---	---	---
Nitrogen, NO2 + NO3, diss. (as N)	0.026	0.025	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.026	0.118	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.7	0.8	---	---	---	---	---
Phosphorus, total (as P)	0.025	0.026	0.029	0.068	0.023	0.054	0.256
Phosphorus, ortho, dissolved (as P)	0.004	0.006	0.004	0.025	0.005	0.037	0.218
Iron, dissolved (Fe) μg/L	<50	<50	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	<40	<40	---	---	---	---	---
Chlorophyll a, phytoplankton (μg/L)	6.0	---	12	---	4.0	---	---

4-3-91

5-9-91

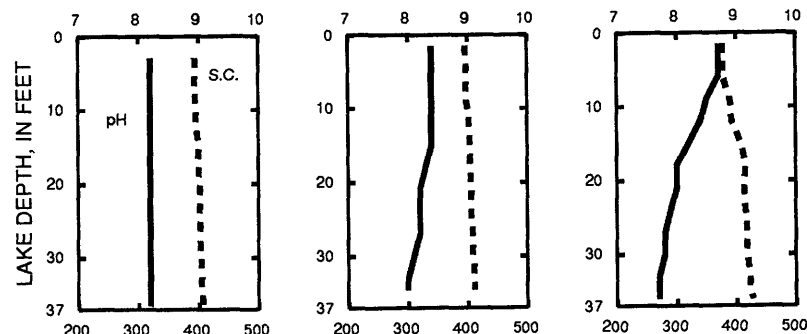
5-22-91

## 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

424533088420100 WHITEWATER LAKE, OFF HEART PRAIRIE, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, JUNE 04 TO JULY 25, 1991  
(Milligrams per liter unless otherwise indicated)

	June 04				June 19			
Depth of sample (ft)	1.5	21.0	30.0	35.5	1.5	18.0	30.0	34.5
Lake stage (ft)		9.89				9.72		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	334	405	410	415	316	408	420	427
pH (units)	9.0	7.8	7.7	7.6	9.0	7.7	7.7	7.6
Water temperature ( $^{\circ}\text{C}$ )	23.8	13.4	11.9	11.5	27.1	16.4	11.9	11.5
Secchi-depth (meters)		2.8				2.5		
Dissolved oxygen	9.0	1.3	0.1	0.1	9.6	2.0	0.1	0.1
Phosphorus, total (as P)	0.021	0.024	0.118	0.360	0.019	0.025	0.250	0.360
Phosphorus, ortho, dissolved (as P)	0.004	0.005	0.101	0.300	0.005	0.004	0.165	0.276
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	4.0	---	---	---	3.0	---	---	---

	July 09				July 25			
Depth of sample (ft)	1.5	12.0	24.0	34.5	1.5	12.0	24.0	32.5
Lake stage (ft)		9.39				9.31		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	311	313	415	438	301	302	430	450
pH (units)	9.3	9.2	7.7	7.5	9.5	9.5	7.6	7.5
Water temperature ( $^{\circ}\text{C}$ )	26.4	26.1	13.7	11.4	25.5	25.5	13.7	11.6
Secchi-depth (meters)		1.7				0.7		
Dissolved oxygen	9.6	8.5	0.1	0.1	7.8	7.7	0.1	0.1
Phosphorus, total (as P)	0.027	0.028	0.040	0.480	0.035	0.035	0.095	0.440
Phosphorus, ortho, dissolved (as P)	0.006	0.005	0.012	0.400	0.007	0.008	0.078	0.360
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	16	---	---	---	46	---	---	---

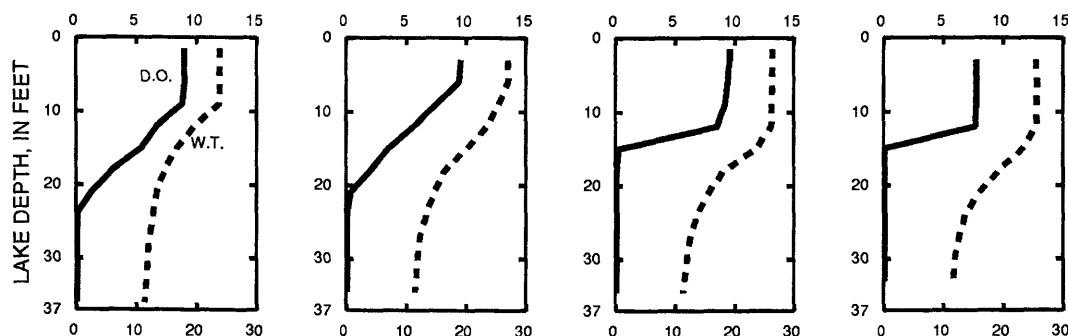
6-4-91

6-19-91

7-9-91

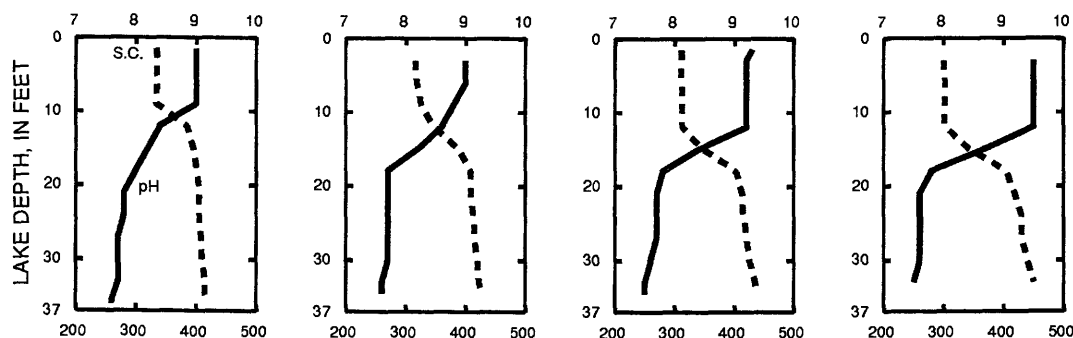
7-25-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

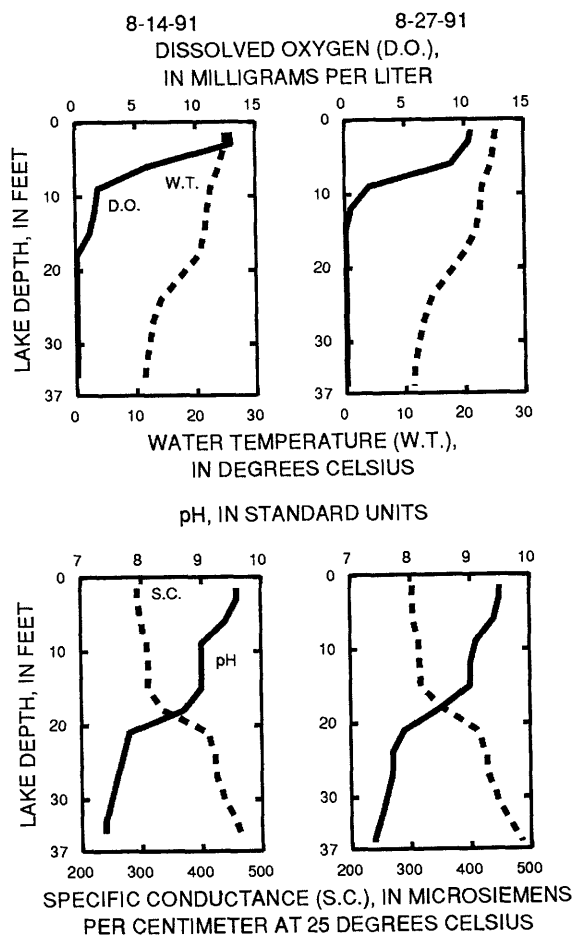


## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

424533088420100 WHITEWATER LAKE, OFF HEART PRAIRIE, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, AUGUST 14 TO AUGUST 27, 1991  
(Milligrams per liter unless otherwise indicated)

	Aug. 14				Aug. 27			
Depth of sample (ft)	1.5	15.0	27.0	34.5	1.5	12.0	24.0	35.5
Lake stage (ft)	9.21				9.04			
Specific conductance ( $\mu\text{S}/\text{cm}$ )	295	311	425	464	304	316	426	483
pH (units)	9.6	9.0	7.6	7.4	9.5	9.0	7.7	7.4
Water temperature ( $^{\circ}\text{C}$ )	25.0	21.5	12.8	11.4	25.3	22.6	14.4	11.4
Secchi-depth (meters)		0.50				0.50		
Dissolved oxygen	12.9	1.2	0.1	0.1	10.6	0.5	0.1	0.1
Phosphorus, total (as P)	0.052	0.032	0.210	0.530	0.042	0.048	0.109	0.680
Phosphorus, ortho, dissolved (as P)	0.011	0.010	0.157	0.410	0.009	0.008	0.083	0.580
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	62	---	---	---	55	---	---	---

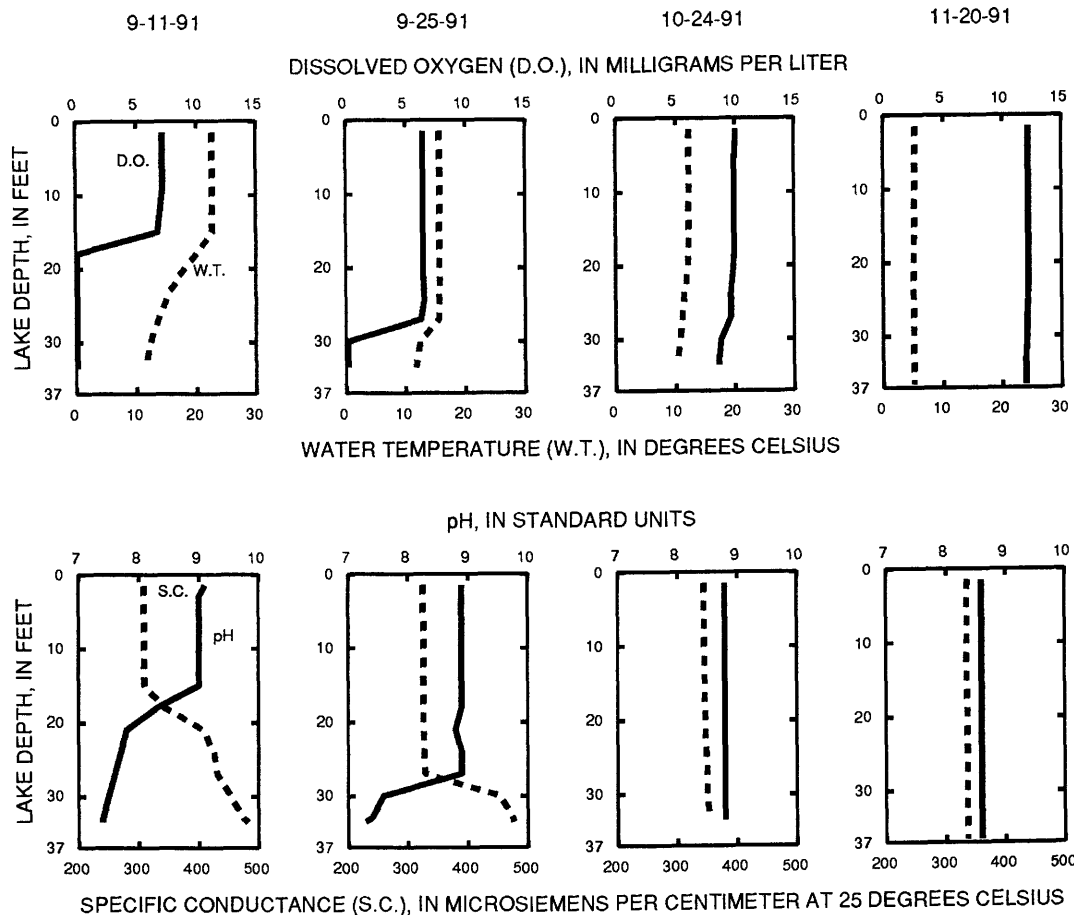


424533088420100 WHITEWATER LAKE, OFF HEART PRAIRIE, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, SEPTEMBER 11 TO NOVEMBER 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Sept. 11				Sept. 25			
Depth of sample (ft)	1.5	15.0	27.0	33.5	1.5	27.0	30.0	33.5
Lake stage (ft)	8.91				8.94			
Specific conductance ( $\mu\text{S}/\text{cm}$ )	309	309	431	482	325	329	454	477
pH (units)	9.1	9.0	7.6	7.4	8.9	8.9	7.6	7.3
Water temperature ( $^{\circ}\text{C}$ )	22.7	22.7	13.6	11.6	15.7	15.6	12.5	11.8
Secchi-depth (meters)		1.1				1.1		
Dissolved oxygen	7.2	6.8	0.1	0.1	6.5	6.3	0.1	0.1
Phosphorus, total (as P)	0.035	0.035	0.230	0.650	0.041	0.054	0.480	0.600
Phosphorus, ortho, dissolved (as P)	0.008	0.008	0.190	0.490	0.006	0.007	0.390	0.500
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	33	---	---	---	25	---	---	---

	Oct. 24		Nov. 20	
Depth of sample (ft)	1.5	33.5	1.5	36.5
Lake stage (ft)	8.99		9.31	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	345	354	336	336
pH (units)	8.8	8.8	8.6	8.6
Water temperature ( $^{\circ}\text{C}$ )	12.4	10.5	5.3	5.1
Secchi-depth (meters)		1.4		2.4
Dissolved oxygen	10.1	8.7	12.2	12.0
Phosphorus, total (as P)	0.034	0.067	0.029	0.034
Phosphorus, ortho, dissolved (as P)	0.005	0.019	0.006	0.007
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	16	---	5.0	---



424625088405500 WHITEWATER LAKE, NORTH BAY, NEAR WHITEWATER, WI

LOCATION.--Lat 42°46'25", long 88°40'55", in SE 1/4 SE 1/4 sec.26, T.4 N., R.15 E., Walworth County, Hydrologic Unit 07090001, 4.9 mi southeast of Whitewater.

DRAINAGE AREA.--10.9 mi<sup>2</sup>, of which 8.5 mi<sup>2</sup> is non-contributing.

PERIOD OF RECORD.--April to November 1991 (discontinued).

WATER-QUALITY DATA, APRIL 03 TO JUNE 19, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 03		May 09		May 22		June 04		June 19	
Depth of sample (ft)	1.5	11.0	1.5	11.0	1.5	9.5	1.5	9.5	1.5	9.5
Lake stage (ft)	10.01		10.00		9.95		9.89		9.72	
Specific conductance (μS/cm)	358	365	379	390	352	384	295	306	284	292
pH (units)	8.3	8.3	8.5	8.1	8.8	8.3	9.3	9.1	9.4	9.0
Water temperature (°C)	8.7	8.5	13.1	11.7	20.5	15.5	24.1	23.5	26.9	25.0
Secchi-depth (meters)	1.52		1.10		2.00		3.00		3.00	
Dissolved oxygen	11.0	10.0	10.4	6.0	12.0	6.4	9.7	7.0	11.1	3.1
Phosphorus, total (as P)	0.014	0.016	0.023	0.025	0.018	0.033	0.016	0.089	0.014	0.050
Phosphorus, ortho, dissolved (as P)	0.005	0.004	0.004	0.004	0.006	0.005	0.004	0.006	0.005	0.015
Chlorophyll a, phytoplankton (μg/L)	6.0	---	10.0	---	5.0	---	2.0	---	2.0	---

4-3-91

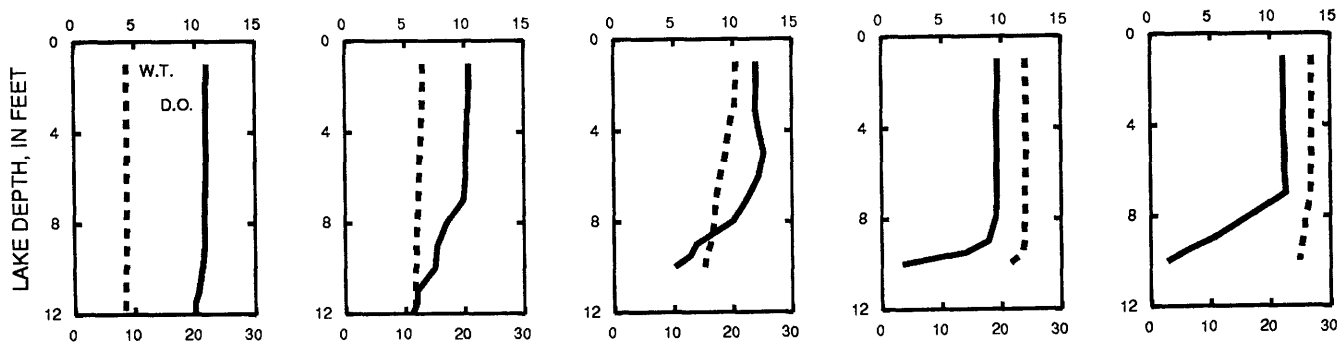
5-9-91

5-22-91

6-4-91

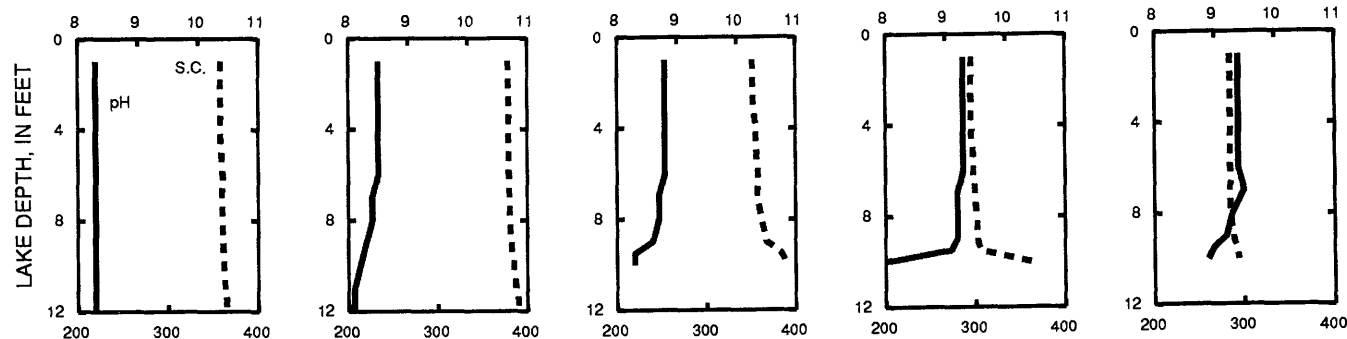
6-19-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS



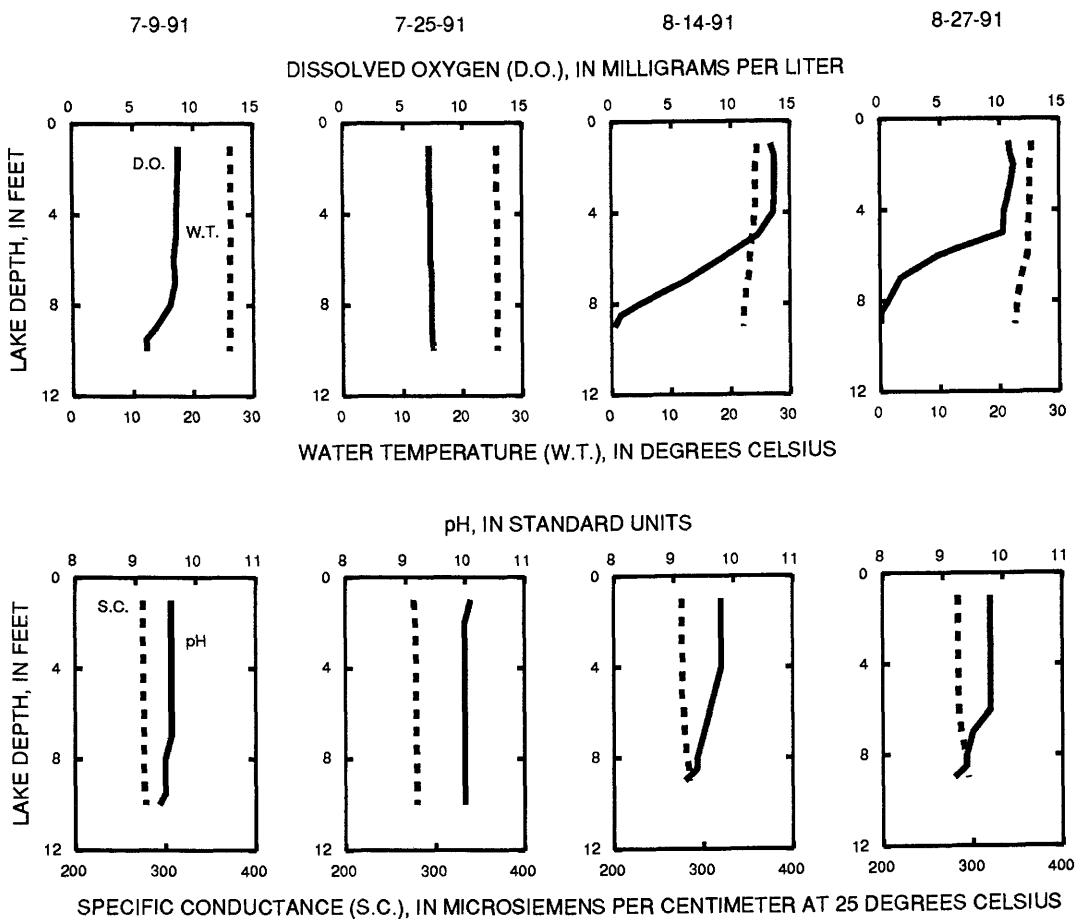
## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

## ROCK RIVER BASIN

424625088405500 WHITEWATER LAKE, NORTH BAY, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, JULY 09 TO AUGUST 27, 1991  
(Milligrams per liter unless otherwise indicated)

	July 09		July 25		Aug. 14		Aug. 27		
Depth of sample (ft)	1.5	9.5	1.5	9.5	1.500	8.500	1.500	7.000	8.500
Lake stage (ft)	9.39		9.31		9.21		9.04		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	275	277	276	279	276	284	284	287	293
pH (units)	9.6	9.5	10.1	10.0	9.8	9.4	9.8	9.5	9.4
Water temperature ( $^{\circ}\text{C}$ )	26.3	26.1	25.8	25.9	24.4	22.2	25.3	23.5	22.8
Secchi-depth (meters)	1.7		1.7		0.9		0.6		
Dissolved oxygen	8.8	6.1	7.2	7.4	13.7	0.8	10.9	1.7	0.1
Phosphorus, total (as P)	0.027	0.031	0.095	0.088	0.039	0.066	0.040	0.058	0.064
Phosphorus, ortho, dissolved (as P)	0.009	0.010	0.016	0.013	0.012	0.011	0.011	0.010	0.006
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	8.0	---	46.0	---	31.0	---	41.0	---	---

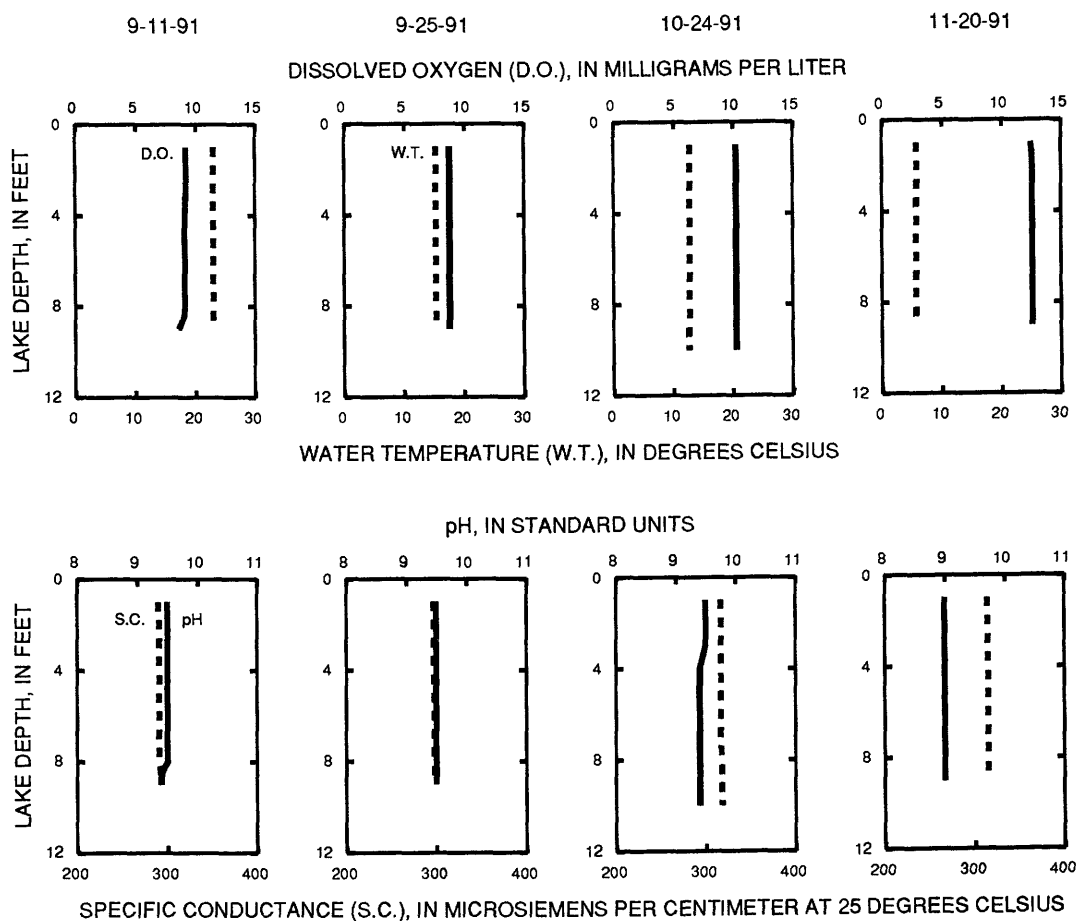




424625088405500 WHITEWATER LAKE, NORTH BAY, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, SEPTEMBER 11 TO NOVEMBER 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Sept. 11		Sept. 25		Oct. 24		Nov. 20	
Depth of sample (ft)	1.5	8.5	1.5	8.5	1.5	9.5	1.5	8.5
Lake stage (ft)	8.91		8.94		8.99		9.31	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	290	292	297	298	317	318	314	315
pH (units)	9.5	9.4	9.5	9.5	9.5	9.4	9.0	9.0
Water temperature ( $^{\circ}\text{C}$ )	23.0	23.0	15.3	15.3	12.8	12.6	5.8	5.7
Secchi-depth (meters)	1.0		1.2		1.4		1.8	
Dissolved oxygen	9.2	9.0	8.8	8.8	10.3	10.3	12.6	12.6
Phosphorus, total (as P)	0.033	0.035	0.044	0.038	0.034	0.032	0.023	0.023
Phosphorus, ortho, dissolved (as P)	0.009	0.010	0.012	0.011	0.005	0.006	0.004	0.004
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	29.0	---	23.0	---	16.0	---	7.0	---



## ROCK RIVER BASIN

424608088414800 WHITEWATER LAKE NEAR WHITEWATER, WI

LOCATION.--Lat 42°46'08", long 88°41'48", in NW 1/4 NW 1/4 sec.35, T.4 N., R.15 E., Walworth County, Hydrologic Unit 07090001, at outlet, 5.0 mi southeast of Whitewater and 10.0 mi north of Delavan.

DRAINAGE AREA.--10.9 mi<sup>2</sup>, of which 8.5 mi<sup>2</sup> is non-contributing.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder. Datum of gage is 880.98 ft above National Geodetic Vertical Datum of 1929 (Wisconsin Railroad Commission benchmark).

REMARKS.--Estimated daily gage height: Nov. 21, Jan. 21 to Feb. 1, May 26, June 4-6, 20-26, Aug. 2-4, 7-10, 31. Records good except estimated daily gage heights, which are fair. Lake was ice-covered from about Dec. 14 to about Mar. 22. Point of zero flow of dam crest is 10.97 ft.

EXTREMES FOR PERIOD NOVEMBER 1990 TO SEPTEMBER 1991.--Maximum gage height, 10.304 ft, Apr. 16; minimum daily gage height, 8.899 ft, Sept. 30.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	9.694	9.844	9.875	9.852	10.023	10.118	9.940	9.393	9.245	8.966
2	---	---	9.688	9.842	9.874	9.944	10.015	10.090	9.939	9.404	9.220	8.950
3	---	---	9.750	9.842	9.871	9.947	10.007	10.065	9.916	9.398	9.200	8.949
4	---	---	9.798	9.840	9.870	9.937	10.012	10.044	9.890	9.382	9.180	8.963
5	---	---	9.795	9.852	9.871	9.939	10.027	10.048	9.870	9.376	9.162	8.970
6	---	---	9.792	9.860	9.872	9.953	10.043	10.046	9.860	9.381	9.140	8.959
7	---	---	9.788	9.861	9.873	9.947	10.045	10.021	9.855	9.356	9.150	8.950
8	---	---	9.785	9.858	9.874	9.935	10.077	10.006	9.851	9.370	9.270	8.943
9	---	---	9.780	9.857	9.876	9.932	10.167	9.996	9.843	9.394	9.260	8.932
10	---	---	9.777	9.857	9.877	9.924	10.175	9.991	9.819	9.404	9.250	8.914
11	---	---	9.777	9.871	9.873	9.914	10.172	9.985	9.760	9.379	9.244	8.908
12	---	---	9.779	9.891	9.866	9.907	10.176	9.982	9.775	9.382	9.234	8.962
13	---	---	9.777	9.891	9.859	9.895	10.183	9.987	9.769	9.426	9.223	8.969
14	---	---	9.774	9.888	9.868	9.884	10.233	9.986	9.772	9.413	9.213	9.009
15	---	9.640	9.800	9.886	9.869	9.866	10.294	9.977	9.786	9.393	9.197	9.065
16	---	9.628	9.801	9.900	9.855	9.849	10.304	9.967	9.772	9.369	9.182	9.062
17	---	9.625	9.805	9.896	9.844	9.851	10.291	9.956	9.750	9.347	9.160	9.041
18	---	9.620	9.819	9.893	9.844	9.872	10.273	9.960	9.741	9.337	9.149	9.024
19	---	9.607	9.816	9.889	9.848	9.870	10.249	9.975	9.718	9.323	9.125	9.001
20	---	9.602	9.812	9.888	9.842	9.869	10.230	9.966	9.690	9.312	9.115	8.980
21	---	9.640	9.811	9.885	9.847	9.869	10.214	9.957	9.666	9.331	9.110	8.968
22	---	9.663	9.814	9.885	9.856	9.873	10.201	9.953	9.642	9.355	9.093	8.958
23	---	9.645	9.808	9.885	9.857	9.914	10.192	9.958	9.618	9.354	9.083	8.943
24	---	9.639	9.803	9.885	9.851	9.897	10.190	9.963	9.584	9.333	9.071	8.938
25	---	9.629	9.790	9.885	9.844	9.892	10.176	9.974	9.540	9.309	9.062	8.939
26	---	9.635	9.788	9.883	9.836	9.944	10.157	10.010	9.489	9.289	9.053	8.924
27	---	9.691	9.785	9.881	9.832	10.021	10.164	9.993	9.460	9.272	9.044	8.914
28	---	9.725	9.790	9.879	9.825	10.052	10.161	9.965	9.444	9.262	9.036	8.908
29	---	9.710	9.844	9.878	---	10.043	10.159	9.931	9.432	9.268	9.028	8.904
30	---	9.718	9.848	9.877	---	10.033	10.154	9.927	9.405	9.261	9.020	8.899
31	---	---	9.846	9.876	---	10.033	---	9.943	---	9.254	8.980	---
MEAN	---	---	9.791	9.874	9.859	9.924	10.159	9.992	9.720	9.349	9.145	8.960
MAX	---	---	9.848	9.900	9.877	10.052	10.304	10.118	9.940	9.426	9.270	9.065
MIN	---	---	9.688	9.840	9.825	9.849	10.007	9.927	9.405	9.254	8.980	8.899

424608088414800 WHITEWATER LAKE NEAR WHITEWATER, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--October to November 1990 and April to November 1991 (discontinued).

GAGE.--Digital recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OCTOBER 1990 TO SEPTEMBER 1991.--Maximum daily rainfall, 1.70 in., Aug. 8.

EXTREMES FOR PERIOD OCTOBER TO NOVEMBER 1991.--Maximum daily rainfall, 2.14 in., Oct. 24.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	.00	---	---	---	---	---	.00	.03	.15	.00	.00
2	---	.00	---	---	---	---	---	.00	.00	.00	.00	.00
3	---	.50	---	---	---	---	---	.00	.00	.23	.00	.60
4	---	.49	---	---	---	---	.04	.00	.00	.13	.00	.00
5	---	.34	---	---	---	---	.00	.49	.00	.00	.00	.00
6	---	.23	---	---	---	---	.00	.00	.00	.00	.00	.00
7	---	.00	---	---	---	---	.00	.00	.00	.09	.08	.01
8	---	.00	---	---	---	---	1.36	.02	.00	.00	1.70	.00
9	---	.03	---	---	---	---	.42	.01	.00	.00	.01	.00
10	---	.00	---	---	---	---	.01	.01	.00	.00	.00	.00
11	---	.00	---	---	---	---	.00	.00	.00	.00	.00	.40
12	---	.00	---	---	---	---	.15	.00	.40	.88	.00	.76
13	---	---	---	---	---	---	.02	.03	.00	.14	.01	.00
14	---	---	---	---	---	---	.64	.00	.50	.00	.00	.71
15	---	---	---	---	---	---	.50	.01	.29	.01	.00	.55
16	---	---	---	---	---	---	.00	.05	.00	.01	.03	.18
17	---	---	---	---	---	---	.00	.12	.00	.00	.04	.00
18	---	---	---	---	---	---	.00	.67	.01	.00	.00	.07
19	.00	---	---	---	---	---	.00	.03	.01	.00	.00	.00
20	.00	---	---	---	---	---	.00	.00	.00	.00	.00	.00
21	.06	---	---	---	---	---	.00	.00	.34	1.24	.00	.00
22	.00	---	---	---	---	---	.00	.04	.00	.03	.00	.00
23	.00	---	---	---	---	---	.40	.05	.00	.00	.00	.00
24	.00	---	---	---	---	---	.01	.20	.00	.01	.02	.04
25	.00	---	---	---	---	---	.00	.28	.00	.00	.00	.01
26	.00	---	---	---	---	---	.00	.00	.02	.00	.01	.01
27	.00	---	---	---	---	---	.29	.02	.00	.00	.00	.00
28	.00	---	---	---	---	---	.00	.00	.00	.08	.00	.00
29	.00	---	---	---	---	---	.32	.00	.00	.18	.00	.00
30	.00	---	---	---	---	---	.00	.43	.00	.00	.02	.00
31	.00	---	---	---	---	---	---	.01	---	.02	.00	---
TOTAL	---	---	---	---	---	---	---	2.47	1.60	3.20	1.92	3.34

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY SUM VALUES

[illegible]

424642088415700 RICE LAKE, AT DEEP HOLE, NEAR WHITEWATER, WI

LOCATION.--Lat 42°46'42", long 88°41'57", in NW 1/4 SW 1/4 sec.26, T.4 N., R.15 E., Walworth County, Hydrologic Unit 07090001, 4.4 mi southeast of Whitewater.

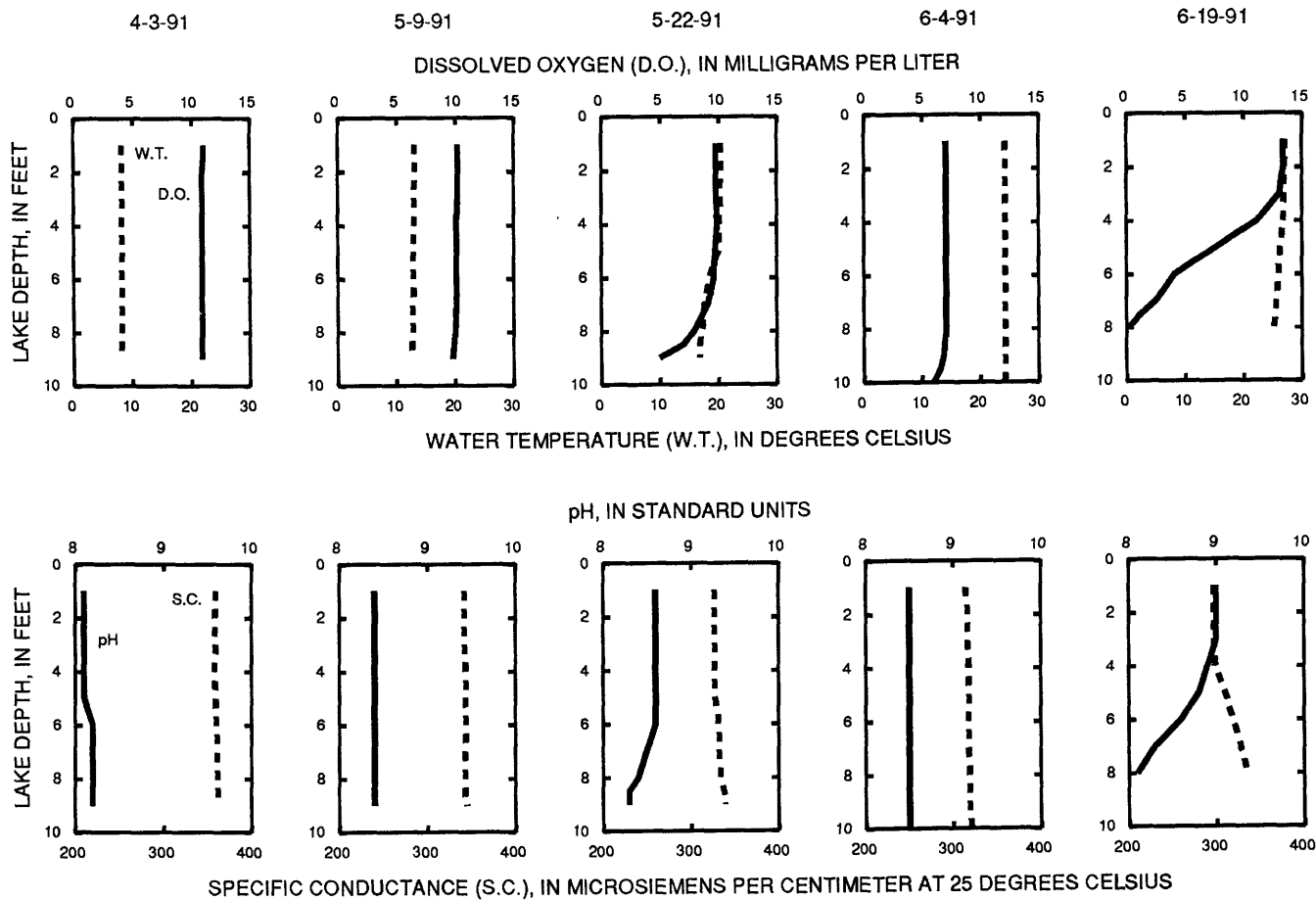
DRAINAGE AREA.--11.8 mi<sup>2</sup>, of which 9.0 mi<sup>2</sup> is non-contributing.

PERIOD OF RECORD.--April to November 1991 (discontinued).

REMARKS.--No flow from Whitewater Lake upstream during period of record.

WATER-QUALITY DATA, APRIL 03 TO JUNE 19, 1991  
(Milligrams per liter unless otherwise indicated)

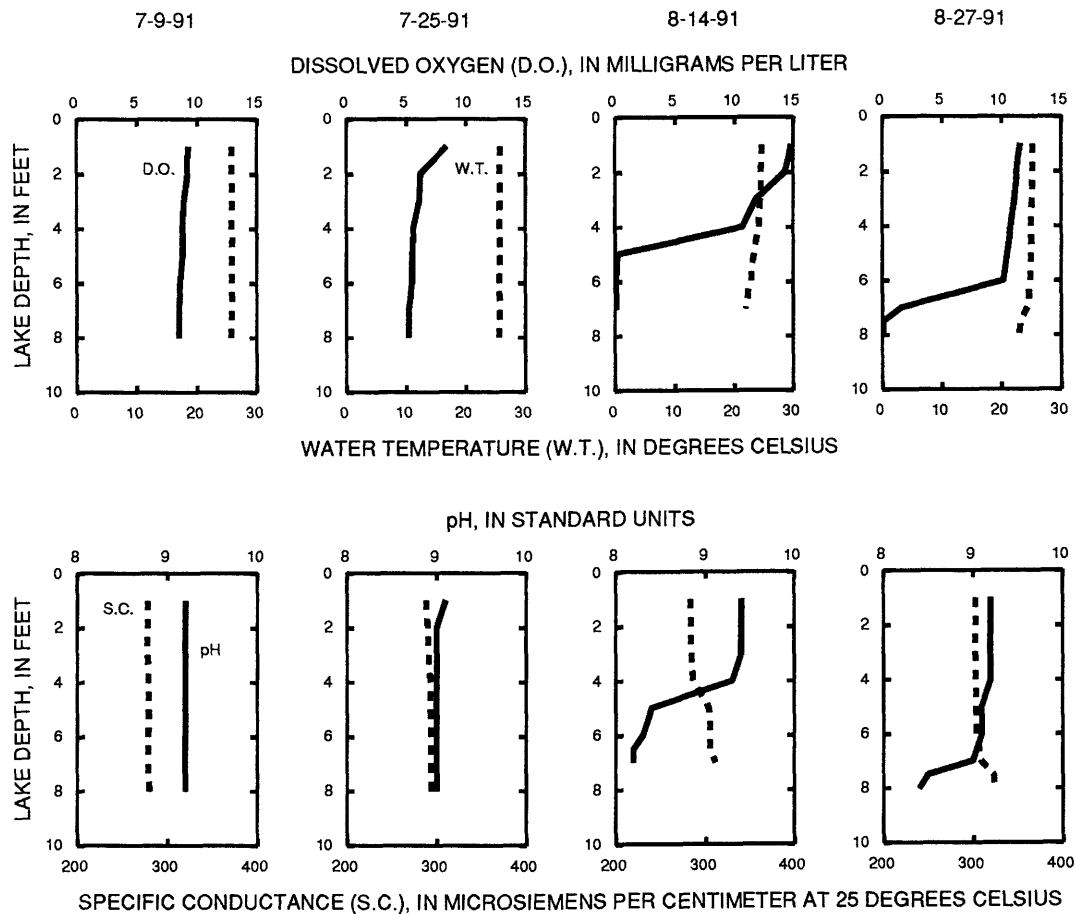
	Apr. 03		May 09		May 22		June 04		June 19	
Depth of sample (ft)	1.5	8.5	1.5	8.5	1.5	8.5	1.5	9.5	1.5	7.5
Lake stage (ft)	4.68		4.78		4.76		4.70		4.58	
Specific conductance (μS/cm)	359	362	342	343	327	338	316	320	297	332
pH (units)	8.1	8.2	8.4	8.4	8.6	8.3	8.5	8.5	9.0	8.2
Water temperature (°C)	8.2	8.2	13.1	12.7	20.4	16.8	24.3	24.3	27.1	25.5
Secchi-depth (meters)	1.68		1.20		2.10		2.50		0.50	
Dissolved oxygen	11.0	10.9	10.2	9.9	9.8	7.0	7.1	6.6	13.4	1.2
Phosphorus, total (as P)	0.022	0.022	0.023	0.025	0.032	0.022	0.025	0.028	0.050	0.063
Phosphorus, ortho, dissolved(as P)	0.003	0.003	0.002	0.002	0.006	0.005	0.005	0.005	0.006	0.005
Chlorophyll a, phytoplankton(μg/L)	6.0	---	9.0	---	4.0	---	5.0	---	33.0	---



424642088415700 RICE LAKE, AT DEEP HOLE, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, JULY 09 TO AUGUST 27, 1991  
(Milligrams per liter unless otherwise indicated)

	July 09		July 25		Aug. 14			Aug. 27		
Depth of sample (ft)	1.5	7.5	1.5	7.5	1.5	4.0	6.5	1.5	6.0	7.5
Lake stage (ft)		4.26		4.16		4.02			3.82	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	278	279	292	294	283	286	305	303	304	323
pH (units)	9.2	9.2	9.1	9.0	9.4	9.3	8.2	9.2	9.1	8.5
Water temperature ( $^{\circ}\text{C}$ )	25.8	25.7	25.8	25.7	24.6	24.1	22.2	25.2	24.8	23.2
Secchi-depth (meters)		0.2		0.4		0.4			0.5	
Dissolved oxygen	9.3	8.0	6.9	5.2	14.6	10.7	0.1	11.4	10.2	0.1
Phosphorus, total (as P)	0.101	0.109	0.138	0.123	0.129	0.108	0.096	0.117	0.122	0.123
Phosphorus, ortho, dissolved (as P)	0.007	0.005	0.006	0.005	0.009	0.004	0.007	0.003	0.002	<0.002
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	147	---	124	---	85	---	---	74	---	---



424642088415700 RICE LAKE, AT DEEP HOLE, NEAR WHITEWATER, WI--CONTINUED

WATER-QUALITY DATA, SEPTEMBER 11 TO NOVEMBER 20, 1991  
(Milligrams per liter unless otherwise indicated)

	Sept. 11		Sept. 25		Oct. 24		Nov. 20	
Depth of sample (ft)	1.5	6.5	1.5	6.5	1.5	7.5	1.5	8.5
Lake stage (ft)	3.66		3.72		3.74		4.03	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	315	316	322	324	352	353	338	337
pH (units)	8.9	8.9	8.7	8.7	8.2	8.2	8.2	8.2
Water temperature ( $^{\circ}\text{C}$ )	23.3	23.2	14.6	14.6	13.3	13.3	6.5	6.5
Secchi-depth (meters)		0.5		0.5		1.5		2.6
Dissolved oxygen	8.4	8.3	8.2	8.2	8.6	8.5	10.7	10.7
Phosphorus, total (as P)	0.131	0.125	0.116	0.120	0.049	0.053	0.036	0.032
Phosphorus, ortho, dissolved (as P)	0.002	0.002	<0.002	<0.002	<0.002	0.002	0.004	0.005
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	72	---	62	---	8.0	---	3.0	---

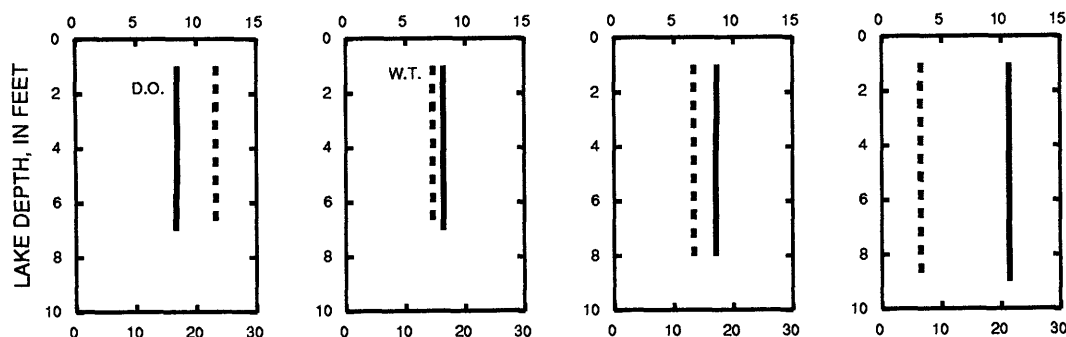
9-11-91

9-25-91

10-24-91

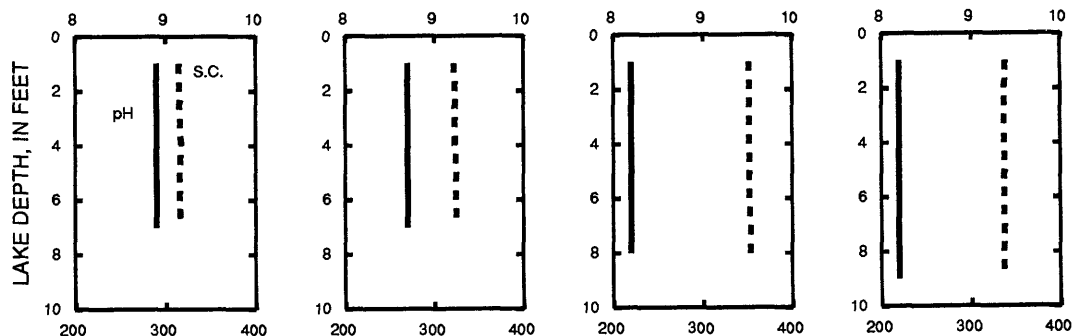
11-20-91

## 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

424642088415501 RICE LAKE NEAR WHITEWATER, WI

LOCATION.--Lat 42°46'42", long 88°41'55", in SW 1/4 NW 1/4 sec.26, T.4 N., R.15 E., Walworth County, Hydrologic Unit 07090001, at outlet, 4.4 mi southeast of Whitewater.

DRAINAGE AREA.--11.8 mi<sup>2</sup>, of which 9.0 mi<sup>2</sup> is noncontributing..

PERIOD OF RECORD.--October 1990 to November 1991 (discontinued).

GAGE.--Staff gage on dam read by local observer. Elevation of gage is 878.12 ft above National Vertical Datum of 1929 (Wisconsin Conservation Commission benchmark).

REMARKS.--Estimated daily stages: Oct. 19, Dec. 25-28, Mar. 20. Lake was ice-covered from Dec. 6 to Mar. 15. No flow from Whitewater Lake upstream during period of record.

EXTREMES FOR PERIOD OCTOBER 1990 TO SEPTEMBER 1991: Maximum gage height observed, 4.84 ft, Apr. 15, 16, 30; minimum gage height observed, 3.64 ft, Sept. 30.

EXTREMES FOR PERIOD OCTOBER TO NOVEMBER 1991.--Maximum gage height observed, 4.03 ft, Nov. 19-20; minimum gage height observed, 3.60 ft, Oct. 2.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	4.13	4.30	4.42	4.43	4.45	4.70	4.82	4.76	4.36	4.06	3.76
2	---	4.13	4.29	4.42	4.42	4.44	4.68	4.80	4.74	4.34	4.04	3.76
3	---	4.13	4.29	4.44	4.42	4.51	4.68	4.80	4.72	4.32	4.02	3.78
4	---	4.20	4.42	4.44	4.43	4.51	4.68	4.78	4.70	4.32	4.02	3.76
5	---	4.28	4.42	4.44	4.44	4.52	4.68	4.78	4.68	4.30	4.00	3.74
6	---	4.28	4.38	4.44	4.44	4.52	4.66	4.80	4.66	4.30	3.98	3.72
7	---	4.27	4.38	4.44	4.45	4.51	4.66	4.78	4.64	4.28	3.96	3.70
8	---	4.26	4.37	4.44	4.44	4.50	4.66	4.78	4.62	4.28	4.08	3.70
9	---	4.28	4.36	4.45	4.44	4.51	4.78	4.78	4.60	4.26	4.08	3.70
10	---	4.27	4.36	4.43	4.44	4.51	4.77	4.78	4.58	4.24	4.06	3.68
11	---	4.27	4.36	4.44	4.42	4.51	4.76	4.78	4.58	4.22	4.04	3.66
12	---	4.26	4.36	4.44	4.41	4.51	4.74	4.78	4.60	4.28	4.04	3.74
13	---	4.25	4.36	4.44	4.41	4.50	4.74	4.78	4.60	4.28	4.02	3.76
14	---	4.24	4.36	4.44	4.42	4.49	4.82	4.76	4.58	4.26	4.02	3.80
15	---	4.24	4.38	4.44	4.42	4.49	4.84	4.76	4.62	4.24	4.00	3.84
16	---	4.24	4.38	4.45	4.44	4.49	4.84	4.76	4.60	4.22	3.98	3.84
17	---	4.24	4.38	4.46	4.41	4.52	4.82	4.74	4.60	4.20	3.98	3.82
18	4.23	4.23	4.38	4.46	4.42	4.53	4.82	4.76	4.58	4.18	3.96	3.80
19	4.24	4.23	4.38	4.46	4.43	4.52	4.82	4.76	4.58	4.16	3.94	3.78
20	4.24	4.22	4.39	4.46	4.42	4.52	4.80	4.76	4.56	4.16	3.92	3.76
21	4.22	4.22	4.40	4.46	4.44	4.53	4.80	4.76	4.54	4.20	3.92	3.74
22	4.21	4.22	4.40	4.46	4.43	4.53	4.78	4.76	4.52	4.22	3.90	3.74
23	4.20	4.23	4.40	4.46	4.44	4.52	4.80	4.76	4.50	4.20	3.90	3.72
24	4.19	4.24	4.40	4.46	4.43	4.52	4.80	4.76	4.48	4.18	3.88	3.72
25	4.18	4.23	4.40	4.47	4.42	4.52	4.80	4.78	4.46	4.16	3.86	3.72
26	4.17	4.23	4.40	4.46	4.42	4.60	4.80	4.78	4.44	4.14	3.84	3.70
27	4.16	4.27	4.40	4.45	4.42	4.66	4.80	4.76	4.42	4.12	3.82	3.68
28	4.16	4.30	4.43	4.44	4.40	4.70	4.82	4.76	4.40	4.08	3.82	3.66
29	4.15	4.30	4.43	4.43	---	4.70	4.82	4.76	4.38	4.10	3.80	3.66
30	4.14	4.30	4.42	4.43	---	4.70	4.84	4.76	4.36	4.08	3.80	3.64
31	4.14	---	4.40	4.43	---	4.70	---	4.76	---	4.06	3.78	---
MEAN	---	4.24	4.38	4.45	4.43	4.54	4.77	4.77	4.57	4.22	3.95	3.74
MAX	---	4.30	4.43	4.47	4.45	4.70	4.84	4.82	4.76	4.36	4.08	3.84
MIN	---	4.13	4.29	4.42	4.40	4.44	4.66	4.74	4.36	4.06	3.78	3.64



## 421

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992  
DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

423

05427506 KOSHKONONG CREEK AT ROCKDALE, WI

LOCATION.--Lat 42°58'20", long 89°01'56", in SW 1/4 NW 1/4 sec.24, T.6 N., R.12 E., Dane County, Hydrologic Unit 07090001, at sewage treatment plant in Rockdale, just downstream from dam on Rockdale Mill pond.

DRAINAGE AREA.--146 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to December 1990 (discontinued).

REMARKS.--Bacteria analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, OCTOBER TO DECEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (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, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ALKA- LITY LAB (MG/L AS CACO3) (90410)
OCT 1990												
28...	1430	24	865	8.3	7.5	5.1	11.6	746	99	24	160	330
DEC												
08...	1430	30	969	8.0	0.5	2.0	13.3	742	95	22	110	343

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- PENDEd (MG/L) (80154)
OCT 1990											
28...	81	61	0.10	0.030	2.70	0.120	0.80	0.280	0.200	0.190	--
DEC											
08...	99	71	0.10	0.050	5.10	0.170	1.2	0.330	0.280	0.290	6

## ROCK RIVER BASIN

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 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1975 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 763.84 ft above National Geodetic Vertical Datum of 1929 (Rock County Surveyor benchmark). Prior to Oct. 1, 1990, at datum 0.10 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Natural flow of stream affected by dam in Indianford. Discharge is adjusted for flow through wicket gates.

AVERAGE DISCHARGE.--16 years, 1,748 ft<sup>3</sup>/s, 9.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,900 ft<sup>3</sup>/s, Apr. 5, 1979, gage height, 16.23 ft; minimum daily, 39 ft<sup>3</sup>/s, June 19, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,400 ft<sup>3</sup>/s, Mar. 31 and Apr. 19; maximum gage height, 13.78 ft, Apr. 19; minimum daily discharge, 130 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	391	749	978	884	601	1350	4320	3030	725	1170	725	211
2	414	668	1130	868	599	1610	4290	3080	747	1080	770	167
3	356	712	1450	822	598	1840	4260	3120	817	934	755	161
4	306	790	860	799	605	2090	4150	2970	808	821	761	197
5	270	818	976	804	622	2350	4010	2830	778	801	714	181
6	320	724	1000	783	623	2570	3800	2460	751	756	581	179
7	506	732	1020	719	624	2730	3830	2530	735	779	479	187
8	477	775	1050	661	620	2880	3850	2530	717	828	741	169
9	481	809	1090	650	668	2970	3910	2380	678	763	771	130
10	487	810	1150	653	704	3080	3810	2260	639	779	735	217
11	602	810	1160	656	765	3190	3850	2120	679	764	719	227
12	612	1210	1110	644	815	3280	3880	2010	705	718	714	263
13	613	1270	1140	621	898	3400	3860	1880	646	751	684	398
14	597	1140	1150	564	930	3370	3830	1800	525	697	563	580
15	637	1020	1150	553	914	3380	3790	1710	589	503	475	583
16	686	1130	1140	557	939	3390	3960	1590	718	209	442	623
17	596	1110	1170	602	1010	3430	4110	1610	867	235	439	1060
18	732	1050	1170	617	1020	3430	4180	1560	998	244	483	1180
19	1000	1040	1190	615	933	3580	4300	1390	1060	251	404	1320
20	1070	987	1190	655	953	3710	4180	1280	1260	241	189	1350
21	1120	826	1200	625	985	3640	4090	1200	1440	344	164	1330
22	1130	866	1130	614	1020	3680	3960	1150	1520	591	216	1260
23	1100	782	1070	646	1100	3230	3900	1110	1400	783	226	1280
24	1160	893	1050	678	1150	3690	3850	1040	1350	720	226	1280
25	1150	920	1010	664	1210	3770	3730	1030	1340	721	202	1140
26	1070	892	986	647	1230	3780	3700	873	1210	701	205	1140
27	1020	826	968	632	1250	3800	3580	942	1190	695	209	1040
28	1090	732	953	631	1300	3850	3560	882	1210	700	225	951
29	975	876	983	628	---	4220	3360	753	1210	719	202	918
30	892	757	953	611	---	4220	2890	686	1280	703	213	507
31	831	---	912	606	---	4220	---	686	---	643	277	---
TOTAL	22691	26724	33489	20709	24686	99730	116790	54492	28592	20644	14509	20229
MEAN	732	891	1080	668	882	3217	3893	1758	953	666	468	674
MAX	1160	1270	1450	884	1300	4220	4320	3120	1520	1170	771	1350
MIN	270	668	860	553	598	1350	2890	686	525	209	164	130
CFSM	.28	.34	.41	.25	.34	1.22	1.48	.67	.36	.25	.18	.26
IN.	.32	.38	.47	.29	.35	1.41	1.65	.77	.40	.29	.21	.29

CAL YR 1990 TOTAL 512986 MEAN 1405 MAX 5190 MIN 121 CFSM .53 IN. 7.26  
WTR YR 1991 TOTAL 483285 MEAN 1324 MAX 4320 MIN 130 CFSM .50 IN. 6.84

## ROCK RIVER BASIN

425

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 mi<sup>2</sup>.

## 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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--7 years (water years 1977-81, 1990-91), 16.1 ft<sup>3</sup>/s, 2.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 587 ft<sup>3</sup>/s, Mar. 12, 1976, gage height, 5.56 ft; maximum gage height, 5.60 ft, June 29, 1990; minimum daily, 4.6 ft<sup>3</sup>/s, Mar. 1-8, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	0800	*332	*5.39	No other peak greater than base discharge.			

Minimum daily, 5.9 ft<sup>3</sup>/s Aug. 26.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-9, 14, Dec. 24 to Jan. 15,  
Jan. 21 to Feb. 6, Feb. 8-12, 14-19, and 25-27.)

0.6	5.0	3.0	76
1.0	18	3.5	91
1.5	34	4.0	114
2.0	49	4.5	170
2.5	62	5.0	262
		5.5	362

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	11	10	8.2	7.8	63	16	14	13	16	6.9	6.2
2	9.7	11	9.5	8.2	8.2	277	15	13	13	16	6.9	6.1
3	12	14	9.2	8.2	8.4	175	13	13	12	10	6.9	6.8
4	13	11	8.8	8.0	8.4	70	13	13	11	9.4	6.8	6.5
5	11	11	9.0	8.0	8.6	52	13	15	11	9.3	6.8	6.0
6	11	11	9.4	7.8	8.6	74	13	15	11	8.8	6.4	6.2
7	10	11	9.8	7.8	8.2	52	12	14	10	11	6.7	6.1
8	10	11	10	7.8	8.6	33	13	14	10	11	22	6.0
9	11	11	11	8.0	9.6	35	39	14	10	9.2	11	6.3
10	12	11	11	8.2	9.0	30	32	13	11	8.4	8.7	7.0
11	13	11	11	8.4	8.6	34	22	12	12	7.7	7.9	6.5
12	13	11	11	8.6	8.4	34	23	12	11	8.2	7.5	31
13	12	10	11	8.8	8.1	29	37	12	11	9.0	7.0	13
14	13	10	11	9.0	8.0	23	45	11	12	8.9	6.4	16
15	13	10	11	9.4	7.6	18	34	11	23	8.3	6.2	38
16	13	11	10	8.9	7.8	18	24	11	15	7.4	6.0	16
17	13	10	10	7.8	8.0	17	20	10	13	7.1	6.6	13
18	14	10	10	9.1	8.0	21	18	12	11	7.4	6.5	14
19	12	10	10	8.4	8.0	21	16	12	11	7.0	6.2	12
20	12	13	9.9	8.4	8.0	21	15	11	9.3	6.7	6.2	12
21	12	11	10	8.4	13	20	15	11	9.1	10	6.4	11
22	12	10	9.9	8.4	26	21	15	11	11	9.4	6.3	10
23	12	11	9.4	8.6	22	34	16	11	10	7.8	6.0	9.8
24	12	10	9.2	8.4	11	25	15	12	9.7	6.7	6.1	9.5
25	12	10	9.0	8.2	11	21	15	12	9.3	6.8	6.2	9.8
26	11	9.8	8.8	8.0	10	21	14	12	9.1	6.4	5.9	9.5
27	12	13	8.6	8.0	9.4	37	15	12	9.1	6.4	6.1	9.4
28	11	12	8.8	8.0	8.6	28	14	11	8.9	7.1	6.1	9.1
29	11	11	9.2	7.8	---	22	16	11	9.1	8.7	6.2	8.7
30	11	10	8.6	7.6	---	18	15	12	9.0	7.7	8.0	8.7
31	11	---	8.4	7.4	---	15	---	11	---	7.2	7.0	---
TOTAL	364.4	326.8	302.5	255.8	276.9	1359	583	378	334.6	271.0	225.9	330.2
MEAN	11.8	10.9	9.76	8.25	9.89	43.8	19.4	12.2	11.2	8.74	7.29	11.0
MAX	14	14	11	9.4	26	277	45	15	23	16	22	38
MIN	9.7	9.8	8.4	7.4	7.6	15	12	10	8.9	6.4	5.9	6.0
CFSM	.16	.15	.13	.11	.13	.60	.26	.17	.15	.12	.10	.15
IN.	.18	.17	.15	.13	.14	.69	.29	.19	.17	.14	.11	.17

CAL YR 1990 TOTAL 5961.1 MEAN 16.3 MAX 190 MIN 7.5 CFSM .22 IN. 3.01  
WTR YR 1991 TOTAL 5008.1 MEAN 13.7 MAX 277 MIN 5.9 CFSM .19 IN. 2.53

## 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 ORTH-PHOSPHORUS DISCHARGE: October 1990 to September 1991.

INSTRUMENTATION.--Water-quality sampler since March 1990.

REMARKS.--Records good. Bacteria analyses by Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 1,240 tons, June 29, 1990; minimum daily, 0.16 ton, Jan. 6-7, 1991.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,850 lb, Mar. 2, 1991; minimum daily, 0.81 lb, Jan. 31, 1991.

## EXTREMES FOR CURRENT PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 157 tons, Mar. 2; minimum daily, 0.16 ton, Jan. 6-7.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,850 lb, Mar. 2; minimum daily, 0.81 lb, Jan. 31.

TOTAL ORTHO PHOSPHORUS DISCHARGE: Maximum daily, 1,260 lb, Mar. 2; minimum daily, 0.49 lb, Nov. 26.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 TOTAL (MG/L AS P) (70507)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1990						
*17...	1320	--	12	--	--	29
*28...	1100	--	10	0.050	--	9
*28...	1130	--	10	--	--	9
NOV						
*13...	1125	--	10	0.020	<0.010	15
DEC						
03...	1430	9.2	--	--	--	77
03...	1645	9.2	--	--	--	24
04...	0445	8.8	--	--	--	9
04...	1200	8.8	--	--	--	8
*08...	1130	10	--	0.030	--	24
*21...	0920	--	10	0.030	0.020	--
FEB 1991						
*01...	1620	7.8	--	0.020	0.030	--
22...	0800	--	27	--	--	34
22...	2000	--	24	0.800	0.620	--
23...	0245	--	21	--	--	17
23...	0400	--	26	0.670	0.540	--
23...	0615	--	35	0.650	0.530	--
23...	0800	--	40	--	--	22
23...	0915	--	35	0.580	0.460	--
23...	0930	--	31	--	--	25
23...	1015	--	23	0.500	0.410	--
23...	1345	--	20	--	--	15
*28...	1325	--	9.6	0.060	0.020	12
MAR						
01...	1245	--	20	0.380	0.280	29
01...	1345	--	26	--	--	67
01...	1430	--	32	0.580	0.320	--
01...	1530	--	51	--	--	180
01...	1545	--	61	0.600	0.380	--
01...	1630	--	87	--	--	455
01...	1645	--	95	0.710	0.510	--
01...	1730	--	111	0.890	0.670	--
01...	1745	--	114	--	--	465
01...	1845	--	122	1.50	0.800	--
01...	1900	--	124	--	--	370
01...	1945	--	137	1.50	0.780	--
01...	2000	--	140	--	--	340
02...	0853	--	323	1.30	0.880	258
*02...	0854	--	323	1.50	1.10	216
02...	1100	--	284	1.30	0.880	201
02...	1700	--	254	1.20	0.960	--
02...	1715	--	254	--	--	230
02...	2015	--	264	1.50	1.00	--
02...	2115	--	266	--	--	162
03...	0330	--	254	--	--	186
03...	0730	--	258	1.30	1.10	--
03...	0745	--	258	--	--	94
04...	1430	--	72	--	--	64
04...	1545	--	64	0.600	0.450	--
04...	1715	--	57	--	--	45
05...	1600	--	45	0.420	0.320	--

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAR 1991					
05...	1715	50	--	--	30
05...	1845	60	0.550	0.390	--
05...	1945	65	--	--	138
05...	2115	77	0.740	0.530	--
05...	2145	81	--	--	178
05...	2315	86	0.880	0.640	154
06...	1115	77	--	--	56
07...	0100	53	0.390	0.410	--
07...	0415	57	--	--	24
07...	0745	75	0.420	0.350	14
07...	0900	62	--	--	21
11...	1915	37	0.190	0.130	--
12...	0715	35	--	--	16
13...	1915	29	0.100	0.060	--
14...	0715	27	--	--	12
16...	0715	18	0.100	0.060	--
17...	2045	19	--	--	19
*19...	1555	20	--	--	18
21...	0330	20	0.070	0.040	--
23...	0015	28	0.160	0.070	47
23...	0215	34	--	--	56
23...	0330	38	0.160	0.070	24
23...	1530	34	--	--	33
24...	0330	29	0.130	0.070	26
27...	0615	28	--	--	47
27...	0700	33	0.160	0.060	--
27...	0815	38	--	--	164
27...	0915	44	0.160	0.090	--
27...	1000	48	--	--	155
27...	1100	53	0.220	0.090	222
27...	1645	44	0.280	0.120	69
28...	1200	26	--	--	48
APR					
09...	0315	22	0.170	0.070	58
09...	0430	28	--	--	81
09...	0515	33	0.250	0.110	--
09...	0600	39	--	--	156
09...	0645	44	0.320	0.150	166
09...	1845	46	0.340	0.220	71
10...	0545	37	0.300	0.190	34
10...	1745	28	0.180	0.100	27
11...	0145	24	--	--	30
11...	0500	23	0.130	0.060	--
12...	1900	23	0.090	0.030	24
12...	2045	34	--	--	64
12...	2115	39	0.200	0.090	--
12...	2200	44	--	--	85
13...	0030	53	0.400	0.220	109
13...	0515	43	0.310	0.220	70
13...	1300	34	--	--	40
14...	0100	29	0.180	0.140	23
14...	0845	41	--	--	43
14...	0945	46	0.250	0.150	--
14...	1030	52	--	--	71
14...	1115	56	0.350	0.230	202
14...	2315	48	0.390	0.280	184
15...	0500	39	0.330	0.240	54
MAY					
*02...	1425	13	0.040	0.010	14
JUN					
*04...	1520	11	0.100	0.070	13
15...	0200	22	0.230	0.070	99
15...	0500	27	0.170	0.100	79
15...	1100	27	0.230	0.120	63
15...	1445	21	0.180	0.100	43
JUL					
01...	1830	23	0.280	0.140	67
01...	1900	32	--	--	252
01...	1945	36	0.340	0.150	230
01...	2115	40	0.470	0.180	--
01...	2330	33	--	--	175
02...	0045	27	0.390	0.120	138
02...	0645	24	0.330	0.190	116
*02...	1450	13	0.190	0.130	18
07...	2130	22	0.240	0.100	72
*16...	0745	7.4	0.080	0.060	20

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

				DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)		PHOS-PHORUS TOTAL (MG/L AS P) (00665)		PHOS-PHORUS ORTHO TOTAL (MG/L AS P) (70507)		SEDI-MENT, SUS-PENDED (MG/L) (80154)		
		DATE	TIME									
		AUG 1991										
		21...	1435	6.2		0.050		0.020		17		
		30...	2115	19		0.290		0.050		221		
		SEP										
		12...	0230	19		0.270		0.110		71		
		12...	0415	26		--		--		78		
		12...	0445	33		0.480		0.230		--		
		12...	0515	41		--		--		350		
		12...	0545	50		0.590		0.180		--		
		12...	0615	56		--		--		489		
		12...	0645	60		0.660		0.190		795		
		12...	1245	33		0.480		0.240		207		
		12...	1345	27		--		--		160		
		12...	1945	18		0.530		0.240		--		
		13...	0700	14		0.440		0.200		159		
		14...	1315	20		0.200		0.080		56		
		14...	2130	21		0.370		0.210		100		
		14...	2145	28		--		--		106		
		14...	2215	33		0.440		0.260		--		
		14...	2230	33		--		--		101		
		15...	0145	45		0.510		0.290		--		
		15...	0215	48		--		--		188		
		15...	0300	53		0.550		0.300		208		
		15...	0415	45		--		--		152		
		15...	0715	40		0.650		0.450		--		
		15...	0745	41		--		--		117		
		15...	1115	53		0.550		0.360		125		
		15...	1515	37		--		--		94		
		15...	1700	30		0.610		0.440		--		
		15...	2000	24		--		--		79		
		15...	2130	22		0.520		0.290		--		
		15...	2315	21		--		--		75		
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH (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, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	ALKA-LINITY LAB (MG/L AS CAC03) (90410)
OCT 1990												
28...	1100	10	714	8.2	7.5	2.2	14.3	749	121	18	80	309
DEC												
08...	1130	18	902	8.2	0.5	2.0	14.3	736	103	12	40	299
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, 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 1990												
28...	31	32	<0.10	0.020	6.00	0.050	0.90	0.050	0.040	0.030		9
DEC												
08...	32	100	<0.10	0.030	6.90	0.040	0.50	0.030	0.020	0.030		24
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	DATE		TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)		
OCT 1990					MAR 1991							
17...	1320	12	730	15.0	19...	1554	20	690	10.0			
28...	1100	10	714	7.5	MAY							
NOV					02...	1416	13	690	13.0			
13...	1122	10	700	4.0	JUN							
DEC					04...	1515	10	685	20.5			
08...	1130	18	902	0.5	JUL							
21...	0902	10	760	2.0	16...	0745	7.4	685	18.0			
FEB 1991					AUG							
01...	1547	8.2	730	0.0	21...	1431	6.0	660	20.5			
28...	1325	9.6	740	3.5								

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

WTR YR 1991      TOTAL 567.14

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

WTR YR 1991      TOTAL 6316.84



## ROCK RIVER BASIN

05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

PHOSPHORUS ORTHO WATER, WHOLE, TOTAL, LBS/DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.44	1.15	1.02	.89	.84	205	4.01	.82	3.97	8.54	1.16	.86
2	1.44	1.15	.95	.89	.89	1260	3.47	.73	4.37	11.4	1.13	.82
3	2.81	2.55	.92	.89	.91	855	2.91	.73	4.29	3.96	1.11	.88
4	2.89	1.37	.89	.86	.91	182	2.66	.78	4.25	2.84	1.07	.80
5	2.10	1.09	.91	.86	.93	107	2.43	.95	3.90	2.44	1.05	.72
6	1.98	1.02	.95	.84	.93	190	2.19	1.04	3.70	2.01	.98	.71
7	1.86	.95	1.00	.84	.89	88.0	1.98	1.01	3.43	2.96	1.00	.67
8	1.85	.86	1.02	.84	.93	44.0	2.11	1.10	3.31	3.31	16.3	.63
9	2.00	.80	1.13	.86	1.04	37.8	32.9	1.14	3.13	2.75	3.70	.64
10	2.03	.74	1.14	.89	.97	25.6	23.1	1.16	3.07	2.55	2.21	.82
11	2.23	.67	1.10	.91	.93	23.0	5.83	1.14	3.24	2.37	1.79	.73
12	2.08	.61	1.09	.93	.91	16.6	6.97	1.18	2.89	2.53	1.55	32.3
13	2.00	.56	1.16	.95	.88	9.62	35.0	1.21	2.76	2.81	1.33	11.2
14	1.98	.54	1.15	.97	.86	6.79	47.8	1.24	3.42	2.82	1.13	9.55
15	2.05	.54	1.16	1.02	.82	5.40	34.9	1.25	10.9	2.68	1.00	68.3
16	1.89	.57	1.09	.97	.84	5.16	12.3	1.29	5.48	2.35	.90	11.3
17	1.86	.54	1.06	.84	.86	4.60	5.47	1.36	3.93	2.16	.90	3.12
18	2.02	.53	1.12	.98	.86	5.13	2.79	1.64	3.30	2.10	.83	3.13
19	1.73	.52	1.11	.90	.86	4.77	2.25	1.75	2.98	1.89	.73	2.32
20	1.66	.66	1.06	.91	.87	4.29	1.95	1.74	2.55	1.71	.67	2.18
21	1.66	.58	1.08	.91	12.8	3.67	1.78	1.84	2.43	3.49	.64	2.02
22	1.56	.53	1.07	.91	82.1	3.52	1.66	1.98	2.76	2.94	.61	1.87
23	1.50	.54	1.02	.93	42.8	11.8	1.69	2.10	2.52	1.84	.59	1.72
24	1.47	.52	.99	.91	5.30	8.21	1.48	2.40	2.36	1.31	.60	1.63
25	1.40	.52	.97	.89	3.19	5.57	1.33	2.51	2.18	1.29	.61	1.65
26	1.36	.49	.95	.86	2.11	4.76	1.21	2.70	2.09	1.20	.58	1.56
27	1.37	1.53	.93	.86	1.44	16.8	1.14	2.74	2.01	1.17	.60	1.51
28	1.22	1.30	.95	.86	.96	11.6	1.02	2.85	1.92	1.28	.60	1.43
29	1.19	1.07	.99	.84	---	7.58	1.05	2.88	1.90	1.54	.61	1.33
30	1.20	1.04	.93	.82	---	5.30	.96	3.23	1.83	1.33	1.17	1.30
31	1.17	---	.91	.80	---	4.23	---	3.40	---	1.22	1.10	---
TOTAL	55.00	25.54	31.82	27.63	168.63	3162.80	246.34	51.89	100.87	84.79	48.25	167.70

WTR YR 1991 TOTAL 4171.26



## 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 mi<sup>2</sup>, of which 1.22 mi<sup>2</sup> 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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records fair except for Oct. 6 to Nov. 8, which are poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--17 years, 4.01 ft<sup>3</sup>/s, 3.18 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 516 ft<sup>3</sup>/s, Mar. 21, 1975, gage height, 7.54 ft; maximum gage height, 8.54 ft, Mar. 12, 1976; minimum discharge, 0.15 ft<sup>3</sup>/s, Dec. 21, 1989, gage height, 3.49 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	0710	*288	*6.92	July 21	1155	116	5.81
Apr. 12	2225	145	6.03				

Minimum discharge, 0.17 ft<sup>3</sup>/s Dec. 3, gage height, 3.49 ft.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Jan. 9-13 and 29.)

3.5	0.17	4.5	5.3
3.6	.37	4.7	14
3.8	.84	5.0	34
4.0	1.4	5.5	80
4.2	2.2	6.0	141
4.3	2.8	7.0	302
4.4	3.7		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.56	.45	.41	.31	46	2.0	1.9	1.0	14	.61	.38
2	.93	.57	.40	.40	.31	174	1.7	1.6	.79	5.7	.55	.37
3	3.6	.58	.28	.37	.37	39	1.6	1.5	.78	1.6	.51	1.4
4	1.3	.71	.21	.36	.71	12	1.6	1.3	.72	1.1	.48	.64
5	.58	.68	.28	.35	.87	12	1.6	16	.68	.96	.44	.52
6	.61	.62	.42	.35	.87	18	1.4	6.2	.72	.84	.58	.39
7	.60	.61	.46	.35	.83	4.1	1.2	2.4	.66	4.9	1.1	.37
8	.56	.80	.49	.35	1.5	3.3	1.5	2.2	.64	6.4	32	.37
9	.57	.78	.56	.35	2.9	3.4	18	1.8	.70	1.3	3.8	.37
10	1.9	.57	.59	.35	2.1	2.7	5.6	1.7	1.2	1.0	1.3	.36
11	2.2	.46	.61	.36	1.1	2.9	2.8	1.5	.81	.87	.94	.65
12	1.2	.46	.71	.36	.78	2.4	28	1.4	2.3	.94	.79	8.6
13	.58	.44	.84	.37	.72	1.8	37	1.4	.68	.98	.75	1.5
14	.91	.43	.77	.41	.62	1.8	45	1.3	6.1	.75	.74	4.0
15	.59	.43	.73	.44	.32	1.7	15	1.1	19	.81	.76	15
16	.55	.42	.68	.40	.36	1.7	4.9	1.1	2.0	.54	.61	2.8
17	.86	.41	.66	.37	.47	2.1	3.5	1.1	1.1	.51	1.1	1.4
18	1.3	.41	.76	.35	.65	4.9	2.8	6.6	.97	.70	.55	3.9
19	.57	.41	.62	.41	.67	3.5	2.4	2.3	.85	.66	.52	1.4
20	.51	.41	.64	.47	.75	2.8	2.2	1.2	.77	.51	.51	.91
21	.59	1.3	.77	.37	4.2	2.8	2.0	1.1	20	38	.47	.82
22	.56	.48	.61	.32	13	4.7	1.8	1.4	13	6.1	.53	.78
23	.56	.42	.49	.32	5.3	19	2.6	1.1	2.2	1.2	.50	.67
24	.55	.39	.44	.32	2.4	4.5	1.7	.94	1.5	.79	.41	.71
25	.54	.39	.44	.32	1.6	3.0	1.5	1.3	1.2	.60	.39	.61
26	.54	.38	.35	.31	1.2	5.4	1.6	1.2	1.1	.54	.37	.52
27	.55	3.6	.33	.31	.99	38	1.7	.93	1.0	.52	.48	.58
28	.56	1.3	.40	.31	.89	10	1.5	.90	.91	1.5	.52	.51
29	.57	.54	1.1	.31	---	3.5	20	.83	.84	1.3	.52	.48
30	.56	.46	.61	.31	---	2.7	4.6	.90	.83	.80	.77	.47
31	.56	---	.45	.31	---	2.4	---	.84	---	.55	.54	---
TOTAL	27.26	20.02	17.15	11.09	46.79	436.1	218.8	67.04	85.05	96.97	54.14	51.48
MEAN	.88	.67	.55	.36	1.67	14.1	7.29	2.16	2.83	3.13	1.75	1.72
MAX	3.6	3.6	1.1	.47	13	174	45	16	20	38	32	15
MIN	.51	.38	.21	.31	.31	1.7	1.2	.83	.64	.51	.37	.36
CFSM	.05	.04	.03	.02	.10	.82	.43	.13	.17	.18	.10	.10
IN.	.06	.04	.04	.02	.10	.95	.48	.15	.19	.21	.12	.11

CAL YR 1990 TOTAL 1212.93 MEAN 3.32 MAX 90 MIN .21 CFSM .19 IN. 2.64  
WTR YR 1991 TOTAL 1131.89 MEAN 3.10 MAX 174 MIN .21 CFSM .18 IN. 2.47

05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1977 to current year.

INSTRUMENTATION.--Automatic pumping sampler since December 1977.

REMARKS.--Records fair. 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.

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.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,250 mg/L, Mar. 2; minimum observed, 13 mg/L, Mar. 8 and 10.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 676 tons, Mar. 2; minimum daily, 0.01 ton, on many days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)
OCT 1990				APR 1991			
03...	1535	18	158	09...	0115	5.7	66
03...	1550	24	254	09...	1410	22	189
03...	1800	9.6	144	10...	1410	4.3	27
NOV				12...	1710	5.7	35
27...	0520	0.82	28	12...	1855	51	585
27...	0610	1.8	45	12...	2055	123	1770
27...	0630	6.6	61	12...	2355	128	1390
27...	0645	14	317	13...	0105	102	754
27...	0705	16	85	13...	0345	57	406
27...	1350	2.1	57	13...	1845	16	223
DEC				14...	0635	30	107
*21...	1015	0.78	41	14...	0852	72	542
FEB 1991				*14...	0855	74	554
*09...	1330	3.1	17	14...	1015	87	628
11...	0920	1.1	16	14...	1315	76	399
22...	0300	16	35	14...	2155	35	115
22...	1500	14	43	16...	0355	5.7	21
23...	0900	5.7	25	17...	0355	3.7	20
*28...	1650	0.86	22	23...	0330	4.8	22
MAR				*28...	1300	1.4	257
01...	1115	1.8	45	29...	0900	5.7	24
01...	1330	17	226	29...	0925	33	682
01...	1500	50	572	29...	0945	49	787
02...	0802	269	2250	29...	1245	50	775
02...	1140	205	1680	29...	2130	19	216
02...	1700	110	379	30...	0920	3.5	66
03...	0900	54	53	MAY			
04...	0805	12	41	05...	1000	6.2	37
05...	0805	6.6	27	05...	1100	31	217
05...	1405	4.8	25	05...	1410	34	284
05...	2115	25	94	05...	2010	23	163
06...	0315	29	90	06...	0210	16	132
07...	0315	4.3	21	*06...	0955	4.5	38
08...	2115	4.7	13	18...	1135	8.7	221
10...	0915	2.1	13	18...	1155	20	249
10...	2115	3.6	17	18...	1510	8.7	104
22...	2155	5.3	36	19...	0210	4.3	93
22...	2250	31	255	JUN			
23...	0255	34	908	12...	0345	7.4	227
23...	2055	8.7	44	12...	0400	17	76
25...	0909	3.3	18	12...	0530	6.6	164
26...	2225	4.2	19	14...	2035	11	197
27...	0125	29	236	14...	2045	25	429
27...	0320	15	425	14...	2120	40	467
27...	0550	43	698	14...	2310	25	241
27...	0925	70	1120	15...	0445	38	280
27...	1130	48	553	15...	2030	5.1	136
*27...	1131	48	463	21...	1620	11	40
27...	1715	39	398	21...	1630	22	262
29...	0515	3.7	16	21...	1825	62	501

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 1991				AUG 1991			
21...	1955	50	1110	08...	0450	46	417
21...	2125	66	886	08...	0620	57	380
22...	0025	45	772	08...	0656	57	257
22...	1505	4.3	104	*08...	0657	56	248
*28...	0955	0.92	26	08...	0750	47	230
JUL				08...	0920	52	406
21...	0615	7.0	130	08...	1050	62	346
21...	0640	30	231	08...	1350	43	164
21...	0812	61	874	09...	0110	9.6	113
*21...	0814	61	868	SEP			
21...	0850	55	532	*01...	1415	0.37	179
21...	1035	101	499	12...	0400	11	127
21...	1205	116	1210	*12...	0717	16	63
21...	1415	68	1840	12...	0718	16	67
21...	1700	34	284	12...	1305	10	115
22...	0800	7.4	101	12...	1905	7.4	39
22...	0840	17	106	14...	0825	10	45
22...	1100	7.9	162	15...	0505	9.6	88
*22...	1103	7.6	160	15...	0605	22	63
AUG				15...	0710	37	169
*02...	1130	0.50	24	15...	0840	36	295
*06...	0800	0.43	32	15...	1640	11	42
08...	0405	14	202				

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
APR 1991											
28...	1300	1.4	1100	7.3	14.5	--	5.5	11.2	734	114	31
JUN											
28...	0955	0.92	--	--	23.0	--	13	12.9	738	--	45
AUG											
02...	1130	0.50	1020	7.3	18.5	14	5.2	14.0	734	156	38
SEP											
01...	1415	0.37	1010	7.2	18.5	--	5.7	13.2	734	147	32

DATE	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS NA) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	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)
APR 1991										
28...	80	--	--	--	--	299	240	39	0.20	--
JUN										
28...	4000	--	--	--	--	303	200	35	<0.10	--
AUG										
02...	620	140	45	12	13	378	180	34	0.20	20
SEP										
01...	--	--	--	--	--	348	200	32	0.20	--

DATE	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)	ARSENIC TOTAL (UG/L AS AS) (01002)	BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)
APR 1991										
28...	0.130	6.70	0.410	5.1	0.230	0.050	0.030	--	--	--
JUN										
28...	1.20	7.50	2.60	4.3	1.10	0.660	0.590	--	--	--
AUG										
02...	0.260	2.50	0.480	1.4	1.10	0.610	0.620	2	<10	3
SEP										
01...	0.050	1.10	0.320	1.0	0.290	0.040	0.020	--	--	--

## ROCK RIVER BASIN

435

05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MERCURY, TOTAL RECOVERABLE (UG/L AS HG) (71900)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	SEDIMENT, SUSPENDED (MG/L) (80154)
APR 1991										
28...	--	--	--	--	--	--	--	--	--	257
JUN 28...	--	--	--	--	--	--	--	--	--	26
AUG 02...	<1	2	9	1300	390	<0.10	1	<1	40	24
SEP 01...	--	--	--	--	--	--	--	--	--	179

DATE	TIME	DISCHARGE, INST. CUBIC FEET PER SECOND (00061)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED TOTAL (MG/L AS P) (00666)	PHOSPHORUS ORTHOPHOSPHATE TOTAL (MG/L AS P) (70507)	SEDIMENT, SUSPENDED (MG/L) (80154)
APR 1991										
12...	1745	18	0.070	5.90	0.530	2.3	0.380	0.100	0.160	--
12...	1940	73	0.140	1.60	0.350	3.4	1.10	0.170	0.420	--
12...	2355	128	0.170	4.10	2.00	8.0	2.00	0.580	0.910	1390
14...	0045	14	0.130	17.0	2.20	5.9	0.860	0.520	0.650	--
14...	1015	87	0.120	4.90	0.850	4.2	0.850	0.250	0.420	628
15...	2155	7.9	0.340	18.0	2.40	7.5	0.940	0.470	0.650	--

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.04	.06	.03	.01	122	.08	.10	.05	18	.05	.02
2	.05	.04	.05	.03	.01	676	.07	.08	.04	3.6	.04	.02
3	1.3	.04	.04	.03	.01	7.8	.06	.07	.03	.10	.04	.09
4	.13	.05	.03	.02	.02	1.3	.06	.06	.03	.06	.05	.04
5	.06	.05	.04	.02	.03	1.9	.06	8.5	.03	.04	.04	.03
6	.06	.04	.05	.02	.03	3.3	.06	1.4	.03	.04	.05	.02
7	.06	.04	.06	.02	.03	.19	.05	.24	.03	3.2	.15	.02
8	.06	.05	.06	.02	.07	.10	.09	.20	.03	1.9	21	.02
9	.06	.05	.07	.02	.14	.12	7.9	.16	.03	.09	.83	.02
10	.18	.04	.07	.02	.10	.10	.70	.14	.05	.09	.12	.02
11	.21	.03	.07	.02	.05	.13	.17	.12	.03	.08	.09	.06
12	.11	.03	.08	.02	.03	.11	96	.11	.51	.10	.07	1.9
13	.05	.03	.10	.02	.03	.08	46	.09	.04	.12	.07	.09
14	.08	.03	.09	.02	.02	.08	39	.08	4.3	.10	.06	.43
15	.05	.03	.08	.02	.01	.07	2.6	.07	11	.13	.06	5.1
16	.05	.03	.08	.02	.01	.07	.28	.07	.30	.10	.05	.27
17	.08	.02	.08	.02	.01	.09	.18	.06	.11	.11	.09	.11
18	.12	.02	.09	.02	.02	.20	.13	2.2	.08	.17	.04	.31
19	.05	.02	.07	.02	.02	.15	.10	.32	.06	.18	.04	.08
20	.04	.02	.07	.02	.02	.11	.08	.06	.05	.16	.04	.05
21	.05	.07	.09	.01	.61	.11	.06	.06	36	80	.04	.04
22	.05	.03	.07	.01	1.3	1.8	.05	.07	15	2.3	.04	.04
23	.05	.02	.05	.01	.37	20	.11	.06	.35	.45	.04	.04
24	.04	.02	.04	.01	.15	.38	.06	.05	.13	.24	.03	.04
25	.04	.02	.04	.01	.10	.16	.05	.06	.10	.15	.03	.03
26	.04	.02	.03	.01	.08	.27	.05	.06	.08	.12	.03	.03
27	.04	.84	.03	.01	.06	61	.05	.04	.07	.09	.03	.03
28	.04	.21	.03	.01	.05	4.1	.04	.04	.06	.22	.03	.03
29	.04	.07	.09	.01	---	.16	27	.04	.05	.17	.03	.03
30	.04	.06	.05	.01	---	.11	1.1	.04	.05	.09	.05	.02
31	.04	---	.04	.01	---	.10	---	.04	---	.05	.03	---
TOTAL	3.33	2.06	1.90	0.54	3.39	902.09	222.24	14.69	68.72	112.25	23.36	9.03

WTR YR 1991 TOTAL 1363.60

## ROCK RIVER BASIN

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 mi<sup>2</sup>.

## 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 National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records are good except those for periods of flow between 0.00 ft<sup>3</sup>/s and 0.3 ft<sup>3</sup>/s, which are poor.

AVERAGE DISCHARGE.--15 years, 1.40 ft<sup>3</sup>/s, 5.78 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 706 ft<sup>3</sup>/s, Aug. 31, 1981, gage height, 4.04 ft; no flow many days during period of record.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 460 ft<sup>3</sup>/s, July 21, gage height, 3.38 ft; no flow on many days during current year.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).

0.41	0.0	0.9	12
0.5	0.55	1.0	18
0.6	1.8	1.1	26
0.7	3.8	1.2	34
0.8	6.7	1.5	62

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	39	.05	.01	.92	4.5	.00	.00
2	.00	.00	.00	.00	.15	34	.00	.00	.05	.14	.00	.00
3	3.4	.15	.00	.00	2.3	.38	.00	.00	.00	.00	.00	.57
4	.30	2.5	.00	.00	4.7	.22	.00	.00	.00	.00	.00	.00
5	.01	1.8	.00	.00	3.2	2.3	.00	17	.00	.00	.00	.00
6	.00	.40	.04	.00	.78	1.5	.00	.17	.00	.00	.00	.00
7	.00	.45	.08	.00	2.6	.12	.00	.00	.02	8.4	.77	.00
8	.21	.24	.28	.00	2.6	.90	13	3.6	.00	.23	34	.00
9	.36	2.3	.59	.00	1.7	.41	18	.07	.00	.00	.09	1.5
10	8.5	1.0	.42	.00	.46	.23	.81	.00	3.2	.00	.00	.31
11	2.1	.53	.38	.00	.04	.32	.09	.00	.19	.00	.01	3.6
12	.33	.31	1.2	.00	.00	.25	29	.00	3.4	.00	.00	18
13	.01	.15	.24	.00	.00	.11	13	.01	1.2	.00	.00	.03
14	2.1	.00	.00	.41	.00	.16	24	.00	18	.00	.00	17
15	.27	.00	.57	.14	.00	.24	.55	.04	15	.00	.00	10
16	.00	.00	.18	.02	.00	.30	.07	.01	.04	.00	.48	1.9
17	6.5	.00	.82	.05	.21	3.4	.00	.59	.00	.00	1.1	3.2
18	2.3	.00	.60	.00	1.3	3.6	.28	12	.00	.00	.00	4.1
19	.03	.00	.07	.38	1.0	.53	.87	.12	.00	.06	.00	.01
20	.00	.00	.36	.11	1.2	.32	.01	.06	.00	.05	.00	.48
21	.49	5.6	.52	.00	5.4	.45	.00	.26	11	54	.00	.00
22	.00	.04	.00	.00	1.7	8.0	.11	.11	.29	2.1	.00	.00
23	.00	.00	.00	.00	.24	5.8	2.0	.02	.00	.00	.00	.00
24	.00	.00	.00	.09	.01	.22	.10	.06	.00	.00	.00	.92
25	.00	.00	.00	.00	.00	.18	.00	.87	.00	.00	.00	.16
26	.00	.00	.00	.00	.00	3.6	.75	.32	.00	.00	.00	.00
27	.00	9.9	.00	.00	.00	28	1.6	.00	.00	.00	.00	.00
28	.00	.36	1.3	.01	.11	1.4	1.1	.00	.00	2.9	.00	.00
29	.00	.00	3.0	.00	---	.12	14	.00	.00	.19	.00	.00
30	.00	.00	.01	.00	---	.02	.48	2.6	.00	.00	1.9	.00
31	.00	---	.00	.00	---	.09	---	.38	---	.00	.03	---
TOTAL	26.91	25.73	10.66	1.21	29.70	136.17	119.87	38.30	53.31	72.57	38.38	61.78
MEAN	.87	.86	.34	.039	1.06	4.39	4.00	1.24	1.78	2.34	1.24	2.06
MAX	8.5	9.9	3.0	.41	5.4	.39	.29	.17	.18	.54	.34	.18
MIN	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
CFSM	.26	.26	.10	.01	.32	1.34	1.21	.38	.54	.71	.38	.63
IN.	.30	.29	.12	.01	.34	1.54	1.36	.43	.60	.82	.43	.70

CAL YR 1990 TOTAL 598.93 MEAN 1.64 MAX 45 MIN .00 CFSM .50 IN. 6.77  
WTR YR 1991 TOTAL 614.59 MEAN 1.68 MAX 54 MIN .00 CFSM .51 IN. 6.95

05427965 SPRING HARBOR STORM SEWER AT MADISON, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1976 to current year.

INSTRUMENTATION.--Automatic pumping sampler.

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

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
NOV 1990				MAY 1991			
27...	0515	34	555	18...	1215	75	139
27...	0520	36	476	18...	1555	16	51
27...	0545	77	401	JUN			
27...	0815	26	143	12...	0245	30	296
27...	1100	3.8	102	12...	0300	23	258
MAR 1991				12...	0315	85	554
01...	0925	8.7	507	12...	0345	31	454
01...	1040	47	1140	12...	0450	6.1	67
01...	1100	71	643	14...	1940	55	503
01...	1125	98	685	14...	1945	110	602
01...	1420	98	566	14...	2120	77	229
01...	1805	48	263	14...	2245	51	114
02...	0030	98	430	15...	0410	51	146
02...	1535	12	145	15...	0835	6.1	64
22...	1945	8.7	960	JUL			
22...	2155	54	3180	21...	0540	24	366
22...	2215	81	1570	21...	0605	100	1390
23...	0130	31	295	21...	0650	167	611
23...	0410	5.0	556	21...	0710	377	815
26...	2400	8.7	176	21...	0730	202	32
27...	0030	41	1240	21...	0740	351	831
27...	0505	42	108	21...	0833	127	554
27...	0605	92	284	21...	0835	121	514
27...	0910	27	134	21...	1025	65	191
27...	1345	83	1100	22...	0115	6.4	20
27...	1710	17	274	AUG			
APR				08...	0245	7.2	40
08...	1610	21	587	08...	0320	69	430
08...	1640	59	1610	08...	0405	136	178
08...	1705	122	964	08...	0530	147	122
08...	1800	60	710	*08...	0718	58	175
08...	2245	10	338	08...	0719	58	90
12...	1200	7.7	119	08...	1710	4.7	34
12...	1645	23	154	SEP			
12...	1720	74	347	09...	2255	40	664
12...	1915	126	352	09...	2300	86	483
12...	2320	51	532	11...	0005	5.5	277
28...	2020	22	1100	12...	0030	4.7	9
28...	2110	9.1	521	12...	0315	47	88
29...	0850	32	519	12...	0330	134	266
29...	0905	85	760	*12...	0645	37	50
29...	1140	41	186	12...	0646	37	44
29...	2330	12	227	12...	1005	14	42
MAY				14...	0615	22	71
05...	0810	15	246	14...	0650	57	386
05...	0935	44	112	14...	2050	7.7	62
05...	1025	89	186	14...	2120	26	133
05...	1610	10	91	14...	2125	71	207
18...	1055	11	281	14...	2150	178	1110
18...	1125	61	510	14...	2225	71	435
				15...	0345	15	57

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.



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.

PERIOD OF RECORD.--December 1902 to May 1903, January 1916 to current year (incomplete).

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above National Geodetic Vertical Datum of 1929, 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 and datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 12.01 ft, Apr. 5, 1959; minimum observed, 8.02 ft, Feb. 24 to Mar. 10, 1920, current datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 10.53 ft, Mar. 27; minimum, 9.09 ft, Dec. 13.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.62	9.58	9.25	9.20	9.30	9.51	10.29	10.15	10.08	10.11	10.00	9.89
2	9.60	9.59	9.21	9.20	9.29	9.75	10.26	10.12	10.08	10.21	10.00	9.87
3	9.59	9.60	9.32	9.19	9.29	9.92	10.23	10.08	10.07	10.19	9.98	9.89
4	9.63	9.62	9.31	9.20	9.29	10.02	10.20	10.04	10.04	10.16	9.96	9.88
5	9.60	9.64	9.26	9.22	9.30	10.07	10.16	10.05	10.02	10.14	9.94	9.86
6	9.59	9.63	9.24	9.23	9.31	10.11	10.12	10.08	10.01	10.12	9.91	9.85
7	9.58	9.64	9.21	9.23	9.31	10.14	10.10	10.04	10.01	10.15	9.91	9.84
8	9.57	9.61	9.19	9.23	9.32	10.16	10.08	10.02	10.00	10.17	10.07	9.82
9	9.56	9.63	9.17	9.23	9.33	10.17	10.17	10.02	9.98	10.15	10.11	9.82
10	9.59	9.62	9.15	9.24	9.33	10.18	10.20	10.02	9.99	10.13	10.11	9.83
11	9.61	9.60	9.13	9.25	9.34	10.20	10.17	10.01	10.00	10.11	10.12	9.81
12	9.61	9.58	9.15	9.27	9.34	10.21	10.19	10.01	10.00	10.11	10.10	9.91
13	9.61	9.55	9.15	9.27	9.35	10.20	10.31	10.00	9.98	10.10	10.09	9.94
14	9.62	9.53	9.13	9.27	9.37	10.18	10.39	10.00	10.02	10.08	10.09	9.97
15	9.63	9.52	9.17	9.28	9.37	10.17	10.43	9.99	10.17	10.06	10.08	10.09
16	9.61	9.53	9.17	9.29	9.37	10.16	10.43	9.98	10.17	10.03	10.07	10.12
17	9.62	9.50	9.18	9.29	9.38	10.16	10.41	9.97	10.15	10.01	10.09	10.10
18	9.71	9.48	9.21	9.29	9.39	10.18	10.40	9.98	10.14	9.99	10.07	10.14
19	9.64	9.47	9.20	9.29	9.40	10.17	10.38	10.02	10.13	9.97	10.04	10.09
20	9.63	9.44	9.20	9.30	9.40	10.16	10.34	10.01	10.12	9.95	10.02	10.06
21	9.65	9.46	9.22	9.30	9.41	10.17	10.31	10.02	10.13	10.08	10.00	10.04
22	9.64	9.45	9.22	9.30	9.42	10.18	10.28	10.03	10.19	10.15	10.01	10.03
23	9.64	9.45	9.19	9.30	9.44	10.23	10.28	10.03	10.17	10.14	9.99	10.02
24	9.64	9.38	9.18	9.30	9.44	10.24	10.25	10.03	10.15	10.10	9.98	10.01
25	9.62	9.36	9.18	9.30	9.45	10.24	10.23	10.04	10.15	10.08	9.97	10.03
26	9.60	9.32	9.16	9.30	9.46	10.24	10.19	10.04	10.11	10.05	9.97	10.01
27	9.62	9.36	9.16	9.29	9.46	10.35	10.18	10.05	10.11	10.03	9.96	9.98
28	9.59	9.36	9.16	9.29	9.47	10.39	10.17	10.04	10.11	10.03	9.96	9.97
29	9.57	9.31	9.20	9.30	---	10.37	10.18	10.05	10.10	10.04	9.96	9.96
30	9.58	9.27	9.20	9.30	---	10.33	10.18	10.07	10.08	10.03	9.95	9.96
31	9.58	---	9.20	9.30	---	10.31	---	10.07	---	10.02	9.93	---
MEAN	9.61	9.50	9.20	9.27	9.37	10.16	10.25	10.03	10.08	10.09	10.01	9.96
MAX	9.71	9.64	9.32	9.30	9.47	10.39	10.43	10.15	10.19	10.21	10.12	10.14
MIN	9.56	9.27	9.13	9.19	9.29	9.51	10.08	9.97	9.98	9.95	9.91	9.81
CAL YR 1990	MEAN 9.78	MAX 10.53	MIN 9.09									
WTR YR 1991	MEAN 9.80	MAX 10.43	MIN 9.13									

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.90 ft. Apr. 14 and 15; minimum, 3.61 ft. Jan. 31 to Feb. 2.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.92	4.68	4.31	3.89	3.61	4.10	5.39	5.08	4.97	5.13	5.21	4.75
2	4.93	4.64	4.32	3.87	3.61	4.40	5.40	5.04	4.95	5.21	5.20	4.74
3	4.96	4.59	4.41	3.85	3.63	4.51	5.42	5.02	4.95	5.20	5.17	4.73
4	4.96	4.56	4.40	3.84	3.65	4.54	5.43	4.99	4.92	5.19	5.14	4.71
5	4.97	4.52	4.43	3.83	3.68	4.56	5.44	5.01	4.88	5.18	5.11	4.70
6	4.97	4.47	4.44	3.83	3.70	4.57	5.45	4.99	4.85	5.16	5.08	4.70
7	4.96	4.41	4.44	3.81	3.72	4.56	5.47	4.97	4.84	5.17	5.06	4.70
8	4.95	4.37	4.44	3.80	3.75	4.57	5.50	4.98	4.85	5.21	5.24	4.70
9	4.94	4.35	4.44	3.78	3.78	4.56	5.64	4.94	4.85	5.20	5.27	4.69
10	4.96	4.32	4.43	3.77	3.79	4.56	5.64	4.94	4.84	5.18	5.26	4.71
11	5.04	4.30	4.42	3.78	3.81	4.57	5.63	4.94	4.87	5.15	5.24	4.71
12	5.03	4.28	4.36	3.78	3.83	4.59	5.66	4.94	4.90	5.11	5.23	4.82
13	5.03	4.27	4.31	3.78	3.84	4.62	5.81	4.95	4.91	5.07	5.21	4.83
14	5.04	4.25	4.27	3.76	3.86	4.63	5.87	4.94	4.96	5.04	5.18	4.90
15	5.03	4.25	4.26	3.75	3.87	4.65	5.87	4.95	5.15	5.00	5.16	5.07
16	5.04	4.22	4.23	3.76	3.89	4.68	5.84	4.94	5.11	4.98	5.13	5.08
17	5.06	4.21	4.21	3.75	3.89	4.73	5.79	4.94	5.07	4.99	5.10	5.07
18	5.04	4.20	4.18	3.74	3.91	4.80	5.72	4.97	5.04	5.01	5.06	5.07
19	5.07	4.19	4.16	3.73	3.93	4.84	5.65	4.98	5.01	5.03	5.01	5.04
20	5.06	4.19	4.13	3.71	3.94	4.88	5.56	4.97	5.00	5.05	4.97	5.02
21	5.01	4.25	4.10	3.70	3.96	4.91	5.49	4.97	5.04	5.39	4.94	5.01
22	4.99	4.27	4.05	3.70	3.98	4.96	5.42	4.97	5.10	5.52	4.91	5.00
23	4.96	4.24	4.03	3.69	4.00	5.03	5.38	4.98	5.07	5.49	4.89	4.96
24	4.93	4.25	4.01	3.67	4.00	5.06	5.34	4.98	5.06	5.44	4.86	4.96
25	4.90	4.25	3.99	3.66	4.01	5.10	5.29	4.99	5.07	5.40	4.83	4.95
26	4.90	4.26	3.96	3.65	4.02	5.17	5.25	4.99	5.08	5.37	4.81	4.91
27	4.85	4.31	3.94	3.65	4.03	5.31	5.23	4.99	5.08	5.34	4.79	4.92
28	4.82	4.31	3.93	3.63	4.04	5.37	5.20	4.99	5.08	5.31	4.79	4.91
29	4.83	4.31	3.96	3.62	---	5.40	5.19	4.98	5.08	5.30	4.79	4.91
30	4.79	4.31	3.94	3.62	---	5.40	5.13	4.97	5.10	5.26	4.78	4.90
31	4.73	---	3.92	3.62	---	5.40	---	4.97	---	5.23	4.78	---
MEAN	4.96	4.33	4.21	3.74	3.85	4.81	5.50	4.98	4.99	5.20	5.04	4.87
MAX	5.07	4.68	4.44	3.89	4.04	5.40	5.87	5.08	5.15	5.52	5.27	5.08
MIN	4.73	4.19	3.92	3.62	3.61	4.10	5.13	4.94	4.84	4.98	4.78	4.69
CAL YR 1990	MEAN 4.87	MAX 5.59	MIN 3.92									
WTR YR 1991	MEAN 4.71	MAX 5.87	MIN 3.61									

## WISCONSIN RIVER BASIN

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI

LOCATION.--Lat 43°02'03", long 89°23'35", in SW 1/4 SE 1/4 sec.35, T.6 N., R.9 E., Dane County, Hydrologic Unit 07090001, on Syene Road 0.25 mi north of Steward Street in Madison.

DRAINAGE AREA.--0.18 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to September 1991.

GAGE.--Water-stage recorder.

REMARKS.--Estimated daily discharge: July 7. Stage transducers were moved on Mar. 8, 1991; stage values before Mar. 8 were determined to be unreliable. Records are good after Mar. 8.

EXTREMES FOR PERIOD MAR. 8 TO SEPT. 30, 1991: Maximum discharge, 78 ft<sup>3</sup>/s, July 21, gage height, 2.2 ft; minimum daily discharge, 0.17 ft<sup>3</sup>/s, Mar. 9, 16, 30, and Apr. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	.29	.34	.57	.74	.45	.27
2	---	---	---	---	---	---	.24	.36	.31	.55	.49	.23
3	---	---	---	---	---	---	.20	.26	.37	.45	.42	.75
4	---	---	---	---	---	---	.26	.23	.38	.37	.43	.54
5	---	---	---	---	---	---	.26	2.5	.32	.51	.49	.58
6	---	---	---	---	---	---	.20	.31	.31	.35	.54	.57
7	---	---	---	---	---	---	.20	.25	.32	3.2	.81	.44
8	---	---	---	---	---	---	.87	.50	.29	.60	9.3	.36
9	---	---	---	---	---	.17	.26	.26	.27	.46	.55	.81
10	---	---	---	---	---	.20	.38	.30	1.2	.46	.52	.74
11	---	---	---	---	---	.25	.26	.22	.39	.42	.44	1.4
12	---	---	---	---	---	.22	5.8	.20	1.4	.44	.43	2.7
13	---	---	---	---	---	.21	.75	.28	.84	.38	.55	.54
14	---	---	---	---	---	.24	3.6	.30	4.8	.31	.45	4.9
15	---	---	---	---	---	.25	.31	.24	2.1	.41	.45	2.0
16	---	---	---	---	---	.17	.26	.26	.31	.51	.76	1.1
17	---	---	---	---	---	1.1	.25	.51	.29	.44	.59	1.2
18	---	---	---	---	---	.55	.20	2.6	.35	.47	.38	1.3
19	---	---	---	---	---	.26	.26	.28	.38	.62	.44	.38
20	---	---	---	---	---	.25	.18	.26	.42	.42	.49	.43
21	---	---	---	---	---	.25	.17	.83	.73	11	.54	.38
22	---	---	---	---	---	2.1	.29	.39	.36	1.0	.49	.36
23	---	---	---	---	---	.63	1.0	.32	.30	.54	.54	.50
24	---	---	---	---	---	.20	.29	.59	.35	.50	.42	.81
25	---	---	---	---	---	.19	.26	.40	.38	.48	.37	.53
26	---	---	---	---	---	1.0	.28	.41	.40	.53	.43	.39
27	---	---	---	---	---	3.4	.48	.25	.45	.41	.49	.39
28	---	---	---	---	---	.45	.62	.44	.43	1.4	.53	.39
29	---	---	---	---	---	.20	.95	.38	.31	.66	.45	.33
30	---	---	---	---	---	.17	.35	.52	.27	.54	.47	.40
31	---	---	---	---	---	.24	---	.56	---	.56	.38	---
TOTAL	---	---	---	---	---	---	23.16	15.55	19.60	29.73	24.09	25.72
MEAN	---	---	---	---	---	---	.77	.50	.65	.96	.78	.86
MAX	---	---	---	---	---	---	5.8	2.6	4.8	11	9.3	4.9
MIN	---	---	---	---	---	---	.17	.20	.27	.31	.37	.23

## WISCONSIN RIVER BASIN

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05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1990 to September 1991.

REMARKS.--Samples are point samples. Chemical analyses by Wisconsin State Laboratory of Hygiene and U.S. Geological Survey National Water Quality Laboratory.

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

DATE	TIME	ENDING TIME	RUNOFF VOLUME, MILLIONS OF CUBIC FEET (99905)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, TOTAL RECOVER- ABLE (MG/L) (00921)	MAGNE- SIUM, TOTAL RECOVER- ERABLE (MG/L AS MG) (00927)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1990												
21-21	0306	0350	0.005	--	--	--	23	6.4	--	--	2.0	--
27-27	0523	0630	0.018	--	660	21000	18	5.2	--	--	1.0	--
27-27	1550	1639	0.003	--	1100	5800	25	6.8	--	--	2.0	--
DEC												
12-12	1315	1501	0.001	--	9000	2800	65	18	--	--	5.0	--
FEB 1991												
04-04	1402	1553	0.003	--	90	1900	--	--	--	--	--	--
MAR												
01-02	1001	0918	0.227	--	--	--	29	7.7	--	--	2.0	--
17-18	1435	0157	0.086	--	120	720	58	15	--	--	5.0	--
22-22	1849	2251	0.104	--	--	--	30	8.4	--	--	2.0	--
26-26	0345	0650	0.025	--	--	--	--	--	--	--	--	--
26-27	2332	1523	0.299	--	--	--	42	11	--	--	3.0	--
APR												
08-09	1220	1500	0.320	--	--	--	25	6.7	--	--	2.0	--
12-12	0957	2253	0.483	--	--	--	17	4.6	--	--	1.0	--
13-14	2036	1159	0.315	--	--	--	21	5.4	--	--	2.0	--
MAY												
05-05	0829	1333	0.155	--	--	--	--	--	--	--	--	--
17-18	1920	0200	0.008	--	1800	18000	56	20	16	8.0	--	4.0
18-18	1056	1518	0.193	--	--	--	--	9.9	--	5.0	--	--
21-21	1613	1639	0.039	--	3700	35000	27	24	7.7	13	--	2.0
25-25	0529	1538	0.001	--	4200	55000	--	29	--	14	--	--
JUN												
10-10	1550	1739	0.064	--	50000	46000	26	29	7.3	16	--	2.0
12-12	0301	0450	0.082	--	--	--	24	16	6.2	8.0	--	2.0
13-14	2313	0128	0.063	--	3500	47000	25	18	6.7	8.0	--	2.0
JUL												
01-01	1712	1738	0.023	--	2500	19000	35	27	9.1	14	--	3.0
21-21	0518	0625	0.212	--	--	--	14	28	4.1	16	--	1.0
AUG												
07-07	0630	0650	0.013	--	23000	--	49	--	13	--	--	4.0
16-17	2254	0021	0.028	--	--	--	37	--	9.8	--	--	3.0
SEP												
03-03	1002	1101	0.022	--	--	--	--	10	--	--	3.0	--
09-10	2312	0027	0.039	36	52000	110000	46	--	12	--	--	4.0
11-12	1913	0733	0.281	5.7	6700	23000	130	--	19	--	--	19
14-14	0613	2227	0.363	4.9	--	--	38	--	8.5	--	--	4.0
15-16	2353	0300	0.063	3.3	16000	27000	31	--	7.5	--	--	3.0
17-18	2100	0337	0.134	7.2	7600	3400	24	--	6.3	--	--	2.0
24-24	1249	1536	0.027	18	6000	16000	24	--	6.2	--	--	2.0

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	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)	ANTI- MONY, TOTAL (UG/L) AS SB) (01097)	ARSENIC TOTAL (UG/L) AS AS) (01002)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L) AS BE) (01012)	CADMIUM TOTAL RECOV- ERABLE (UG/L) AS CD) (01027)	CADMIUM TOTAL RECOVER- ABLE (UG/L) (01113)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)
NOV 1990												
21-21	110	--	--	0.270	--	--	1	1	<10	1	--	--
27-27	580	--	--	0.620	--	--	2	2	<10	3	--	--
27-27	168	--	--	0.360	--	--	--	--	--	--	--	--
DEC												
12-12	128	--	--	0.340	--	--	2	1	<10	2	--	--
FEB 1991												
04-04	250	--	--	0.570	--	--	2	2	<10	2	--	--
MAR												
01-02	152	--	--	0.460	--	--	<1	2	<10	1	--	--
17-18	68	--	--	0.250	--	--	1	<1	<10	<1	--	--
22-22	904	--	--	1.02	--	--	3	4	<10	3	--	--
26-26	86	--	--	0.190	--	--	--	--	--	--	--	--
26-27	328	--	--	0.430	--	--	1	2	<10	1	--	--
APR												
08-09	77	--	--	0.170	--	--	<1	1	<10	<1	--	--
12-12	100	--	--	0.190	--	--	<1	1	<10	<1	--	--
13-14	50	--	--	0.120	--	--	<1	2	<10	<1	--	--
MAY												
05-05	48	104	--	0.150	--	0.073	<1	1	<10	<1	--	--
17-18	120	336	--	0.750	--	0.350	--	--	--	--	1	0.5
18-18	116	172	--	0.230	--	--	--	--	--	--	0	<0.2
21-21	304	382	--	0.420	--	0.120	--	--	--	--	1	<0.2
25-25	80	372	--	0.290	--	--	--	--	--	--	1	--
JUN												
10-10	282	384	--	0.550	--	0.210	--	--	--	--	1	0.2
12-12	154	220	--	0.280	--	0.107	--	--	--	--	1	0.2
13-14	130	210	--	0.260	--	0.107	--	--	--	--	1	<0.2
JUL												
01-01	336	460	--	0.470	--	0.159	--	--	--	--	2	0.4
21-21	320	512	--	0.330	--	0.113	--	--	--	--	1	0.3
AUG												
07-07	364	--	--	0.690	--	--	2	2	<10	2	--	--
16-17	112	--	--	0.370	--	--	<1	1	<10	1	--	--
SEP												
03-03	280	--	--	0.660	--	--	2	2	<10	2	--	--
09-10	42	184	1.13	0.280	0.280	--	--	--	--	--	2	1.9
11-12	54	116	0.540	0.270	--	0.086	--	--	--	--	<0	0.4
14-14	125	178	0.504	0.240	--	0.083	--	--	--	--	1	0.8
15-16	20	74	0.287	0.090	--	0.056	--	--	--	--	<0	<0.2
17-18	23	78	0.798	0.100	--	0.054	--	--	--	--	0	0.4
24-24	120	248	0.610	0.330	--	0.091	--	--	--	--	1	2.8

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, TOTAL RECOVER -ABLE (UG/L) (01118)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)
NOV 1990												
21-21	5	--	--	8	--	--	15	--	<0.10	<1	<1	<1
27-27	19	--	--	53	--	--	50	--	0.10	19	<1	<1
27-27	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
12-12	16	--	--	23	--	--	44	--	0.10	10	<1	<1
FEB 1991												
04-04	19	--	--	51	--	--	68	--	0.10	12	<2	<1
MAR												
01-02	12	--	--	24	--	--	40	--	<0.10	8	1	<1
17-18	7	--	--	19	--	--	21	--	<0.10	6	<1	<1
22-22	28	--	--	75	--	--	160	--	0.10	18	<1	<1
26-26	--	--	--	--	--	--	--	--	--	--	--	--
26-27	13	--	--	30	--	--	54	--	<0.10	10	<1	<1
APR												
08-09	5	--	--	12	--	--	15	--	<0.10	4	<1	<1
12-12	7	--	--	11	--	--	20	--	<0.10	4	<1	<1
13-14	4	--	--	9	--	--	12	--	<0.10	3	<1	<1
MAY												
05-05	4	--	--	10	--	--	13	--	<0.10	5	<1	<1
17-18	--	10	4	--	52	33	--	<3	--	--	--	--
18-18	--	4	<3	--	18	5	--	<3	--	--	--	--
21-21	--	10	<3	--	26	9	--	<3	--	--	--	--
25-25	--	5	--	--	31	--	--	--	--	--	--	--
JUN												
10-10	--	6	<3	--	34	12	--	<3	--	--	--	--
12-12	--	4	<3	--	17	6	--	<3	--	--	--	--
13-14	--	4	<3	--	15	7	--	<3	--	--	--	--
JUL												
01-01	--	9	<3	--	55	14	--	<3	--	--	--	--
21-21	--	4	<3	--	22	6	--	<3	--	--	--	--
AUG												
07-07	20	--	--	54	--	--	63	--	<0.10	--	<1	<1
16-17	4	--	--	22	--	--	23	--	<0.10	9	<1	<1
SEP												
03-03	8	--	--	36	--	--	39	--	0.10	14	<1	<1
09-10	--	<3	<3	--	22	17	--	<3	--	--	--	--
11-12	--	<3	<3	--	4	4	--	<3	--	--	--	--
14-14	--	3	<3	--	11	5	--	<3	--	--	--	--
15-16	--	<3	<3	--	5	3	--	<3	--	--	--	--
17-18	--	<3	<3	--	5	5	--	<3	--	--	--	--
24-24	--	18	<3	--	23	10	--	<3	--	--	--	--

## 05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]



WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

WATER-QUALITY DATA. NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

## WISCONSIN RIVER BASIN

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

WATER-QUALITY DATA, NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]



## WISCONSIN RIVER BASIN

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## WATER-QUALITY DATA. NOVEMBER 1990 TO SEPTEMBER 1991

[illegible]

05429268 NINE SPRINGS CREEK STORM SEWER TRIBUTARY AT MADISON, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1990 to September 1991 (non-frozen precipitation).

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

REMARKS.--Gage established Nov. 1, 1990. Recorded precipitation interpreted as collector snowmelt, and rainfall estimated to be 0.00 for Nov. 5-6, 8-9, Dec. 5, 15, Jan. 2, 5, 9, 12, 14, 16, 19, and Feb. 18. Recorded precipitation interpreted as collector rain/snowfall, and rainfall estimated to be 0.00 for Nov. 11, Dec. 17-18, 20, 28-29, and Mar. 2, 8, 17-18, 28, 31.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.31 in., July 21.

 RAINFALL ACCUMULATED (INCHES), NOVEMBER 1990 TO SEPTEMBER 1991  
 DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	.00	.00	.00	1.08	.00	.00	.15	.17	.00	.00
2		.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3		.16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10
4		.14	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
5		.00	.00	.00	.00	.00	.00	.73	.00	.00	.00	.00
6		.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7		.00	.00	.00	.00	.00	.00	.00	.00	.77	.03	.00
8		.00	.00	.00	.00	.00	.37	.09	.00	.00	1.98	.00
9		.00	.00	.00	.00	.00	.85	.00	.00	.00	.00	.44
10		.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.01
11		.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.39
12		.00	.00	.00	.00	.00	1.27	.00	.41	.01	.00	.66
13		.00	.00	.00	.00	.00	.11	.00	.25	.00	.00	.00
14		.00	.00	.00	.00	.00	.78	.00	1.17	.00	.00	1.40
15		.00	.00	.00	.00	.00	.00	.00	.38	.00	.00	.46
16		.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.08
17		.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.30
18		.00	.00	.00	.00	.00	.00	.71	.00	.00	.00	.16
19		.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20		.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21		.25	.00	.00	.00	.00	.00	.15	.16	2.31	.00	.00
22		.00	.00	.00	.00	.55	.03	.00	.00	.02	.00	.00
23		.00	.00	.00	.00	.05	.21	.02	.00	.00	.00	.00
24		.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.15
25		.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.02
26		.05	.00	.00	.00	.34	.00	.04	.00	.00	.00	.00
27		.42	.00	.00	.00	.75	.10	.00	.00	.00	.00	.00
28		.00	.00	.00	.00	.00	.09	.00	.00	.31	.00	.00
29		.00	.00	.00	---	.00	.17	.00	.00	.02	.00	.00
30		.00	.00	.00	---	.00	.00	.05	.00	.00	.00	.00
31		.00	.00	.00	---	.00	.00	.08	.00	.00	.00	.00
TOTAL		---	0.00	0.00	0.00	2.77	3.98	2.09	2.86	3.62	2.16	4.17

## ROCK RIVER BASIN

05429500 YAHARA RIVER NEAR MCFARLAND, WI

LOCATION.--Lat 43°00'32", long 89°18'18", in SW 1/4 sec.3, T.6 N., R.10 E., Dane County, Hydrologic Unit 07090001, on left bank just upstream from bridge on U.S. Highway 51, at dam at outlet of Lake Waubesa and 1.0 mi southwest of McFarland.

DRAINAGE AREA.--327 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929 (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 periods, Dec. 3, 4, and Feb. 15, 16. Records fair. Flow regulated by dams at outlets of Lake Mendota and Lake Waubesa. The Madison Metropolitan Sewerage District diverted an average of 56 ft<sup>3</sup>/s of effluent into the Badfish Creek basin during 1991 water year. The data were provided by the Madison Metropolitan Sewerage District. Prior to 1958 the effluent was discharged into the Yahara River above Mc Farland. Gage-height telemeter at station for Lake Waubesa stage.

AVERAGE DISCHARGE.--61 years, 155 ft<sup>3</sup>/s, 6.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 867 ft<sup>3</sup>/s, Apr. 10, 1959, gage height, 5.82 ft, datum then in use; maximum gage height, 6.33 ft, July 23, 24, 1950, backwater from aquatic vegetation; minimum discharge, 1.0 ft<sup>3</sup>/s, Oct. 18, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 510 ft<sup>3</sup>/s, Apr. 15, gage height, 5.31 ft; minimum, 4.4 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	188	147	104	63	46	273	338	91	47	111	22
2	28	178	147	100	22	105	274	329	91	54	101	17
3	31	172	150	98	20	131	270	318	91	77	93	17
4	32	171	160	95	19	134	269	308	84	117	88	17
5	31	192	192	97	20	138	271	308	56	114	81	13
6	27	216	191	96	21	137	270	311	28	106	72	11
7	24	204	193	94	21	140	268	253	21	103	68	11
8	26	190	190	93	22	137	291	183	18	94	107	10
9	30	181	188	92	24	133	348	128	18	114	124	6.3
10	33	175	187	89	26	131	357	131	15	123	123	7.8
11	40	171	187	91	27	130	355	130	13	113	118	7.1
12	35	168	186	95	28	127	355	129	16	103	112	16
13	37	163	165	93	28	126	372	126	17	95	107	15
14	38	157	174	90	30	126	394	126	62	85	101	24
15	37	154	174	89	31	103	468	126	197	44	126	43
16	39	155	167	92	32	80	493	110	202	14	136	66
17	43	152	162	91	33	90	480	81	201	11	134	63
18	33	144	160	89	34	106	464	91	199	13	132	68
19	64	141	153	87	35	116	468	97	93	14	126	58
20	114	143	145	87	35	126	462	95	69	16	124	52
21	106	144	141	86	36	132	444	94	67	57	120	48
22	101	150	137	86	38	146	429	98	66	144	119	43
23	92	154	133	84	40	167	419	94	61	177	118	40
24	85	152	124	83	39	175	409	91	56	167	115	41
25	79	152	118	83	41	199	393	91	56	155	114	41
26	70	152	112	82	40	224	382	91	56	144	79	36
27	60	157	108	82	39	253	372	88	50	134	25	32
28	53	165	105	74	40	274	366	94	48	124	27	31
29	112	163	111	70	---	279	365	91	44	124	28	31
30	201	157	111	75	---	279	350	88	45	118	29	28
31	197	---	109	78	---	275	---	89	---	115	28	---
TOTAL	1924	4961	4727	2745	884	4765	11131	4727	2131	2916	2986	915.2
MEAN	62.1	165	152	88.5	31.6	154	371	152	71.0	94.1	96.3	30.5
MAX	201	216	193	104	63	279	493	338	202	177	136	68
MIN	24	141	105	70	19	46	268	81	13	11	25	6.3
CFSM	.19	.51	.47	.27	.10	.47	1.13	.47	.22	.29	.29	.09
IN.	.22	.56	.54	.31	.10	.54	1.27	.54	.24	.33	.34	.10

CAL YR 1990 TOTAL 50052 MEAN 137 MAX 374 MIN 24 CFSM .42 IN. 5.69  
WTR YR 1991 TOTAL 44812.2 MEAN 123 MAX 493 MIN 6.3 CFSM .38 IN. 5.10

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.

REMARKS.--Estimated daily discharges: Aug. 29 to Sept. 2 and ice periods listed in rating table below. Records good except those for estimated daily discharges, which are fair. Approximately 69 percent of flow is effluent from Nine Springs treatment plant. (Data provided by Madison Metropolitan Sewerage District.)

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 704 ft<sup>3</sup>/s, Mar. 2, gage height, 7.51 ft; minimum daily, 57 ft<sup>3</sup>/s, Sept. 8, but may have been less during period of estimated record, Aug. 29 to Sept. 2.

4.4	55	5.5	243
4.5	69	6.0	340
5.0	155	7.0	562

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	70	69	64	65	224	91	91	81	68	70	60
2	69	71	66	64	62	560	93	89	78	80	72	62
3	73	70	74	68	62	182	91	85	77	75	69	64
4	76	77	74	70	68	135	91	84	78	71	64	66
5	72	80	73	66	72	125	90	104	76	65	63	65
6	71	80	71	62	73	151	86	112	74	69	70	64
7	68	76	71	66	73	115	84	97	75	67	71	61
8	72	74	67	67	79	105	90	91	71	71	118	57
9	75	77	68	65	80	102	146	89	67	76	89	61
10	79	73	71	65	76	93	136	86	68	75	76	67
11	83	70	73	67	73	96	107	83	76	75	70	66
12	74	72	74	63	71	96	100	80	73	76	69	82
13	67	74	77	61	71	91	116	85	72	73	75	69
14	68	75	73	65	71	91	142	86	81	66	74	73
15	72	75	73	65	72	90	141	84	119	64	74	84
16	76	72	70	66	70	88	114	82	83	71	74	112
17	79	69	73	64	67	90	104	81	74	71	71	75
18	88	66	75	65	72	108	97	98	79	71	66	73
19	78	70	73	63	76	102	95	99	77	72	65	68
20	74	71	72	63	77	99	90	83	74	70	71	66
21	72	77	75	63	107	101	85	83	76	86	71	63
22	73	70	70	66	131	104	88	87	82	83	71	61
23	73	63	66	66	98	126	95	86	70	77	68	63
24	72	63	64	68	82	106	96	91	68	71	64	66
25	70	62	58	68	80	96	92	83	74	70	62	65
26	72	67	68	68	78	116	90	78	73	68	65	64
27	69	81	72	66	74	184	88	71	75	67	69	64
28	65	80	70	65	75	173	88	76	76	64	69	62
29	67	77	70	65	---	125	94	81	74	71	72	60
30	72	74	64	64	---	104	94	80	72	70	70	64
31	70	---	70	66	---	97	---	81	---	69	64	---
TOTAL	2258	2176	2184	2024	2155	4075	3014	2686	2293	2222	2216	2027
MEAN	72.8	72.5	70.5	65.3	77.0	131	100	86.6	76.4	71.7	71.5	67.6
MAX	88	81	77	70	131	560	146	112	119	86	118	112
MIN	65	62	58	61	62	88	84	71	67	64	62	57
CAL YR 1990	TOTAL	31202	MEAN	85.5	MAX	382	MIN	58				
WTR YR 1991	TOTAL	29330	MEAN	80.4	MAX	560	MIN	57				

## ROCK RIVER BASIN

05430175 YAHARA RIVER NEAR FULTON, WI

LOCATION.--Lat 42°49'50", long 89°10'09", in NE 1/4 NE 1/4 sec.10, T.4 N., R.11 E., Rock County, Hydrologic Unit 07090001, on right bank, 700 ft downstream from Badfish Creek, 2,000 ft upstream from bridge on State Highway 59, and 2.8 mi northwest of Fulton.

DRAINAGE AREA.--517 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 792.7 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except for ice-affected periods, which are fair. Diurnal fluctuation caused by powerplant at Stebbensville 1.5 mi upstream, and additional regulation from other dams and powerplants upstream.

AVERAGE DISCHARGE.--14 years, 347 ft<sup>3</sup>/s, 9.11 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,040 ft<sup>3</sup>/s, Sept. 1, 1981, gage height, 8.36 ft; minimum daily, 60 ft<sup>3</sup>/s, Aug. 7, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft<sup>3</sup>/s, May 1, gage height, 5.94 ft; minimum daily, 118 ft<sup>3</sup>/s, Sept. 8.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4, 20, 21, Dec. 23 to Jan. 1, Jan. 3-5, 7, Jan. 21 to Feb. 5, and Feb. 15, 16.)

3.1	111	4.5	548
3.5	198	5.0	794
4.0	341	6.0	1,410

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	141	268	260	150	285	430	655	287	131	223	129
2	123	246	199	286	150	1040	411	595	246	147	240	124
3	127	142	254	350	240	379	415	563	238	145	238	130
4	130	146	250	380	280	282	416	473	239	141	231	132
5	126	147	299	360	140	292	415	537	202	133	252	129
6	127	301	262	344	141	306	412	545	148	178	219	124
7	123	372	200	220	140	208	407	502	147	183	199	120
8	124	367	208	374	284	380	249	356	145	136	193	118
9	128	377	261	298	190	237	483	417	141	140	243	120
10	132	291	236	225	224	272	636	336	138	200	223	128
11	138	328	364	283	145	377	689	283	142	252	199	125
12	130	299	290	267	141	258	677	183	135	247	205	141
13	124	383	296	194	138	245	680	162	133	262	139	130
14	125	295	313	258	138	263	671	165	139	223	194	135
15	127	378	362	224	140	290	665	171	173	219	226	156
16	130	296	328	252	210	260	675	247	215	178	221	161
17	133	379	410	243	137	151	803	236	146	161	223	204
18	159	202	317	211	134	288	887	241	149	155	216	168
19	230	288	391	248	201	264	730	178	146	148	198	223
20	251	149	410	159	137	267	745	282	143	142	138	254
21	242	360	420	260	160	257	724	249	147	150	178	142
22	219	265	347	240	185	272	663	245	234	154	206	139
23	227	276	400	220	159	298	717	305	233	283	233	137
24	214	279	340	240	147	384	699	325	224	238	139	139
25	245	243	370	190	145	239	655	325	218	273	139	136
26	219	238	380	170	149	311	628	222	144	363	207	134
27	198	273	360	160	146	400	637	244	143	260	234	132
28	218	254	310	160	145	628	576	276	143	240	142	135
29	223	260	270	150	---	461	503	291	141	237	141	135
30	238	245	250	140	---	435	502	245	135	224	142	134
31	255	---	240	150	---	448	---	242	---	253	136	---
TOTAL	5307	8220	9605	7516	4696	10477	17800	10096	5214	6196	6117	4314
MEAN	171	274	310	242	168	338	593	326	174	200	197	144
MAX	255	383	420	380	284	1040	887	655	287	363	252	254
MIN	122	141	199	140	134	151	249	162	133	131	136	118
CFSM	.33	.53	.60	.47	.32	.65	1.15	.63	.34	.39	.38	.28
IN.	.38	.59	.69	.54	.34	.75	1.28	.73	.38	.45	.44	.31

CAL YR 1990 TOTAL 104209 MEAN 286 MAX 1010 MIN 117 CFSM .55 IN. 7.50  
WTR YR 1991 TOTAL 95558 MEAN 262 MAX 1040 MIN 118 CFSM .51 IN. 6.88

ROCK RIVER BASIN

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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 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1914 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929. 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 periods listed in rating table below. Records are good except those for ice-affected periods and periods of discharge below 800 ft<sup>3</sup>/s, which are fair. Diurnal fluctuation caused by powerplants above station. Data-collection platform at station.

AVERAGE DISCHARGE.--77 years, 1,849 ft<sup>3</sup>/s, 7.52 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft<sup>3</sup>/s, Mar. 23, 24, 1929, gage height, 11.81 ft present datum; maximum gage height observed, 13.05 ft, Feb. 5, 1916, present datum (backwater from ice); minimum discharge, 22 ft<sup>3</sup>/s, Sept. 9, 1964; minimum daily, 42 ft<sup>3</sup>/s, Aug. 25, 26, 1934; minimum gage height, 0.09 ft, Aug. 26, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,380 ft<sup>3</sup>/s, Apr. 19, gage height, 7.92 ft; minimum daily, 339 ft<sup>3</sup>/s, Sept. 9.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 23 to Feb. 5 and Feb. 16-18.)

2.3	311	5.0	2,220
3.0	740	6.0	3,160
4.0	1,440	8.0	5,480

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	568	1240	1260	1300	860	1890	4850	3530	1130	1490	1010	491
2	551	991	1450	1300	880	3040	4850	3700	1160	1400	1170	412
3	590	1060	1850	1300	940	2860	4830	3730	1190	1220	1120	421
4	673	1100	1300	1300	1000	2510	4750	3610	1230	1120	1050	415
5	438	1200	1530	1300	980	2850	4600	3530	1160	1070	977	387
6	429	1020	1470	1300	918	3040	4330	3220	1140	998	1000	421
7	619	1290	1450	1200	916	3170	4220	3090	966	1070	852	446
8	745	1280	1400	1200	920	3370	4230	3080	994	1070	1210	427
9	750	1320	1450	1100	1070	3500	4350	2900	982	1040	1220	339
10	774	1350	1590	1100	1020	3560	4410	2780	953	1040	1070	393
11	862	1200	1540	1000	1080	3720	4530	2540	946	1080	1030	390
12	1030	1300	1680	1000	1040	3810	4660	2370	959	1130	889	614
13	534	1730	1480	1000	1140	3870	4640	2080	943	1090	975	536
14	840	1710	1620	940	1180	3710	4690	2080	914	1070	960	789
15	879	1510	1650	900	1180	3710	4650	1970	970	1000	825	906
16	889	1580	1590	880	1200	3740	4610	1880	974	687	872	899
17	962	1570	1700	900	1300	3780	4920	1870	1110	461	745	1050
18	925	1530	1690	900	1300	3740	5160	1960	1250	422	760	1480
19	1200	1470	1640	900	1280	3820	5310	1800	1330	636	671	1440
20	1460	1400	1710	940	1350	3800	5110	1560	1420	541	629	1550
21	1520	1280	1750	980	1350	3820	5030	1570	1660	481	360	1470
22	1530	1390	1690	980	1450	3830	4780	1550	1790	665	367	1410
23	1510	1290	1600	1000	1440	3720	4730	1580	1790	1180	488	1390
24	1510	1300	1500	1000	1430	3710	4680	1460	1680	1200	526	1360
25	1540	1280	1500	1000	1470	3970	4540	1540	1670	1080	436	1400
26	1520	1340	1500	960	1510	4060	4410	1450	1560	1090	362	1280
27	1450	1300	1500	920	1520	4320	4360	1290	1430	1110	497	1250
28	1430	1250	1400	900	1590	4230	4250	1310	1460	1060	586	1190
29	1420	1300	1400	880	---	4770	4080	1280	1460	1110	471	1140
30	1390	1280	1400	860	---	4700	3650	1200	1490	1060	466	957
31	1190	---	1300	860	---	4750	---	1090	---	974	457	---
TOTAL	31728	39861	47590	32100	33314	113370	138210	68600	37711	30645	24051	26653
MEAN	1023	1329	1535	1035	1190	3657	4607	2213	1257	989	776	888
MAX	1540	1730	1850	1300	1590	4770	5310	3730	1790	1490	1220	1550
MIN	429	991	1260	860	860	1890	3650	1090	914	422	360	339
CFSM	.31	.40	.46	.31	.36	1.09	1.38	.66	.38	.30	.23	.27
IN.	.35	.44	.53	.36	.37	1.26	1.54	.76	.42	.34	.27	.30

CAL YR 1990	TOTAL 650717	MEAN 1783	MAX 5920	MIN 350	CFSM .53	IN. 7.25
WTR YR 1991	TOTAL 623833	MEAN 1709	MAX 5310	MIN 339	CFSM .51	IN. 6.95

## ROCK RIVER BASIN

05431014 JACKSON CREEK AT PETRIE ROAD NEAR ELKHORN, WI

LOCATION.--Lat 42°38'29", long 88°31'18", in SW 1/4 SW 1/4 sec.8, T.2 N., R.17 E., Walworth County, Hydrologic Unit 07090001, on left bank 5 ft upstream of Petrie Road bridge, 2.5 mi upstream from Delavan Lake inlet at Mound Road, and 2.5 mi southeast of Elkhorn.

DRAINAGE AREA.--8.96 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 960 ft, from topographic map.

REMARKS.--Estimated daily discharges: Mar. 13, 14, and ice periods listed below. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--8 years, 4.04 ft<sup>3</sup>/s, 6.12 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 359 ft<sup>3</sup>/s, Mar. 10, 1986, gage height, 8.84 ft; minimum daily, 0.03 ft<sup>3</sup>/s, Aug. 7, 12, 1987, Jan. 30 to Feb. 2, July 20, and Sept. 11, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 150 ft<sup>3</sup>/s, Mar. 27, gage height, 8.00 ft; minimum daily, 0.03 ft<sup>3</sup>/s, Jan. 30 to Feb. 2, July 20, and Sept. 11.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Feb. 20 and June 12-30; stage-discharge relation affected by ice Dec. 23 to Feb. 3, Feb. 12-18, and Feb. 23 to Mar. 1.)

5.0	0	5.5	1.3	6.3	16
5.1	.05	5.6	2.1	6.5	23
5.2	.18	5.7	3.2	6.7	32
5.3	.35	5.9	6.1	7.0	49
5.4	.70	6.1	10	7.5	86

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.10	2.6	.60	.03	5.0	13	3.7	.74	.10	.05	.05
2	.08	.09	1.5	.35	.03	33	9.2	3.0	1.1	.08	.05	.04
3	.13	.09	5.0	.27	.10	12	6.9	2.3	.88	.08	.05	.11
4	.14	.78	5.7	.18	28	6.0	5.7	2.3	.57	.08	.05	.05
5	.07	9.6	.54	.16	38	3.3	5.2	4.2	.47	.07	.05	.04
6	.05	9.2	.70	.13	26	3.4	4.2	6.3	.40	.06	.06	.04
7	.06	4.6	.58	.11	16	2.6	3.8	4.1	.39	.06	.06	.04
8	.09	2.4	.46	.10	14	1.2	9.2	3.3	.38	.07	.28	.04
9	.16	1.8	.40	.09	11	1.2	38	3.3	.36	.06	.10	.05
10	.33	1.8	.66	.09	6.7	.82	25	2.6	.34	.06	.06	.05
11	.35	1.3	1.3	.14	4.8	.87	16	2.2	.32	.06	.05	.03
12	.24	.95	10	.20	1.5	.85	12	1.9	.38	.14	.06	.22
13	.17	.71	14	.15	1.0	.80	10	1.6	.33	.09	.06	.13
14	.23	.62	6.6	.17	.50	.70	20	1.2	.31	.07	.08	1.1
15	.39	.63	5.6	.15	.30	.55	55	.90	.58	.06	.09	.81
16	.25	.58	4.8	.18	.20	.53	33	.86	.42	.05	.06	.27
17	.22	.38	4.6	.16	.15	.89	20	1.0	.31	.04	.06	.08
18	1.2	.36	7.8	.13	.20	2.6	14	.98	.24	.04	.06	.06
19	.40	.37	4.9	.16	4.8	2.1	10	1.4	.20	.04	.05	.06
20	.28	.34	4.0	.23	3.9	2.2	7.1	1.1	.17	.03	.05	.06
21	.22	.56	5.5	.15	6.8	2.8	5.6	.97	.15	.09	.05	.05
22	.15	.73	4.4	.12	6.1	6.4	4.8	.86	.15	.08	.04	.06
23	.13	.63	2.0	.10	2.1	10	4.8	.79	.15	.05	.04	.07
24	.12	.45	1.2	.09	1.2	9.0	7.3	.98	.15	.04	.04	.05
25	.10	.38	.70	.08	.70	5.9	5.4	.88	.17	.04	.05	.07
26	.12	.33	.45	.07	.50	24	4.9	2.6	.19	.04	.04	.06
27	.11	4.2	.35	.06	.35	87	5.8	1.7	.19	.04	.05	.04
28	.09	17	.50	.05	.25	57	6.2	1.2	.15	.05	.05	.05
29	.08	6.4	18	.04	---	28	5.5	.87	.13	.06	.05	.05
30	.10	3.7	8.0	.03	---	18	5.3	.85	.11	.06	.05	.05
31	.09	---	1.1	.03	---	15	---	.81	---	.05	.05	---
TOTAL	6.23	71.08	123.94	4.57	175.21	343.71	372.9	60.75	10.43	1.94	1.94	3.88
MEAN	.20	2.37	4.00	.15	6.26	11.1	12.4	1.96	.35	.063	.063	.13
MAX	1.2	17	18	.60	38	87	55	6.3	1.1	.14	.28	1.1
MIN	.05	.09	.35	.03	.03	.53	3.8	.79	.11	.03	.04	.03
CFSM	.02	.26	.45	.02	.70	1.24	1.39	.22	.04	.01	.01	.01
IN.	.03	.30	.51	.02	.73	1.43	1.55	.25	.04	.01	.01	.02
CAL YR 1990	TOTAL 1551.77	MEAN 4.25	MAX 82	MIN .05	CFSM .47	IN. 6.44						
WTR YR 1991	TOTAL 1176.58	MEAN 3.22	MAX 87	MIN .03	CFSM .36	IN. 4.88						

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 200 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 930 ft, from topographic map.

REMARKS.--Estimated daily discharges: Apr. 29-30, Aug. 8-9, Sept. 3, 4, 14, 15, and ice period listed in rating tables below. Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--8 years, 3.06 ft<sup>3</sup>/s, 9.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 162 ft<sup>3</sup>/s, Sept. 26, 1986, gage height, 9.55 ft; minimum daily, 0.11 ft<sup>3</sup>/s, Sept. 23-24, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 110 ft<sup>3</sup>/s, Mar. 27, gage height, 8.52 ft; minimum daily, 0.35 ft<sup>3</sup>/s, Sept. 7-8.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 23 to Mar. 1.)

Oct. 1 to Feb. 5 (1715)

Feb. 5 (1730) to Sept. 30

4.9	0.40	5.4	3.2	4.8	0.23	5.5	6.0
5.0	.50	5.5	4.5	4.9	.46	5.6	8.0
5.1	.79	5.6	5.9	5.0	.83	5.8	13
5.2	1.3	5.8	9.2	5.1	1.4	6.0	20
5.3	2.2	6.0	13	5.3	2.1	6.5	38
		6.5	26	5.4	4.4	7.0	56

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	1.2	2.4	1.2	.50	10	4.5	2.5	3.1	.96	.55	.45
2	.68	1.3	1.8	1.1	.70	21	3.7	2.2	3.0	1.0	.59	.44
3	5.1	1.4	2.0	1.1	1.7	3.5	3.5	2.0	1.6	.97	.52	3.3
4	1.2	8.3	2.4	1.1	11	2.8	3.9	1.9	1.5	.93	.44	.53
5	.75	16	2.5	1.0	10	2.7	3.5	8.7	1.3	.82	.49	.42
6	.72	5.0	2.2	.90	5.0	3.0	2.8	3.5	1.1	.76	.55	.36
7	.71	3.5	2.1	1.0	2.2	2.2	2.6	2.6	1.0	.84	.56	.35
8	1.7	2.4	2.0	.94	1.6	2.1	18	2.3	.98	.95	9.0	.35
9	2.1	2.9	2.2	.90	1.4	2.1	26	2.2	.90	1.0	3.3	4.2
10	7.7	2.5	3.0	.80	1.3	1.8	8.3	2.0	1.0	.97	.54	1.5
11	2.2	1.8	3.6	.90	1.2	2.0	5.1	1.9	1.1	.86	.47	.72
12	1.2	1.6	6.9	.80	1.2	2.1	5.3	1.9	2.9	5.0	.58	7.4
13	.97	1.5	5.5	.78	1.2	2.0	4.3	2.0	1.2	.58	.68	1.7
14	4.6	1.4	3.3	.76	1.1	1.9	14	1.9	2.6	.47	.64	35
15	2.2	1.3	4.3	.94	1.1	1.9	37	1.8	5.5	.55	.63	26
16	1.4	1.3	3.8	.80	1.1	1.8	8.7	1.9	1.6	.54	.60	.81
17	3.7	1.1	5.0	.74	1.5	3.7	6.0	2.2	1.5	.49	.57	.67
18	3.8	1.2	5.6	.70	4.6	3.8	4.7	3.5	1.4	.42	.44	.65
19	1.9	1.2	3.6	1.0	3.7	3.0	4.0	1.9	1.2	.48	.52	.57
20	1.4	1.2	3.5	.90	1.8	2.9	3.3	1.6	1.0	.41	.57	.58
21	1.5	3.4	4.3	.86	1.5	3.2	3.0	1.7	1.0	6.5	.53	.49
22	1.3	1.9	3.0	.80	2.0	8.3	3.3	1.7	.96	.77	.55	.47
23	1.3	1.4	2.0	.76	1.7	7.1	5.4	1.7	.74	.70	.58	.53
24	1.2	1.3	1.6	.72	1.5	4.5	3.9	2.3	.77	.61	.49	.60
25	1.1	1.2	1.4	.68	1.4	3.5	3.3	2.8	.86	.55	.43	.62
26	1.1	1.4	1.2	.66	1.4	22	2.8	3.8	.80	.60	.62	.57
27	1.0	19	1.1	.62	1.3	54	5.2	1.6	.76	.50	.60	.55
28	1.0	9.3	2.0	.60	1.3	16	3.0	1.5	.72	.50	.60	.54
29	1.2	3.6	15	.58	---	7.4	4.5	1.6	.72	.63	.57	.43
30	1.3	2.9	1.7	.56	---	5.1	3.2	2.7	.78	.64	.63	.60
31	1.1	---	1.4	.52	---	5.2	---	1.7	---	.58	.48	---
TOTAL	57.80	103.5	102.4	25.72	66.00	212.6	206.8	73.6	43.59	31.58	28.32	91.40
MEAN	1.86	3.45	3.30	.83	2.36	6.86	6.89	2.37	1.45	1.02	.91	3.05
MAX	7.7	19	15	1.2	11	54	37	8.7	5.5	6.5	9.0	35
MIN	.67	1.1	1.1	.52	.50	1.8	2.6	1.5	.72	.41	.43	.35
CFSM	.43	.79	.76	.19	.54	1.58	1.59	.55	.33	.23	.21	.70
IN.	.50	.89	.88	.22	.57	1.82	1.77	.63	.37	.27	.24	.78

CAL YR 1990 TOTAL 1196.34 MEAN 3.28 MAX 62 MIN .63 CFSM .76 IN. 10.25  
WTR YR 1991 TOTAL 1043.31 MEAN 2.86 MAX 54 MIN .35 CFSM .66 IN. 8.94



054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1983 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

TOTAL-PHOSPHORUS DISCHARGE: October 1983 to current year.

INSTRUMENTATION.--Automatic pumping sampler since October 1983.

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

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 and May 12, 1990.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 60 tons, Mar. 27, 1991; minimum daily, 0.01 ton on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 8.20 mg/L, Aug. 7, 1984; minimum observed, 0.01 mg/L, Jan. 16 and Mar. 14, 1990.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 216 lb, May 25, 1984; minimum daily, 0.03 lb, Sept. 23-24, 1987.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 1,420 mg/L, Dec. 28; minimum observed, 6 mg/L, Jan. 3 and Mar. 30.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 60 tons, Mar. 27; minimum daily, 0.01 ton, Jan. 6, 10.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.0 mg/L, Apr. 8; minimum observed, 0.03 mg/L, Apr. 19.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 136 lb, Apr. 8; minimum daily, 0.12 lb, Sept. 2.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 1990					NOV 1990				
03...	1715	22	--	857	06...	0015	7.4	0.120	--
03...	1815	29	0.470	--	06...	0215	6.6	--	47
03...	1915	16	--	134	06...	0415	6.0	0.110	--
03...	2015	9.4	0.340	129	06...	0515	5.7	--	70
*08...	0835	0.79	0.070	38	06...	0815	5.1	0.150	--
*11...	1036	2.3	--	11	06...	0845	5.0	--	28
11...	1037	2.3	0.160	--	*06...	0900	5.0	0.080	30
*11...	1038	2.3	0.130	--	*06...	1445	5.0	0.060	32
14...	1530	19	--	283	*07...	0825	3.3	0.060	30
14...	1630	16	--	180	*07...	1515	4.3	0.090	207
14...	1730	12	--	137	*08...	0900	2.3	0.040	39
*15...	0930	2.2	0.080	22	*08...	1525	2.3	0.040	50
NOV					*09...	0850	2.3	0.070	37
05...	0915	23	0.310	--	*10...	0900	2.4	0.040	43
05...	1015	24	--	59	*28...	0825	8.9	0.150	31
05...	1115	22	0.230	--	*28...	1050	7.4	0.120	29
05...	1215	19	--	57	*28...	1530	5.9	0.090	37
05...	1315	17	0.260	--	*29...	0850	3.6	0.070	9
05...	1415	15	--	40	*29...	1520	3.5	0.060	34
05...	1515	14	0.220	--	*30...	1105	2.9	0.060	35
05...	1615	14	--	40	*30...	1605	2.9	0.040	--
05...	1715	12	--	47	*30...	1606	2.9	--	21
05...	1815	11	0.230	--	DEC				
05...	1915	10	--	44	*01...	0905	2.4	0.060	23
05...	2015	9.6	--	40	*10...	1050	2.7	0.060	--
05...	2115	8.9	0.140	--	*10...	1055	2.7	--	9
05...	2215	8.4	--	96	*18...	1015	5.6	0.100	27
05...	2315	7.8	--	59					

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC 1990					
28...	2230	2.0	--	0.550	1420
28...	2330	2.0	--	--	158
29...	0030	15	--	0.460	--
29...	0130	15	--	--	335
29...	0330	15	--	0.810	127
29...	0430	15	--	--	195
29...	0530	15	--	0.790	--
29...	0630	15	--	--	71
29...	0730	15	--	--	93
29...	0830	15	--	0.730	93
29...	0930	15	--	--	87
29...	1130	15	--	--	62
29...	1230	15	--	0.720	--
29...	1430	15	--	--	48
29...	1530	15	--	0.610	--
29...	1630	15	--	--	40
JAN 1991					
*03...	1300	1.1	--	--	6
*03...	1306	1.1	--	0.040	--
FEB					
*20...	0909	1.8	--	0.130	--
*20...	0910	1.8	--	--	20
MAR					
01...	1500	10	--	0.170	--
01...	1600	10	--	--	542
01...	1700	10	--	--	231
01...	1900	10	--	0.740	--
01...	2000	10	--	--	95
01...	2100	10	--	0.760	--
01...	2200	10	--	--	286
01...	2300	10	--	0.510	--
01...	2400	10	--	--	449
02...	0100	--	46	0.600	--
02...	0200	--	39	--	349
02...	0400	--	31	0.510	--
02...	0500	--	28	--	146
02...	0700	--	25	--	120
02...	0800	--	25	0.410	--
02...	1000	--	27	--	92
02...	1200	--	23	0.400	--
02...	1300	--	20	--	74
*04...	0900	--	2.7	0.070	32
22...	0230	--	18	1.20	431
26...	0445	--	29	0.650	416
26...	0545	--	56	--	672
26...	0645	--	64	0.330	689
26...	0745	--	53	--	392
26...	0845	--	42	0.380	--
26...	0945	--	35	--	237
26...	1045	--	30	0.340	--
26...	1145	--	26	--	69
26...	1345	--	20	--	42
26...	1445	--	18	0.190	--
26...	1545	--	16	--	25
27...	0300	--	20	0.350	134
27...	0400	--	25	--	257
27...	0500	--	23	0.200	--
27...	0600	--	39	--	211
27...	0700	--	94	0.630	--
27...	0800	--	109	--	1020
27...	0900	--	106	0.520	--
27...	1000	--	95	--	431
27...	1100	--	79	0.350	--
27...	1145	--	67	--	272
27...	1245	--	54	0.750	--
27...	1345	--	45	--	204
27...	1520	--	60	--	453
*27...	1521	--	60	--	435
27...	1522	--	61	0.300	--
*27...	1523	--	62	0.280	--
27...	1530	--	69	--	655
27...	1655	--	79	--	689
*27...	1656	--	79	--	700
27...	1657	--	79	0.210	--
*27...	1658	--	79	0.670	--
27...	1830	--	64	--	397
27...	2030	--	47	0.470	--
27...	2130	--	43	--	223

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)	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)
MAR 1991					APR 1991				
27...	2330	34	0.390	--	14...	1500	18	0.450	--
28...	0030	30	--	88	14...	1600	16	--	39
28...	0230	25	0.290	--	15...	0215	20	0.300	--
28...	0330	23	--	54	15...	0315	46	--	424
28...	0530	19	0.240	--	15...	0415	71	0.360	--
28...	0630	17	--	34	15...	0515	79	--	382
28...	1140	13	--	23	15...	0615	83	0.490	--
*28...	1141	13	--	31	15...	0715	86	--	251
28...	1142	13	0.160	--	15...	0815	78	0.450	--
*28...	1143	13	0.160	--	15...	0915	67	--	190
28...	1440	12	0.150	33	*15...	1005	56	0.310	111
*29...	0935	7.2	0.090	15	15...	1015	53	0.410	--
*29...	1420	7.1	0.090	26	15...	1115	42	--	160
*30...	0910	4.9	0.080	--	15...	1315	30	0.320	--
*30...	0950	4.9	--	6	15...	1415	26	--	53
*30...	1440	5.0	0.070	36	*15...	1520	25	0.230	45
*31...	0920	6.3	0.110	19	15...	1545	23	--	38
APR					15...	1645	21	0.210	--
*01...	0840	4.4	0.060	13	15...	1845	17	--	28
*01...	1330	4.7	0.080	26	15...	1945	16	0.180	--
08...	1830	33	1.10	869	*16...	0945	9.1	0.110	--
08...	1930	87	2.00	1370	*16...	1450	8.2	0.100	21
08...	2030	94	--	946	*17...	0830	5.9	0.080	23
08...	2130	76	1.70	--	*17...	1515	6.0	0.110	28
08...	2230	57	--	804	*18...	0935	4.7	0.070	28
08...	2330	40	0.810	--	*19...	0935	4.0	0.030	25
09...	0130	25	--	301	27...	1100	16	--	474
09...	0230	23	0.440	272	27...	1200	15	--	109
09...	0330	52	--	502	MAY				
09...	0430	63	0.510	403	05...	1115	25	--	267
09...	0530	58	--	394	05...	1300	16	0.820	144
09...	0630	48	0.570	--	05...	1445	12	--	54
09...	0730	39	--	227	*07...	1125	2.7	0.050	33
09...	0930	28	--	80	*15...	1425	2.0	0.050	27
09...	1030	24	0.310	--	*28...	1415	1.7	0.130	66
09...	1100	23	--	53	JUN				
*09...	1105	23	0.270	58	01...	2200	20	--	153
09...	1300	19	0.200	--	01...	2300	22	0.730	109
09...	1400	17	--	38	01...	2400	13	--	90
09...	1600	17	--	45	*10...	1445	1.1	0.080	43
09...	1700	16	0.410	--	15...	0130	16	0.270	63
*10...	1005	8.6	0.110	53	*20...	1245	1.1	0.120	31
*11...	1015	5.0	0.080	11	JUL				
*11...	1440	5.0	0.070	12	*10...	1510	1.0	0.080	32
*12...	1115	10	0.160	282	21...	0815	17	0.320	118
*12...	1520	5.9	0.080	25	21...	0915	41	0.330	126
*13...	0915	4.3	0.060	16	21...	1015	40	--	87
14...	0800	28	0.680	447	21...	1115	21	--	38
14...	0900	32	--	260	21...	1215	8.6	0.210	30
*14...	0925	32	0.180	338	*22...	0837	0.70	0.230	--
14...	1000	32	0.450	--	*22...	0845	0.70	--	10
14...	1100	29	--	214	*30...	1315	0.70	0.110	61
14...	1300	23	--	84					

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

465

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
AUG 1991					
08...	0545	9.0	--	0.370	119
08...	0645	9.0	--	--	230
08...	0745	9.0	--	0.320	117
08...	0845	9.0	--	--	91
08...	0945	9.0	--	--	56
08...	1045	9.0	--	0.210	69
*08...	1145	9.0	--	0.250	48
*19...	1600	--	0.66	0.050	33
*26...	0835	--	0.47	0.080	31
SEP					
03...	1130	3.3	--	0.400	71
03...	1230	3.3	--	--	100
03...	1330	3.3	--	0.450	116
03...	1430	3.3	--	--	55
03...	1530	3.3	--	0.300	37
03...	1630	3.3	--	0.250	33
*04...	1055	0.53	--	0.140	16
*04...	1520	0.53	--	0.130	17
*05...	0915	--	0.37	0.100	40
09...	2130	--	25	0.330	234
09...	2230	--	40	0.320	214
09...	2330	--	29	--	79
10...	0030	--	12	0.240	--
10...	0130	--	5.2	--	45
10...	0230	--	3.0	0.210	44
*10...	0900	--	0.66	0.470	18
*10...	1510	--	0.83	0.170	41
*11...	0930	--	0.40	0.090	25
*11...	1320	--	0.41	0.080	28
11...	2315	--	5.0	0.360	48
12...	0015	--	7.0	0.270	37
12...	0115	--	5.9	0.220	--
12...	0215	--	3.5	--	23
12...	0315	--	2.2	0.190	--
12...	0415	--	5.3	--	77
12...	0515	--	7.2	0.230	99
12...	0615	--	20	0.440	101
12...	0715	--	39	0.430	78
12...	0815	--	36	--	83
12...	0915	--	19	0.460	--
*12...	0955	--	11	0.320	75
12...	1015	--	9.3	--	44
12...	1115	--	5.9	0.440	--
12...	1215	--	3.9	--	28
12...	1315	--	2.8	--	28
*12...	1450	--	1.9	0.270	26
13...	0015	--	6.0	0.270	58
13...	0115	--	7.4	0.290	59
13...	0215	--	5.0	--	47
13...	0315	--	3.0	0.190	--
13...	0415	--	2.5	--	55
*13...	1150	--	0.91	0.200	12
*13...	1300	--	0.88	0.190	8
14...	0315	35	--	--	41
14...	0415	35	--	0.220	--
14...	0515	35	--	--	20
14...	0815	35	--	--	60
14...	0915	35	--	0.280	270
14...	0916	35	--	0.360	171
14...	1015	35	--	0.240	155
14...	1315	35	--	--	52
14...	1415	35	--	0.310	--
*14...	1440	35	--	--	28
*14...	1441	35	--	0.110	--
14...	1715	35	--	--	19
14...	1815	35	--	0.240	--
14...	2215	35	--	--	29
14...	2315	35	--	0.200	--
15...	0315	26	--	--	23
15...	0415	26	--	0.180	--
*15...	0955	26	--	0.350	11
*15...	1535	26	--	0.150	--
*15...	1555	26	--	--	11
*16...	0840	--	0.79	0.190	28
*16...	1500	--	0.93	0.130	24
*17...	0950	--	0.58	0.080	16
*17...	1500	--	0.83	0.160	8
*18...	1030	--	0.75	0.200	16
*19...	1030	--	0.55	0.050	27
*23...	1530	--	0.63	0.090	25

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

## ROCK RIVER BASIN

467

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 mi<sup>2</sup>.

## 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 914.48 ft above National Geodetic Vertical Datum of 1929 (Wisconsin Department of Transportation benchmark).

REMARKS.--Daily mean discharges were estimated based on discharges upstream at Jackson Creek near Elkhorn (05431014) and Jackson Creek Tributary near Elkhorn (054310157). Records poor.

AVERAGE DISCHARGE.--8 years, 11.1 ft<sup>3</sup>/s, 6.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 823 ft<sup>3</sup>/s, Mar. 10, 1986; minimum daily (estimated), 0.22 ft<sup>3</sup>/s, Sept. 15, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum daily (estimated), 224 ft<sup>3</sup>/s, Mar. 27; minimum daily (estimated), 0.43 ft<sup>3</sup>/s, Sept. 7-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	1.4	7.5	2.4	.56	20	29	9.7	4.5	1.1	.65	.55
2	.84	1.5	4.7	1.8	.76	85	22	8.0	5.1	1.2	.69	.52
3	5.4	1.6	12	1.6	1.9	26	16	6.5	3.3	1.1	.62	3.5
4	1.5	9.8	13	1.4	66	15	15	6.4	2.6	1.1	.54	.63
5	.89	35	3.6	1.3	90	9.1	13	17	2.2	.96	.59	.50
6	.82	23	3.6	1.1	58	9.6	11	15	1.9	.88	.67	.44
7	.83	12	3.2	1.2	37	7.3	10	11	1.8	.96	.68	.43
8	1.9	7.1	2.9	1.1	33	4.4	36	8.7	1.7	1.1	9.5	.43
9	2.4	6.4	3.0	1.1	25	4.4	100	8.6	1.6	1.1	3.5	4.3
10	8.3	6.0	4.3	.98	16	3.4	57	7.1	1.7	1.1	.66	1.6
11	2.9	4.3	6.1	1.2	11	3.7	36	6.2	1.7	.98	.57	.78
12	1.7	3.5	26	1.2	4.3	3.8	28	5.6	3.6	5.3	.70	7.8
13	1.3	2.9	32	1.1	3.3	3.6	23	5.1	1.8	.76	.80	2.0
14	5.1	2.6	16	1.1	2.2	3.3	53	4.2	3.2	.61	.80	37
15	3.0	2.5	15	1.2	1.7	3.0	144	3.6	6.6	.67	.81	28
16	1.9	2.4	13	1.1	1.5	2.8	73	3.6	2.4	.64	.72	1.3
17	4.1	1.8	14	1.0	1.8	5.4	45	4.2	2.1	.57	.69	.83
18	6.1	1.9	21	.95	5.0	8.9	32	5.4	1.9	.50	.56	.77
19	2.7	1.9	13	1.3	13	7.1	23	4.6	1.6	.56	.62	.69
20	2.0	1.9	11	1.3	11	7.2	17	3.7	1.3	.47	.67	.70
21	1.9	4.5	15	1.1	17	8.7	14	3.6	1.3	6.7	.63	.59
22	1.6	3.3	12	1.0	15	20	13	3.4	1.2	.93	.63	.59
23	1.5	2.6	5.9	.95	5.8	26	15	3.2	1.0	.80	.66	.67
24	1.4	2.2	3.9	.90	3.8	22	18	4.2	1.1	.69	.57	.70
25	1.3	1.9	2.8	.84	2.8	15	14	4.5	1.2	.63	.53	.76
26	1.3	2.0	2.1	.80	2.4	69	12	8.9	1.2	.68	.70	.69
27	1.2	27	1.8	.74	2.0	224	16	4.9	1.1	.58	.70	.63
28	1.2	42	3.0	.70	1.8	127	15	3.8	1.0	.60	.70	.64
29	1.4	16	50	.66	---	62	15	3.3	.97	.75	.67	.53
30	1.5	10	18	.62	---	40	13	4.4	.99	.76	.73	.70
31	1.3	---	3.5	.58	---	34	---	3.3	---	.68	.58	---
TOTAL	70.11	241.0	342.9	34.32	433.62	880.7	928	191.7	63.66	35.46	32.14	99.27
MEAN	2.26	8.03	11.1	1.11	15.5	28.4	30.9	6.18	2.12	1.14	1.04	3.31
MAX	8.3	42	50	2.4	90	224	144	17	6.6	6.7	9.5	37
MIN	.82	1.4	1.8	.58	.56	2.8	10	3.2	.97	.47	.53	.43
CFSM	.10	.37	.51	.05	.71	1.30	1.42	.28	.10	.05	.05	.15
IN.	.12	.41	.59	.06	.74	1.50	1.58	.33	.11	.06	.05	.17
CAL YR 1990	TOTAL 4219.06	MEAN 11.6	MAX 222	MIN .82	CFSM .53	IN. 7.20						
WTR YR 1991	TOTAL 3352.88	MEAN 9.19	MAX 224	MIN .43	CFSM .42	IN. 5.72						

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 1990.  
 TOTAL-PHOSPHORUS DISCHARGE: 1984 and 1985 water years (unpublished) to current year.

REMARKS.--Records poor. Daily mean discharges are estimated based on discharges from upstream stations 05431014 and 054310157. 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.  
 SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 200 tons, Dec. 29, 1984; minimum daily, 0.00 ton, Sept. 26, 1990.  
 TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 3.8 mg/L, May 27, 1985; minimum observed, 0.01 mg/L, Mar. 7, 1990.  
 TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,088 lb, Feb. 13, 1984; minimum daily, 0.10 lb, Dec. 28, 1989.

## EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 334 mg/L, Nov. 10; minimum observed, 0 mg/L, Sept. 23.  
 SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 27 tons, Mar. 28; minimum daily, 0.00 ton, on many days.  
 TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.83 mg/L, June 18 and Sept. 13; minimum observed, 0.04 mg/L, Nov. 8.  
 TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 183 lb, Mar. 27; minimum daily, 0.32 lb, Feb. 1.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1990					APR 1991				
08...	1005	1.9	0.210	11	12...	1140	28	--	18
11...	0910	2.9	--	34	12...	1545	28	0.160	18
11...	0915	2.9	0.190	--	13...	0935	23	0.140	15
15...	1035	3.0	0.140	4	14...	0940	53	--	14
NOV					14...	0945	53	0.100	--
06...	1000	23	0.120	7	15...	1055	144	0.130	17
06...	1525	23	0.100	20	15...	1535	144	0.150	28
07...	0915	12	0.130	37	16...	1050	73	0.300	--
07...	1535	12	0.110	62	16...	1505	73	0.240	39
08...	0830	7.1	0.040	183	17...	0925	45	0.210	25
08...	1505	7.1	0.160	203	17...	1530	45	0.170	19
09...	0830	6.4	0.090	155	18...	1035	32	0.150	14
10...	0930	6.0	0.090	334	MAY				
28...	0920	42	0.240	179	07...	1240	11	0.050	3
28...	1515	42	0.210	42	JUN				
29...	0830	16	0.230	19	10...	1415	1.7	0.740	18
29...	1505	16	0.200	23	18...	1645	1.9	0.830	5
30...	1150	10	--	72	JUL				
30...	1152	10	0.210	--	10...	1320	1.1	0.630	5
DEC					30...	1145	0.76	0.720	2
01...	0845	7.5	0.190	24	AUG				
10...	0955	4.3	0.140	4	26...	1015	0.70	0.420	7
18...	1030	21	0.070	18	SEP				
JAN 1991					04...	1120	0.63	0.600	1
03...	1025	1.6	--	7	04...	1535	0.63	0.570	2
03...	1026	1.6	0.300	--	05...	1115	0.50	0.590	1
24...	1545	0.90	--	2	10...	1015	1.6	0.650	2
24...	1550	0.90	0.140	--	10...	1525	1.6	0.650	1
FEB					11...	0955	0.78	0.750	2
19...	1345	13	0.320	--	11...	1330	0.78	0.690	11
MAR					12...	1010	7.8	0.700	3
27...	1250	224	0.150	43	12...	1530	7.8	0.790	1
28...	1250	127	0.220	47	13...	1215	2.0	0.830	3
28...	1325	127	0.220	93	13...	1320	2.0	0.770	1
28...	1535	127	0.200	146	14...	0935	37	0.720	12
29...	0955	62	0.280	46	14...	1500	37	0.740	6
29...	1530	62	0.260	40	15...	1015	28	0.810	2
30...	0850	40	0.260	38	15...	1550	28	0.800	4
30...	1425	40	0.260	36	16...	1015	1.3	0.770	3
31...	0945	34	0.230	31	16...	1515	1.3	0.610	6
APR					17...	1010	0.83	0.730	2
01...	1005	29	0.170	17	17...	1515	0.83	0.610	14
01...	1425	29	0.170	17	18...	1020	0.77	0.430	6
11...	1140	36	0.171	--	19...	1050	0.69	0.620	24
11...	1530	36	0.200	26	23...	1245	0.67	0.400	0

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]



## ROCK RIVER BASIN

05431018 DELAVAN LAKE TRIBUTARY AT SOUTH SHORE DRIVE AT DELAVAN LAKE, WI

LOCATION.--43°35'08", long 88°37'19", in SE 1/4 SE 1/4 sec.32, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on left bank at bridge on South Shore Drive, at Delavan Lake, and 0.3 mi upstream from Delavan Lake.

DRAINAGE AREA.--9.99 mi<sup>2</sup>, of which 2.33 mi<sup>2</sup> is non-contributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to September 1986, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 930 ft, from topographic map.

REMARKS.--Artificial weir. Estimated daily discharges: Ice periods listed in rating table below. Records good except for ice-affected periods, which are poor.

AVERAGE DISCHARGE.--6 years (1984-86, 1989-91), 1.39 ft<sup>3</sup>/s, 2.46 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103 ft<sup>3</sup>/s Mar. 10, 1986, gage height, 7.49 ft; minimum daily, 0.03 ft<sup>3</sup>/s, Aug. 9-11, Dec. 24-29, 1989, and Aug. 1, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 16 ft<sup>3</sup>/s (estimated), Feb. 9; maximum gage height, 6.77 ft, Jan. 3 and Feb. 8, ice jam, discharge not determined; minimum daily discharge, 0.03 ft<sup>3</sup>/s, Aug. 1.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 4-8 and Dec. 23 to Mar. 1.)

5.55	0.03	5.75	0.36	6.10	5.0
5.60	.08	5.80	.57	6.20	8.1
5.65	.12	5.90	1.4	6.30	12
5.70	.20	6.00	2.8	6.40	18

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.15	.57	1.6	.10	3.0	3.2	.52	.36	.12	.03	.08
2	.18	.15	.57	1.1	.13	5.9	2.6	.50	.32	.12	.04	.08
3	.38	.15	.52	.80	.11	5.4	2.0	.48	.29	.12	.04	.15
4	.41	.40	.50	.54	.13	4.5	1.7	.48	.25	.11	.04	.15
5	.29	.62	.48	.45	.16	3.6	1.5	.68	.23	.11	.04	.07
6	.36	.40	.48	.40	2.0	2.9	1.3	.67	.22	.11	.04	.05
7	.37	.36	.49	.36	7.4	2.3	1.1	.63	.20	.14	.04	.05
8	.21	.33	.50	.33	14	2.0	1.0	.63	.20	.13	.21	.05
9	.21	.32	.52	.31	16	1.8	1.2	.63	.20	.10	.14	.06
10	.30	.32	.52	.30	9.6	1.5	1.0	.63	.20	.08	.07	.09
11	.23	.32	.54	.29	5.6	1.5	.95	.61	.32	.08	.07	.08
12	.15	.32	.62	.28	3.6	1.3	.93	.57	1.6	.10	.07	.12
13	.15	.32	.64	.27	2.2	1.2	.84	.51	.88	.10	.04	.14
14	.25	.32	.70	.27	1.3	1.1	1.0	.48	.77	.09	.04	.35
15	.26	.32	.72	.26	.80	1.0	1.8	.44	1.1	.08	.05	.12
16	.15	.32	.77	.26	.50	.95	1.7	.40	.93	.07	.04	.08
17	.21	.32	.87	.26	.44	1.2	1.6	.40	.51	.07	.06	.08
18	.28	.32	.95	.25	.52	1.1	1.3	.50	.15	.07	.07	.10
19	.17	.32	.93	.23	1.2	1.0	1.1	.50	.15	.07	.05	.09
20	.20	.32	.86	.22	1.8	1.0	.94	.50	.14	.07	.05	.08
21	.20	.38	.85	.22	2.4	.99	.79	.36	.13	.11	.05	.08
22	.16	.44	.72	.20	2.2	1.0	.65	.35	.12	.09	.05	.08
23	.15	.39	.60	.20	1.8	1.1	.65	.32	.12	.07	.05	.08
24	.15	.36	.52	.20	1.3	1.0	.65	.37	.12	.06	.06	.08
25	.15	.36	.45	.17	1.1	1.0	.66	.49	.11	.06	.06	.08
26	.15	.36	.42	.15	.84	1.8	.63	.51	.11	.06	.06	.08
27	.15	.69	.38	.15	.72	4.6	.72	.52	.11	.05	.06	.08
28	.15	.68	.35	.15	.66	6.3	.68	.38	.10	.05	.06	.08
29	.17	.57	2.0	.13	---	5.9	.63	.29	.11	.05	.06	.08
30	.15	.57	3.0	.11	---	4.5	.58	.31	.11	.05	.06	.08
31	.15	---	2.3	.10	---	3.7	---	.34	---	.05	.06	---
TOTAL	6.63	11.20	24.34	10.56	78.61	76.14	35.40	15.00	10.16	2.64	1.86	2.87
MEAN	.21	.37	.79	.34	2.81	2.46	1.18	.48	.34	.085	.060	.096
MAX	.41	.69	3.0	1.6	16	6.3	3.2	.68	1.6	.14	.21	.35
MIN	.14	.15	.35	.10	.10	.95	.58	.29	.10	.05	.03	.05
CFSM	.03	.05	.10	.04	.37	.32	.15	.06	.04	.01	.01	.01
IN.	.03	.05	.12	.05	.38	.37	.17	.07	.05	.01	.01	.01

CAL YR 1990 TOTAL 407.23 MEAN 1.12 MAX 41 MIN .04 CFSM .15 IN. 1.98  
WTR YR 1991 TOTAL 275.41 MEAN .75 MAX 16 MIN .03 CFSM .10 IN. 1.34

05431018 DELAVAN LAKE TRIBUTARY AT SOUTH SHORE DRIVE AT DELAVAN LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1985.

TOTAL-AMMONIA PLUS ORGANIC-NITROGEN DISCHARGE: October 1983 to September 1985.

TOTAL-NITRITE PLUS NITRATE DISCHARGE: October 1983 to September 1985.

TOTAL-PHOSPHORUS DISCHARGE: October 1983 to September 1985, October 1989 to September 1991 (discontinued).

INSTRUMENTATION: Automatic pumping sampler since November 1983.

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

COOPERATION.--Observer furnished by Delavan Lake Sanitary District.

## EXTREMES FOR PERIOD OF RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 7,720 mg/L, May 26, 1985; minimum observed, 1.0 mg/L, on several days during 1984.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 23 tons, May 26, 1985; minimum daily, 0.01 ton, on many days during 1984 and 1985.

TOTAL-AMMONIA PLUS ORGANIC-NITROGEN CONCENTRATIONS: Maximum observed, 13 mg/L, June 18, 1984; minimum observed, 0.20 mg/L, Jan. 24, 1985.

TOTAL-AMMONIA PLUS ORGANIC-NITROGEN DISCHARGE: Maximum daily, 495 lb, Feb. 13, 1984; minimum daily, 0.61 lb, Sept. 22-23, 1984.

TOTAL-NITRITE PLUS NITRATE CONCENTRATIONS: Maximum observed, 5.20 mg/L, June 19, 1985; minimum observed, 0.20 mg/L, May 27, 1984 and July 23, 1985.

TOTAL-NITRITE PLUS NITRATE DISCHARGE: Maximum daily, 102 lb, Feb. 25, 1985; minimum daily, 0.53 lb, July 23, 1985.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.40 mg/L, Mar. 12, 1990 and Feb. 7, 1991; minimum observed, 0.02 mg/L, Jan. 16, 1990.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 318 lb, Mar. 9, 1990; minimum daily, 0.01 lb Aug. 12, 1985, Jan. 15-16, 1990.

## EXTREMES FOR CURRENT YEAR.--

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.40 mg/L, Feb. 7; minimum observed, 0.13 mg/L, Nov. 6.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 130 lb, Feb. 9; minimum daily, 0.06 lb, Aug. 1.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1990					MAR 1991				
*08...	0950	--	0.25	0.240	01...	1245	3.0	--	0.820
*11...	1230	--	0.23	0.170	01...	1415	3.0	--	0.480
*15...	1025	--	0.27	0.160	01...	2215	3.0	--	0.510
NOV					02...	0015	--	6.7	0.650
*06...	0940	--	0.40	0.130	03...	1115	--	7.4	0.540
*06...	1515	--	0.40	0.140	03...	1415	--	9.2	0.510
*07...	0855	--	0.36	0.160	03...	1615	--	6.4	1.00
*07...	1445	--	0.36	0.140	*04...	1030	--	7.0	0.420
*08...	0810	--	0.32	0.150	27...	1750	--	5.5	0.640
*08...	1445	--	0.32	0.180	*27...	1751	--	5.5	0.660
*09...	0805	--	0.32	0.190	27...	2015	--	5.5	0.670
*10...	0840	--	0.32	0.310	28...	0015	--	5.8	0.660
*28...	0905	--	0.63	0.290	28...	0415	--	6.1	0.530
*28...	1455	--	0.57	0.290	28...	1015	--	6.4	0.430
*29...	0805	--	0.57	0.400	*28...	1230	--	6.4	0.440
*29...	1440	--	0.57	0.440	28...	1430	--	6.7	0.370
*30...	0845	--	0.57	0.450	*28...	1431	--	6.7	0.380
*30...	1000	--	0.57	0.490	*28...	1525	--	6.7	0.360
DEC					28...	1845	--	6.4	0.330
*01...	0825	--	0.57	0.480	29...	0645	--	6.1	0.260
*10...	0920	--	0.52	0.360	*29...	0855	--	5.9	0.330
*18...	1045	--	0.93	0.270	*29...	1510	--	5.8	0.320
29...	2330	2.0	--	1.60	29...	1845	--	5.5	0.300
30...	0130	3.0	--	1.10	*30...	0920	--	4.5	0.240
30...	0330	3.0	--	1.50	30...	1045	--	4.3	0.300
30...	0730	3.0	--	1.40	30...	1445	--	4.3	0.250
30...	1330	3.0	--	1.50	*30...	1525	--	4.3	0.230
JAN 1991					*31...	0845	--	3.6	0.240
*03...	1440	0.80	--	0.390	APR				
FEB					*01...	0945	--	3.2	0.220
06...	1930	2.0	--	1.30	*01...	1410	--	3.0	0.200
06...	2130	2.0	--	1.40	*09...	1140	--	1.2	0.430
06...	2330	2.0	--	1.80	*11...	1050	--	0.93	0.420
07...	0230	7.4	--	1.80	*11...	1520	--	0.93	0.420
07...	1030	7.4	--	2.40	*12...	1035	--	0.93	0.390
07...	1230	7.4	--	2.20	*12...	1440	--	0.93	0.390
07...	1430	7.4	--	2.20	*13...	0845	--	0.93	0.340
07...	1730	7.4	--	1.80	*14...	0845	--	1.2	0.310
07...	1930	7.4	--	1.40	*15...	0940	--	2.1	0.280
07...	2230	7.4	--	1.60	*15...	1425	--	1.8	0.310
*19...	1610	1.2	--	1.10	*16...	1035	--	1.7	0.350

\*EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

05431018 DELAVAN LAKE TRIBUTARY AT SOUTH SHORE DRIVE AT DELAVAN LAKE, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1991				SEP 1991			
*16...	1405	1.8	0.360	*12...	1026	0.13	0.370
*17...	0910	1.7	0.340	*12...	1320	0.13	0.340
*17...	1420	1.6	0.330	13...	0415	0.14	0.290
*18...	1025	1.4	0.350	13...	0715	0.14	0.360
*19...	1010	1.1	0.310	*13...	1045	0.14	0.340
MAY				*13...	1335	0.13	0.350
*07...	1410	0.63	0.350	*14...	0845	0.48	0.330
JUN				14...	0915	0.40	0.320
*10...	1330	0.20	0.570	14...	1115	0.52	0.370
*18...	1540	0.14	0.490	14...	1315	0.70	0.360
JUL				*14...	1515	0.70	0.460
*10...	1415	0.08	0.300	14...	1715	0.48	0.340
*30...	1100	0.06	0.350	14...	2315	0.23	0.370
AUG				15...	0515	0.12	1.00
*19...	1445	0.05	0.330	*15...	0910	0.07	0.350
*26...	1021	0.06	0.370	*15...	1615	0.09	0.370
SEP				*16...	0950	0.08	0.430
*04...	1130	0.15	0.370	*16...	1525	0.08	0.430
*04...	1545	0.09	0.380	*17...	0825	0.08	1.80
*05...	1130	0.08	0.390	*17...	1530	0.08	0.380
*10...	1030	0.10	0.420	*18...	0825	0.10	0.390
*10...	1535	0.09	0.380	*19...	0930	0.09	0.370
*11...	1015	0.07	0.350	*23...	1355	0.08	0.470
*11...	1350	0.07	0.310				

\*EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.09	1.47	7.01	.17	9.98	3.63	.87	.97	.23	.06	.16
2	.20	.09	1.42	3.43	.22	20.0	2.96	.84	.89	.24	.07	.17
3	.45	.09	1.27	1.80	.19	19.1	2.42	.80	.80	.22	.07	.30
4	.49	.31	1.17	1.13	.22	11.3	2.20	.80	.71	.21	.07	.31
5	.36	.47	1.09	.94	.27	8.09	1.97	1.46	.65	.20	.08	.14
6	.45	.30	1.06	.83	7.60	6.45	1.87	1.49	.65	.20	.07	.09
7	.47	.29	1.04	.74	79.6	4.93	1.69	1.23	.59	.24	.08	.09
8	.26	.30	1.03	.67	122	4.36	1.66	1.21	.60	.22	.39	.08
9	.24	.37	1.05	.63	130	3.74	2.81	1.23	.61	.17	.25	.10
10	.30	.52	1.01	.60	63.4	3.19	2.39	1.25	.62	.14	.14	.19
11	.21	.52	1.01	.58	29.1	2.98	2.15	1.22	1.04	.14	.14	.14
12	.14	.51	1.11	.55	14.7	2.73	1.95	1.15	5.88	.16	.12	.23
13	.13	.50	1.12	.53	7.07	2.37	1.53	1.05	3.13	.17	.07	.24
14	.22	.49	1.17	.53	3.29	2.12	1.71	1.00	2.50	.15	.08	.71
15	.22	.48	1.17	.50	1.72	1.96	2.85	.93	3.49	.13	.08	.24
16	.13	.47	1.21	.50	1.00	1.81	3.24	.86	2.74	.13	.07	.19
17	.17	.46	1.31	.50	.82	2.18	2.97	.86	1.44	.11	.10	.18
18	.22	.44	1.39	.48	.90	2.13	2.48	1.10	.40	.11	.12	.21
19	.13	.43	1.32	.43	5.39	1.86	1.91	1.11	.39	.11	.10	.19
20	.15	.42	1.20	.41	10.4	1.84	1.57	1.14	.37	.11	.08	.17
21	.15	.49	1.15	.41	13.2	1.77	1.33	.83	.32	.20	.09	.17
22	.12	.55	.95	.37	10.6	1.79	1.09	.81	.30	.16	.09	.20
23	.10	.48	.77	.37	7.50	1.87	1.08	.76	.29	.12	.09	.20
24	.11	.43	.65	.36	4.68	1.74	1.09	.88	.28	.10	.11	.20
25	.10	.42	.55	.31	3.59	1.71	1.10	1.20	.26	.10	.11	.19
26	.10	.41	.50	.27	2.62	4.79	1.06	1.25	.25	.10	.11	.18
27	.10	.98	.44	.27	2.14	16.1	1.20	1.30	.24	.09	.11	.17
28	.10	1.11	.40	.27	1.88	14.9	1.13	.98	.22	.09	.11	.16
29	.11	1.27	6.27	.23	---	9.60	1.06	.74	.22	.10	.11	.16
30	.09	1.45	23.4	.19	---	6.15	.97	.81	.23	.10	.11	.15
31	.09	---	14.2	.17	---	4.73	---	.92	---	.09	.13	---
TOTAL	6.27	15.14	72.90	26.01	524.27	178.27	57.07	32.08	31.08	4.64	3.41	5.91

WTR YR 1991 TOTAL 957.05

423526088380101 DELAVAN LAKE, AT SW END, NEAR DELAVAN LAKE, WI

LOCATION.--Lat 42°35'26", long 88°38'01", sec.32, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

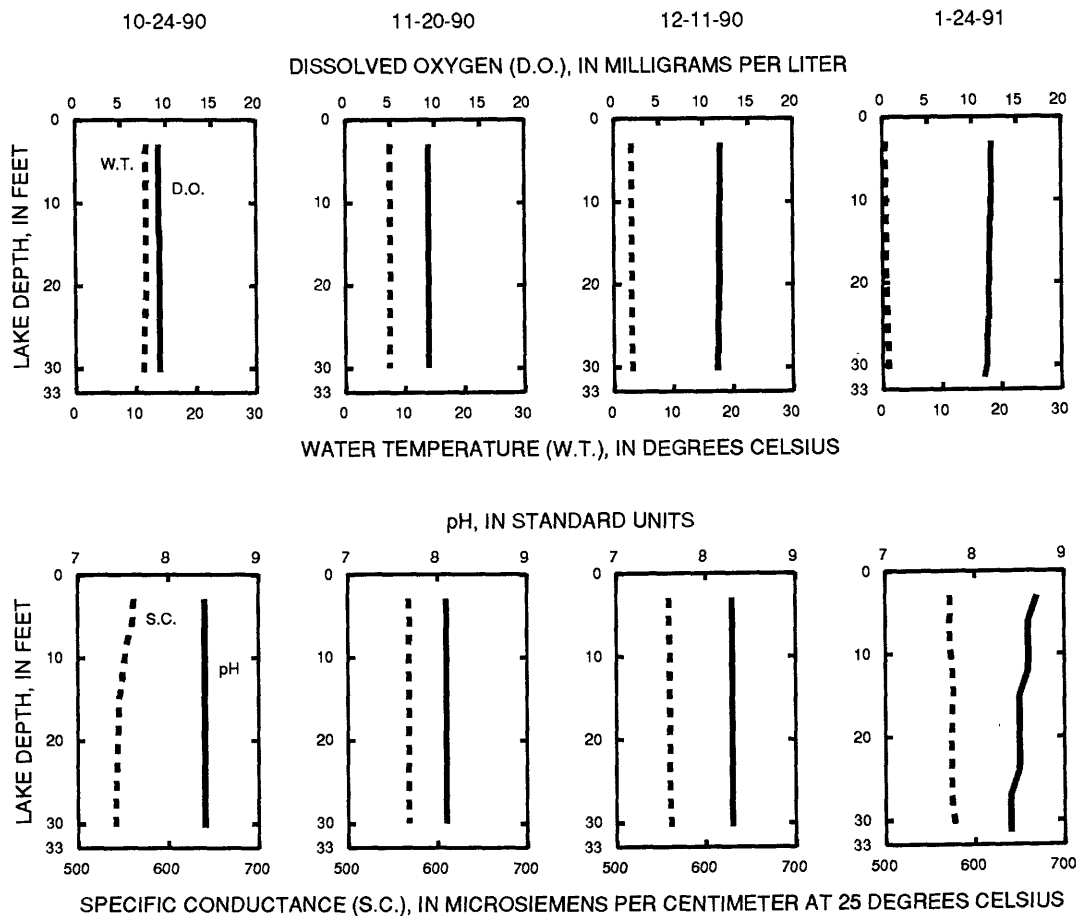
DRAINAGE AREA.--41.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

REMARKS.--Lake ice-covered during January and February sampling.

WATER-QUALITY DATA, OCTOBER 24, 1990 TO JANUARY 24, 1991  
(Milligrams per liter unless otherwise indicated)

	Oct. 24		Nov. 20		Dec. 11		Jan. 24	
Depth of sample (ft)	1.5	30.5	1.5	29.5	1.5	30.5	1.5	31.5
Lake stage (ft)		3.25		3.69		4.16		4.73
Specific conductance (μS/cm)	562	542	568	568	559	562	573	578
pH (units)	8.4	8.4	8.1	8.1	8.3	8.3	8.7	8.4
Water temperature (°C)	11.8	11.3	7.5	7.4	3.0	3.1	0.5	1.0
Secchi-depth (meters)		2.9		2.8		3.4		3.2
Dissolved oxygen	9.2	9.3	9.3	9.3	11.9	11.6	12.2	11.4
Phosphorus, total (as P)	0.133	0.102	0.127	0.128	0.171	0.177	0.241	0.272
Phosphorus, ortho, dissolved (as P)	0.084	0.083	0.137	0.137	0.145	0.148	0.197	0.207
Chlorophyll a, phytoplankton (μg/L)	1.6	---	0.3	---	0.2	---	0.5	---



WATER-QUALITY DATA, FEBRUARY 19 TO MAY 15, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 19		Apr. 02		Apr. 18		May 02		May 15	
Depth of sample (ft)	1.5	31.5	1.5	31.5	1.5	31.5	1.5	31.5	1.5	31.5
Lake stage (ft)	4.71		5.11		---		5.05		5.09	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	608	607	575	583	608	621	597	606	607	622
pH (units)	7.9	8.0	8.8	8.8	8.3	8.3	8.0	8.0	8.1	7.9
Water temperature ( $^{\circ}\text{C}$ )	1.6	1.8	6.0	5.7	9.7	9.5	11.0	10.7	19.4	11.6
Color (Pt-Co. scale)	---	---	---	---	8.0	6.0	---	---	---	---
Turbidity (NTU)	---	---	---	---	1.6	1.5	---	---	---	---
Secchi-depth (meters)	3.6		0.8		4.6		4.1		5.6	
Dissolved oxygen	12.2	12.2	16.5	14.9	9.9	9.6	8.9	8.6	12.7	8.5
Calcium, dissolved (Ca)	---	---	---	---	44	44	---	---	---	---
Magnesium, dissolved (Mg)	---	---	---	---	32	32	---	---	---	---
Sodium, dissolved (Na)	---	---	---	---	26	25	---	---	---	---
Potassium, dissolved (K)	---	---	---	---	3.4	3.3	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	---	---	191	190	188	189	180	187
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	---	---	27	15	---	---	---	---
Fluoride, dissolved (F)	---	---	---	---	0.2	<0.1	---	---	---	---
Chloride, dissolved (Cl)	---	---	---	---	62	64	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	---	---	0.6	0.6	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	---	---	316	303	---	---	---	---
Nitrogen, nitrite, total (as N)	---	---	---	---	0.03	0.03	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	---	---	---	---	0.78	0.82	---	---	---	---
Nitrogen, ammonia, total (as N)	---	---	---	---	0.19	0.19	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	---	---	0.8	1.1	---	---	---	---
Phosphorus, total (as P)	0.225	0.183	0.129	0.132	0.183	0.143	0.112	0.120	0.046	0.067
Phosphorus, ortho, dissolved (as P)	0.190	0.159	0.072	0.073	0.097	0.100	0.082	0.093	0.021	0.038
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	---	---	---	---	<10	20	60	50	180	90
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	---	---	5	3	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	---	---	3	2	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.5	---	1.6	---	0.3	---	<0.4	---	<0.5	---

2-19-91

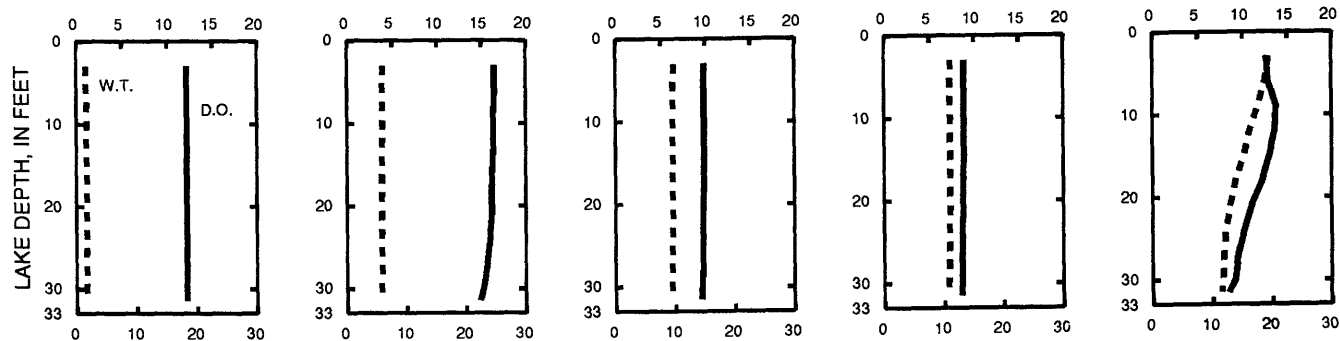
4-2-91

4-18-91

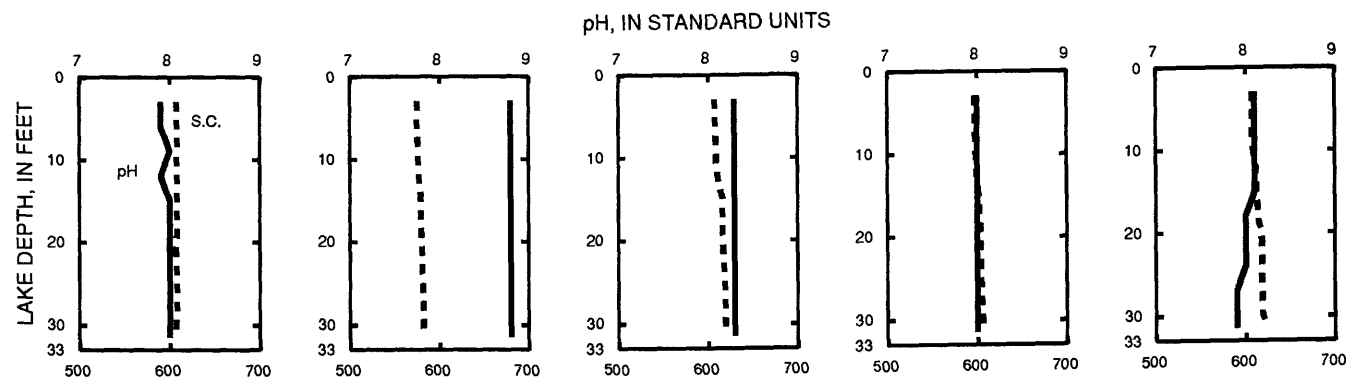
5-2-91

5-15-91

## 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

423526088380101 DELAVAN LAKE, AT SW END, NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, MAY 28 TO JULY 10, 1991  
(Milligrams per liter unless otherwise indicated)

	May 28		June 10	
Depth of sample (ft)	1.5	31.5	1.5	31.5
Lake stage (ft)	---		5.03	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	590	617	580	618
pH (units)	8.4	7.8	8.7	7.6
Water temperature ( $^{\circ}\text{C}$ )	21.3	12.4	22.7	12.5
Secchi-depth (meters)	3.4		2.8	
Dissolved oxygen	11.2	6.3	10.5	2.3
Alkalinity, as $\text{CaCO}_3$	179	186	172	187
Phosphorus, total (as P)	0.015	0.051	0.028	0.029
Phosphorus, ortho, dissolved (as P)	<0.001	0.031	<0.001	0.002
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	200	100	220	100
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	2.5	---	1.1	---

	June 28			July 10			
Depth of sample (ft)	1.5	24.0	31.5	1.5	24.0	27.0	31.5
Lake stage (ft)	4.91			4.73			
Specific conductance ( $\mu\text{S}/\text{cm}$ )	580	601	637	566	585	622	632
pH (units)	8.4	7.6	7.5	8.7	8.3	7.7	7.6
Water temperature ( $^{\circ}\text{C}$ )	24.4	18.5	13.0	25.5	24.4	20.2	14.3
Secchi-depth (meters)	2.4			2.6			
Dissolved oxygen	8.7	2.0	0.1	10.1	6.0	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	166	---	196	159	---	---	199
Phosphorus, total (as P)	0.020	0.037	0.031	0.020	0.018	0.030	0.034
Phosphorus, ortho, dissolved (as P)	<0.001	0.015	<0.001	0.001	0.002	0.002	0.001
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	150	---	<10	190	---	---	30
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	3.9	---	---	2.3	---	---	---

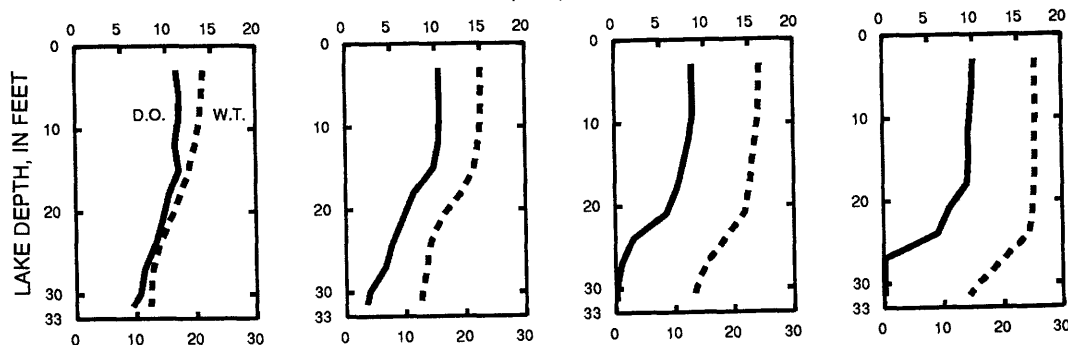
5-28-91

6-10-91

6-28-91

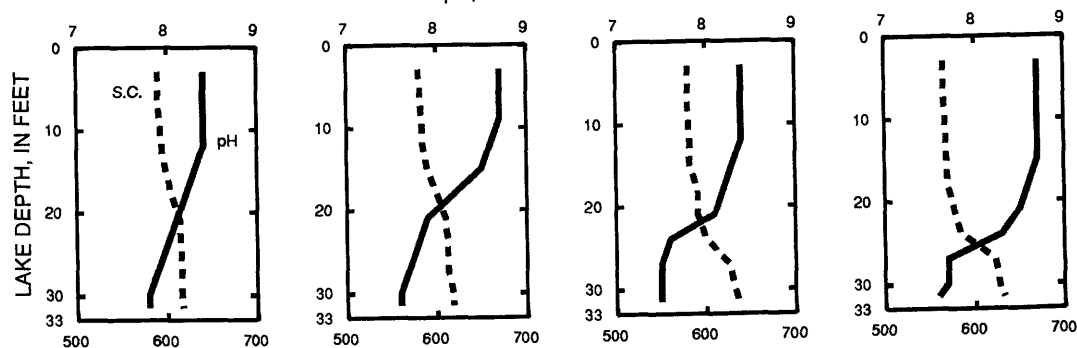
7-10-91

## 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

423526088380101 DELAVAN LAKE, AT SW END, NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, JULY 23 TO SEPTEMBER 23, 1991  
(Milligrams per liter unless otherwise indicated)

	July 23			Aug. 06		
Depth of sample (ft)	1.5	27.0	31.5	1.5	27.0	31.5
Lake stage (ft)		4.64			4.37	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	560	583	640	566	571	636
pH (units)	8.7	8.3	7.6	8.7	8.7	7.7
Water temperature ( $^{\circ}\text{C}$ )	26.0	23.9	14.5	23.9	23.4	15.9
Secchi-depth (meters)		2.6			3.5	
Dissolved oxygen	8.4	3.0	0.1	8.5	7.7	0.1
Alkalinity, as $\text{CaCO}_3$	156	---	196	157	---	195
Phosphorus, total (as P)	0.009	0.018	0.020	0.013	0.010	0.031
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	170	30	---	170	---	40
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	2.7	---	---	1.6	---	---

	Aug. 19			Sept. 04			Sept. 23		
Depth of sample (ft)	1.5	30.0	32.5	1.5	31.5		1.5	31.5	
Lake stage (ft)		4.45			4.39			4.51	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	563	566	625	573	594		584	589	
pH (units)	8.6	8.5	7.6	8.5	8.0		8.4	8.3	
Water temperature ( $^{\circ}\text{C}$ )	23.5	23.0	17.6	23.5	22.0		18.4	17.9	
Secchi-depth (meters)		3.7			3.8			3.5	
Dissolved oxygen	8.6	8.2	0.2	8.1	1.6		6.8	6.2	
Alkalinity, as $\text{CaCO}_3$	162	---	198	164	172		174	171	
Phosphorus, total (as P)	0.012	0.015	0.034	0.012	0.015		0.017	0.017	
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	<0.001	<0.001		0.026	<0.001	
Aluminum, total (Al) $\mu\text{g}/\text{L}$	---	---	---	140	90		110	110	
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	120	---	20	140	100		100	110	
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.4	---	---	2.2	---		0.8	---	

7-23-91

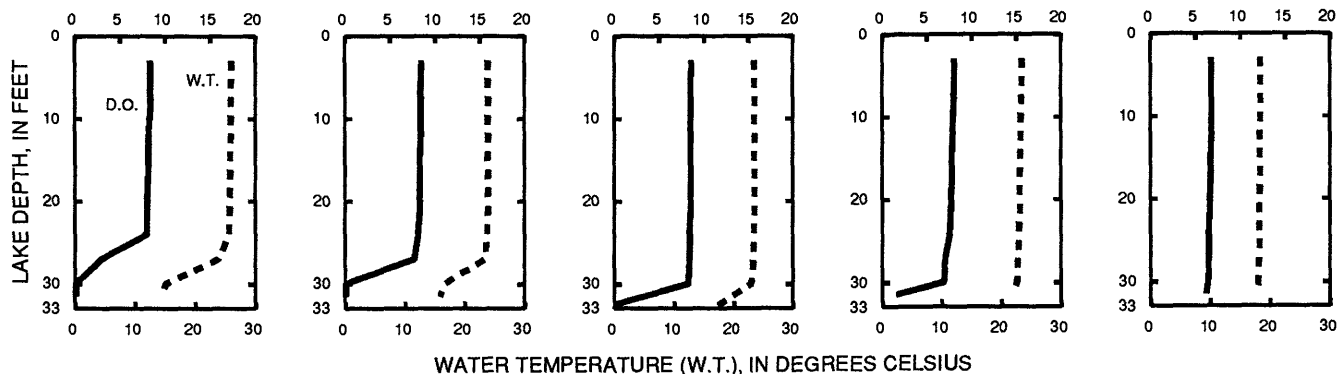
8-6-91

8-19-91

9-4-91

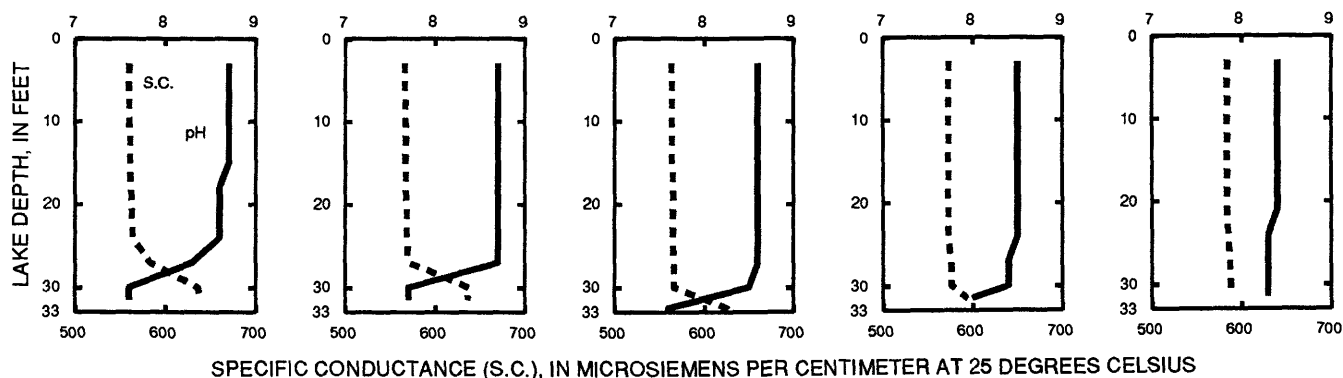
9-23-91

## 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

423556088365001 DELAVAN LAKE AT CENTER NEAR DELAVAN LAKE, WI

LOCATION.--Lat 42°35'56", long 88°36'50", sec.28, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

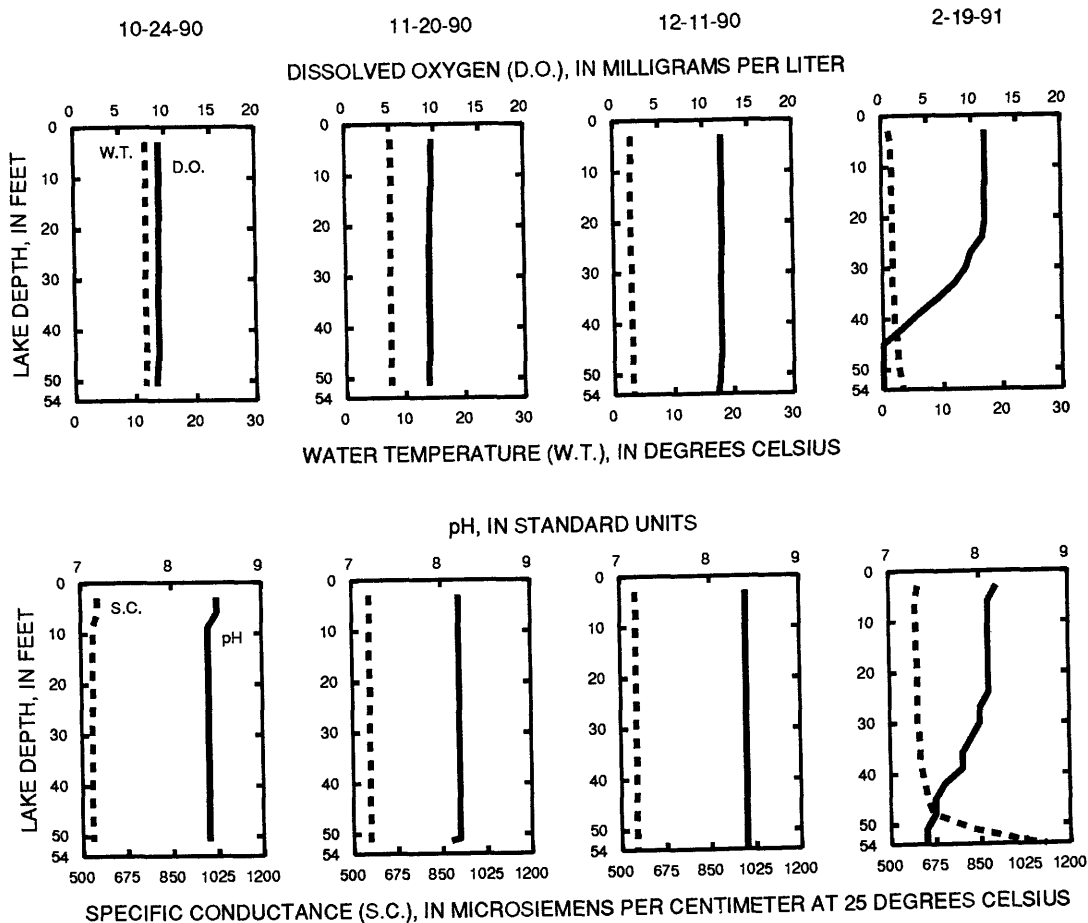
DRAINAGE AREA.--41.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

REMARKS.--Lake ice-covered during January and February sampling.

WATER-QUALITY DATA, OCTOBER 24, 1990 TO FEBRUARY 19, 1991  
(Milligrams per liter unless otherwise indicated)

	Oct. 24		Nov. 20		Dec. 11		Jan. 24		Feb. 19		
Depth of sample (ft)	1.5	50.5	1.5	51.5	1.5	53.5	1.5	53.5	1.5	45.0	53.5
Lake stage (ft)	3.25		3.69		4.16		4.73		4.71		
Specific conductance (μS/cm)	566	542	568	568	561	561	---	---	613	644	1104
pH (units)	8.5	8.4	8.2	8.1	8.4	8.4	---	---	8.2	7.5	7.4
Water temperature (°C)	11.9	11.7	7.7	7.6	3.0	3.2	---	---	1.2	2.4	3.2
Secchi-depth (meters)	2.2		3.4		3.4		3.9		4.3		
Dissolved oxygen	9.4	9.0	9.8	9.3	12.1	11.6	---	---	11.5	0.1	0.1
Phosphorus, total (as P)	0.138	0.120	0.137	0.145	0.184	0.193	0.266	0.555	0.182	0.350	0.365
Phosphorus, ortho, dissolved(as P)	0.087	0.081	0.132	0.143	0.149	0.164	0.199	0.492	0.157	0.285	0.216
Chlorophyll a, phytoplankton(μg/L)	2.4	---	0.2	---	0.4	---	0.3	---	0.7	---	---





423556088365001 DELAVAN LAKE, AT CENTER, NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, APRIL 02 TO MAY 28, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 02		Apr. 18		May 02		May 15		May 28	
Depth of sample (ft)	1.5	52.5	1.5	53.5	1.5	50.5	1.5	53.5	1.5	51.5
Lake stage (ft)	5.11		---		5.05		5.09		5.17	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	573	584	609	622	595	606	609	619	588	622
pH (units)	8.9	8.8	8.3	8.3	8.0	8.0	7.8	7.8	8.6	7.6
Water temperature ( $^{\circ}\text{C}$ )	6.3	5.6	9.4	8.3	11.6	10.9	20.6	11.1	22.1	11.4
Color (Pt-Co. scale)	---	---	7.0	7.0	---	---	---	---	---	---
Turbidity (NTU)	---	---	1.0	2.5	---	---	---	---	---	---
Secchi-depth (meters)	0.8		4.6		5.2		5.1		3.5	
Dissolved oxygen	16.6	13.8	9.9	8.4	9.5	8.5	12.4	6.3	11.0	2.6
Calcium, dissolved (Ca)	---	---	44	44	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	33	32	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	26	26	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	3.3	3.3	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	191	189	187	188	174	189	179	193
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	28	29	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	<0.1	0.3	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	65	63	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	0.6	1.0	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	327	312	---	---	---	---	---	---
Nitrogen, nitrite, total (as N)	---	---	0.03	0.03	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	---	---	0.85	0.75	---	---	---	---	---	---
Nitrogen, ammonia, total (as N)	---	---	0.19	0.23	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.70	0.80	---	---	---	---	---	---
Phosphorus, total (as P)	0.132	0.136	0.150	0.190	0.096	0.110	0.032	0.072	0.013	0.074
Phosphorus, ortho, dissolved (as P)	0.070	0.078	0.104	0.114	0.073	0.085	0.008	0.045	<0.001	0.053
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	---	---	<10	10	80	60	200	70	230	50
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	5.0	10	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	2.0	2.0	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.0	---	0.4	---	0.6	---	0.5	---	2.3	---

4-2-91

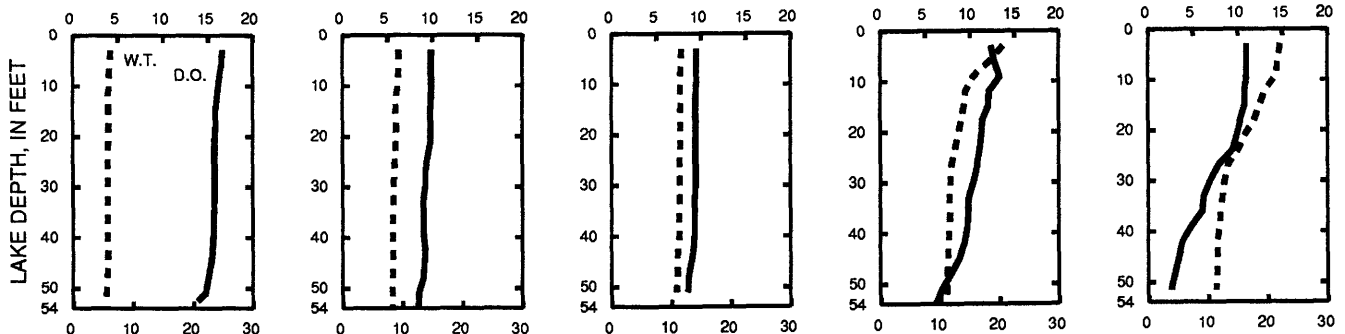
4-18-91

5-2-91

5-15-91

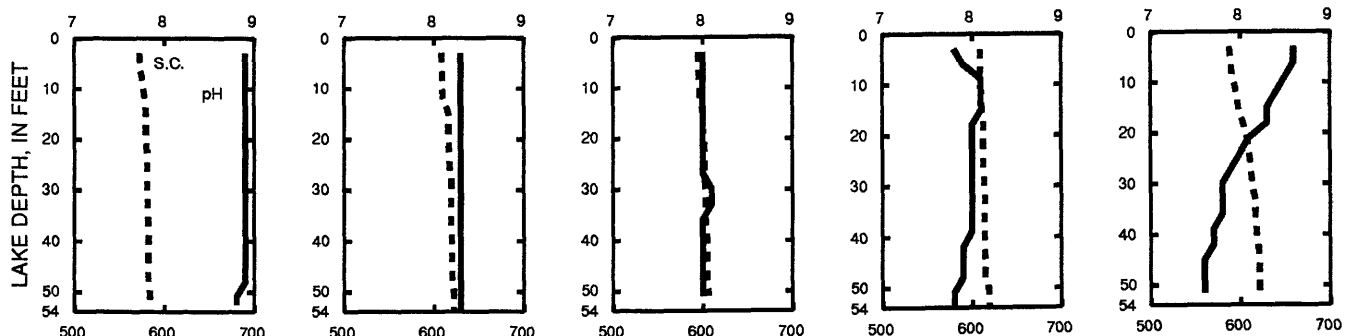
5-28-91

## 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

423556088365001 DELAVAN LAKE, AT CENTER, NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, JUNE 10 TO JULY 23, 1991  
(Milligrams per liter unless otherwise indicated)

	June 10				June 28			
Depth of sample (ft)	1.5	39.0	48.0	53.5	1.5	21.0	36.0	51.5
Lake stage (ft)		5.03				4.91		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	583	620	620	624	575	584	633	644
pH (units)	8.6	7.6	7.5	7.5	8.4	8.2	7.5	7.4
Water temperature ( $^{\circ}\text{C}$ )	22.9	12.0	11.6	11.4	24.3	23.9	12.8	11.7
Secchi-depth (meters)		3.0				2.4		
Dissolved oxygen	10.5	0.6	0.2	0.2	8.6	7.7	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	174	---	---	195	163	---	---	198
Phosphorus, total (as P)	0.027	0.084	0.115	0.124	0.020	0.023	0.024	0.175
Phosphorus, ortho, dissolved (as P)	<0.001	0.080	0.095	0.098	<0.001	<0.001	<0.001	0.115
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	230	---	---	20	160	---	---	20
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.9	---	---	---	4.0	---	---	---

	July 10				July 23			
Depth of sample (ft)	1.5	27.0	39.0	51.5	1.5	27.0	42.0	51.5
Lake stage (ft)		4.73				4.64		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	564	609	634	643	561	580	644	651
pH (units)	8.8	7.7	7.6	7.6	8.6	8.1	7.6	7.6
Water temperature ( $^{\circ}\text{C}$ )	25.6	20.5	12.5	11.7	26.1	24.0	12.3	11.8
Secchi-depth (meters)		2.6				2.6		
Dissolved oxygen	10.0	1.1	0.1	0.1	8.5	4.1	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	158	---	---	204	155	---	---	202
Phosphorus, total (as P)	0.021	0.013	0.016	0.142	0.009	0.012	0.021	0.058
Phosphorus, ortho, dissolved (as P)	0.005	0.002	0.003	0.102	<0.001	<0.001	<0.001	0.036
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	180	---	---	40	160	---	---	20
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	2.9	---	---	---	2.5	---	---	---

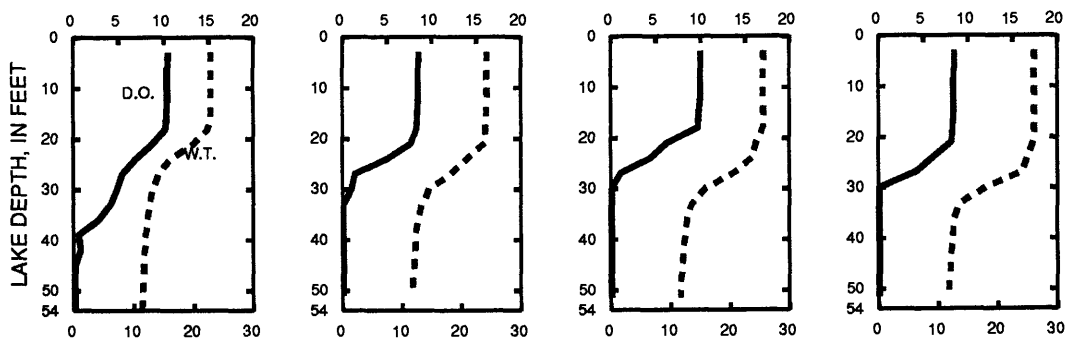
6-10-91

6-28-91

7-10-91

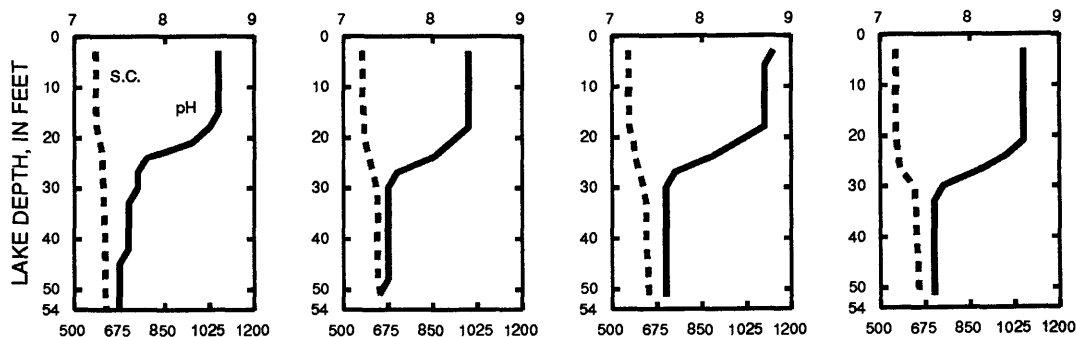
7-23-91

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

423556088365001 DELAVAN LAKE, AT CENTER, NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, AUGUST 06 TO SEPTEMBER 23, 1991  
(Milligrams per liter unless otherwise indicated)

	Aug. 06				Aug. 19			
Depth of sample (ft)	1.5	27.0	39.0	52.5	1.5	27.0	42.0	51.5
Lake stage (ft)		4.37				4.45		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	567	595	642	660	563	566	646	652
pH (units)	8.6	7.9	7.7	7.6	8.5	8.5	7.5	7.5
Water temperature ( $^{\circ}\text{C}$ )	23.8	21.9	13.0	11.8	23.5	23.5	12.5	11.9
Secchi-depth (meters)		3.7				3.7		
Dissolved oxygen	8.2	3.9	0.1	0.1	8.3	8.1	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	158	---	---	204	162	---	---	217
Phosphorus, total (as P)	0.007	0.018	0.020	0.007	0.013	0.013	0.049	0.049
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	160	---	---	30	130	---	---	<10
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.0	---	---	---	1.2	---	---	---

	Sept. 04				Sept. 23			
Depth of sample (ft)	1.5	30.0	42.0	50.5	1.5	39.0	45.0	50.5
Lake stage (ft)		4.39				4.51		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	572	585	665	670	580	615	667	679
pH (units)	8.5	8.1	7.5	7.4	8.4	7.9	7.4	7.4
Water temperature ( $^{\circ}\text{C}$ )	23.5	22.4	12.6	12.0	18.5	17.9	13.1	12.0
Secchi-depth (meters)		5.0				3.7		
Dissolved oxygen	8.1	4.0	0.1	0.1	6.8	1.5	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	---	---	---	---	169	---	---	214
Phosphorus, total (as P)	0.010	0.011	0.045	0.065	0.009	0.013	0.048	0.098
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	0.002	0.025	<0.001	0.015	0.035	0.077
Aluminum, total (Al) $\mu\text{g}/\text{L}$	---	---	---	---	110	---	---	30
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	---	---	---	---	100	---	---	20
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	---	---	0.6	---	---	---

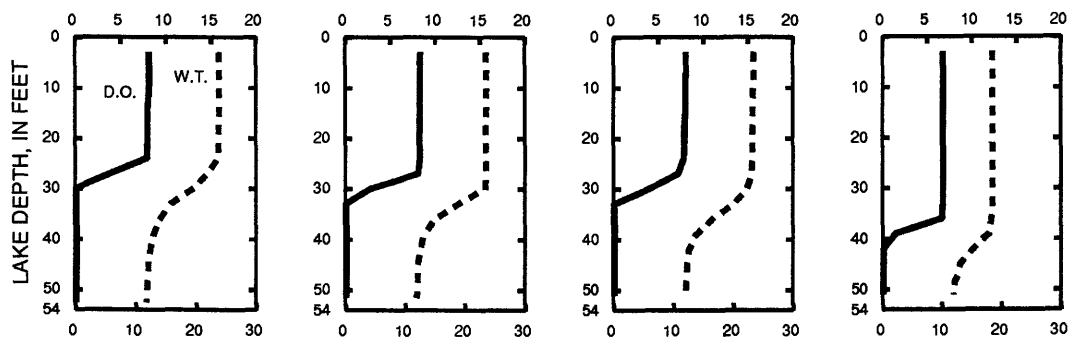
8-6-91

8-19-91

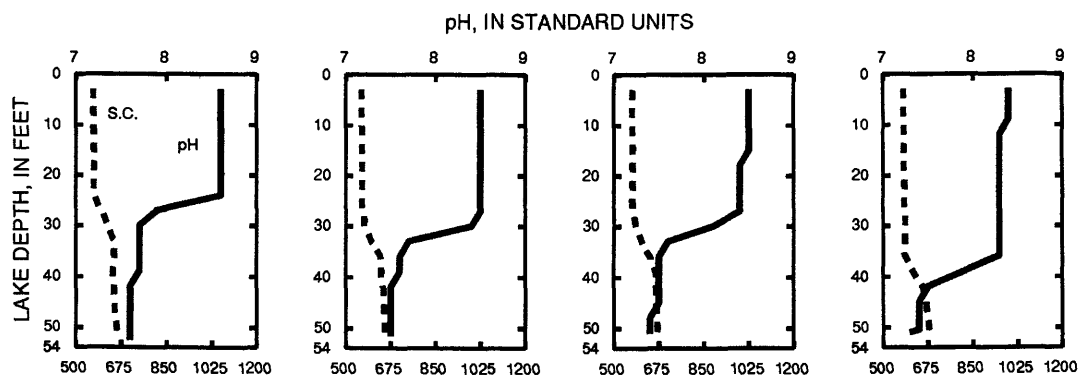
9-4-91

9-23-91

## 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

423659088354401 DELAVAN LAKE, AT NORTH END, NEAR LAKE LAWN, WI

LOCATION.--Lat 42°36'59", long 88°35'44", sec.22, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

DRAINAGE AREA.--41.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

REMARKS.--Lake ice-covered during January and February sampling.

WATER-QUALITY DATA, OCTOBER 24, 1990 TO JANUARY 24, 1991  
(Milligrams per liter unless otherwise indicated)

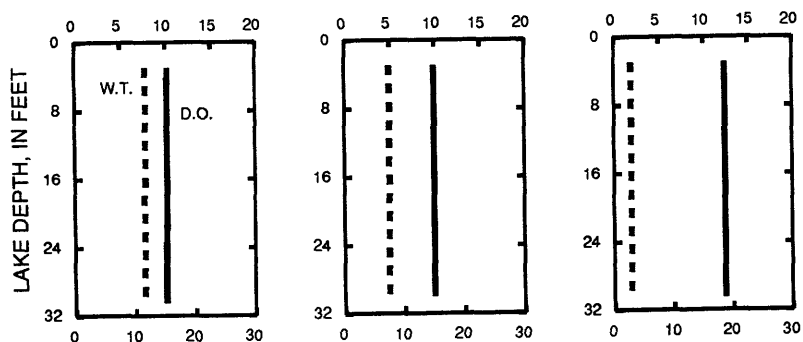
	Oct. 24		Nov. 20		Dec. 11		Jan. 24	
Depth of sample (ft)	1.5	30.5	1.5	29.5	1.5	30.5	1.5	30.5
Lake stage (ft)		3.25		3.69		4.16		4.73
Specific conductance (μS/cm)	551	540	568	568	562	562	---	---
pH (units)	8.5	8.5	8.2	8.2	8.4	8.4	---	---
Water temperature (°C)	11.7	11.6	7.5	7.4	2.9	2.9	---	---
Secchi-depth (meters)		2.4		2.9		3.4		3.8
Dissolved oxygen	10.3	10.1	10.0	10.0	12.5	12.5	---	---
Phosphorus, total (as P)	0.122	0.113	0.120	0.123	0.170	0.165	0.219	0.214
Phosphorus, ortho, dissolved (as P)	0.076	0.077	0.130	0.129	0.146	0.146	0.167	0.168
Chlorophyll a, phytoplankton (μg/L)	3.4	---	0.3	---	0.4	---	0.3	---

10-24-90

11-20-90

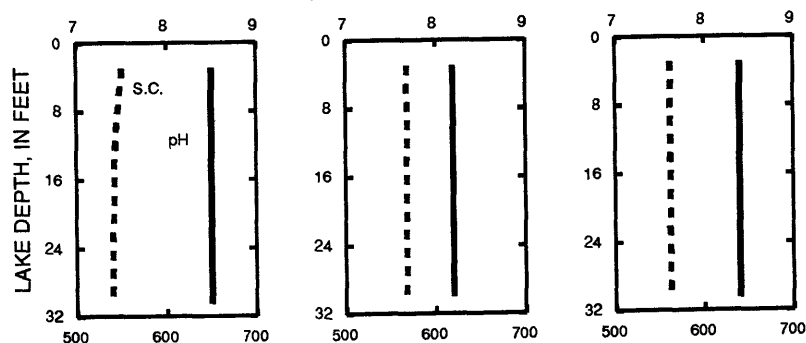
12-11-90

## 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

WATER-QUALITY DATA, FEBRUARY 19 TO MAY 15, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 19		Apr. 02		Apr. 18		May 02		May 15	
Depth of sample (ft)	1.5	31.5	1.5	31.5	1.5	31.5	1.5	31.5	1.5	31.5
Lake stage (ft)	4.71		5.11		---		5.05		5.09	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	603	606	568	578	612	624	594	604	608	619
pH (units)	7.8	7.8	8.9	8.9	8.3	8.3	8.0	8.1	7.8	7.8
Water temperature ( $^{\circ}\text{C}$ )	2.8	2.1	6.1	5.7	8.8	8.4	11.8	11.7	21.1	11.4
Color (Pt-Co. scale)	---	---	---	---	3.0	7.0	---	---	---	---
Turbidity (NTU)	---	---	---	---	1.2	1.3	---	---	---	---
Secchi-depth (meters)	3.2		0.8		4.3		5.0		5.1	
Dissolved oxygen	12.2	11.7	16.6	16.0	9.8	8.9	9.8	9.7	12.1	7.7
Calcium, dissolved (Ca)	---	---	---	---	45	44	---	---	---	---
Magnesium, dissolved (Mg)	---	---	---	---	32	32	---	---	---	---
Sodium, dissolved (Na)	---	---	---	---	26	25	---	---	---	---
Potassium, dissolved (K)	---	---	---	---	3.1	3.2	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	---	---	191	191	187	187	175	186
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	---	---	28	28	---	---	---	---
Fluoride, dissolved (F)	---	---	---	---	0.1	0.1	---	---	---	---
Chloride, dissolved (Cl)	---	---	---	---	62	64	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	---	---	1.1	0.7	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	---	---	327	318	---	---	---	---
Nitrogen, nitrite, total (as N)	---	---	---	---	0.03	0.03	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , total (as N)	---	---	---	---	0.86	0.89	---	---	---	---
Nitrogen, ammonia, total (as N)	---	---	---	---	0.21	0.19	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	---	---	1.0	0.9	---	---	---	---
Phosphorus, total (as P)	0.183	0.185	0.122	0.122	0.142	0.132	0.090	0.091	0.035	0.069
Phosphorus, ortho, dissolved (as P)	0.151	0.156	0.068	0.065	0.101	0.109	0.066	0.066	0.009	0.040
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	---	---	---	---	<10	<10	90	90	210	80
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	---	---	5.0	7.0	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	---	---	5.0	3.0	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.4	---	1.3	---	0.4	---	---	---	0.8	---

2-19-91

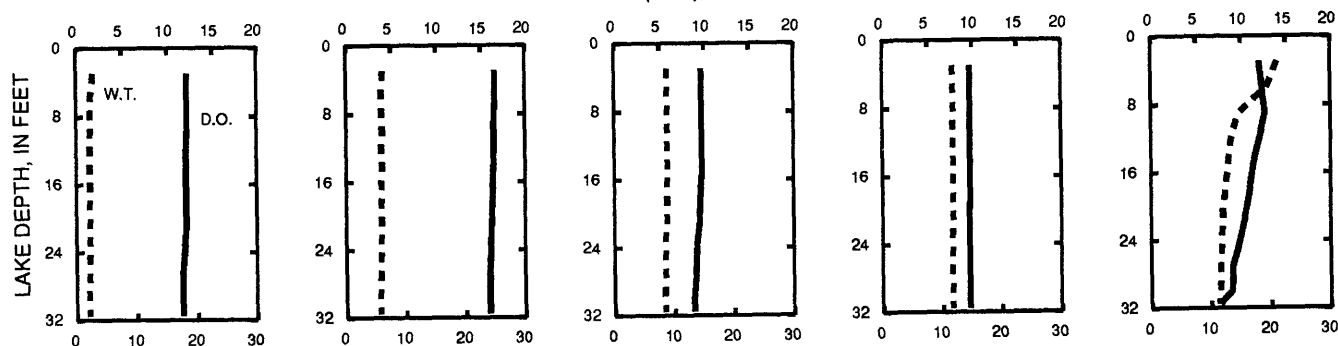
4-2-91

4-18-91

5-2-91

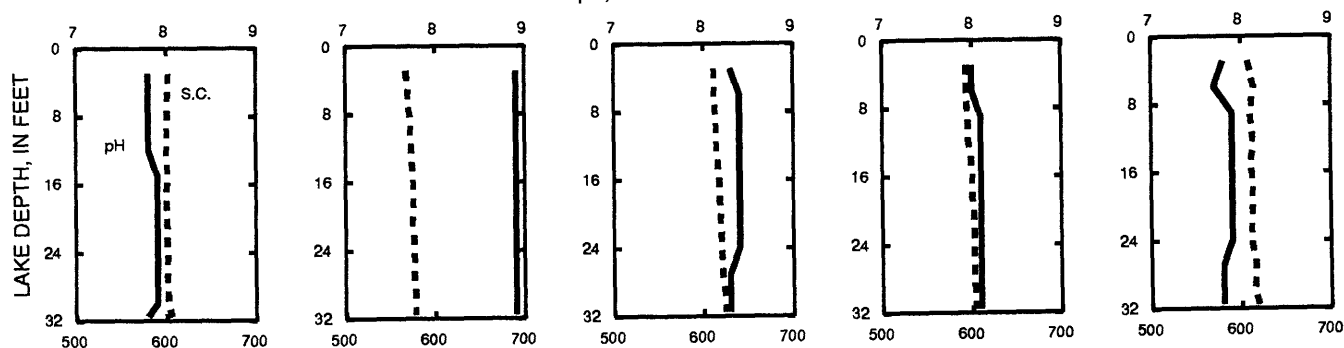
5-15-91

## 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

423659088354401 DELAVAN LAKE, AT NORTH END, NEAR LAKE LAWN, WI--CONTINUED

WATER-QUALITY DATA, MAY 28 TO JULY 10, 1991  
(Milligrams per liter unless otherwise indicated)

	May 28		June 10	
Depth of sample (ft)	1.5	31.5	1.5	31.5
Lake stage (ft)	---		5.03	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	586	613	585	618
pH (units)	8.5	7.9	8.5	7.6
Water temperature ( $^{\circ}\text{C}$ )	22.6	13.9	23.0	13.5
Secchi-depth (meters)	3.6		2.9	
Dissolved oxygen	10.8	8.0	10.5	3.2
Alkalinity, as $\text{CaCO}_3$	178	184	175	195
Phosphorus, total (as P)	0.014	0.022	0.030	0.124
Phosphorus, ortho, dissolved (as P)	<0.001	0.006	<0.001	0.073
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	250	120	210	40
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	1.8	---	0.9	---

	June 28			July 10			
Depth of sample (ft)	1.5	27.0	31.5	1.5	24.0	27.0	31.5
Lake stage (ft)	4.91			4.73			
Specific conductance ( $\mu\text{S}/\text{cm}$ )	577	603	640	566	610	623	627
pH (units)	8.4	7.8	7.5	8.8	7.8	7.7	7.6
Water temperature ( $^{\circ}\text{C}$ )	24.8	22.0	13.8	25.8	21.0	18.8	17.0
Secchi-depth (meters)	2.4			2.4			
Dissolved oxygen	8.4	2.2	0.0	9.7	1.2	0.1	0.1
Alkalinity, as $\text{CaCO}_3$	165	---	194	160	---	---	196
Phosphorus, total (as P)	0.020	0.029	0.028	0.022	0.027	0.030	0.033
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	0.004	0.002	0.001	0.003
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	180	---	20	210	---	---	40
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	3.9	---	---	2.4	---	---	---

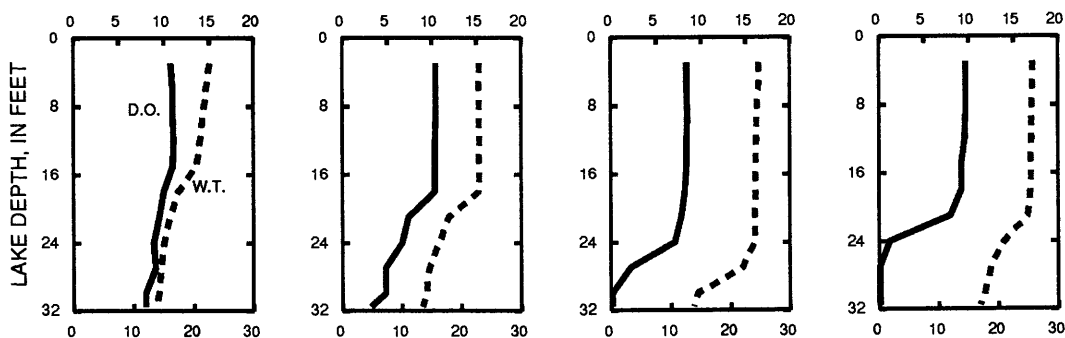
5-28-91

6-10-91

6-28-91

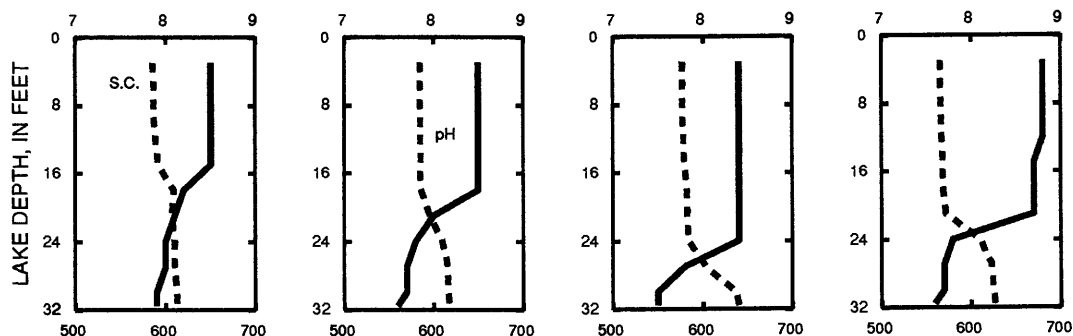
7-10-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS



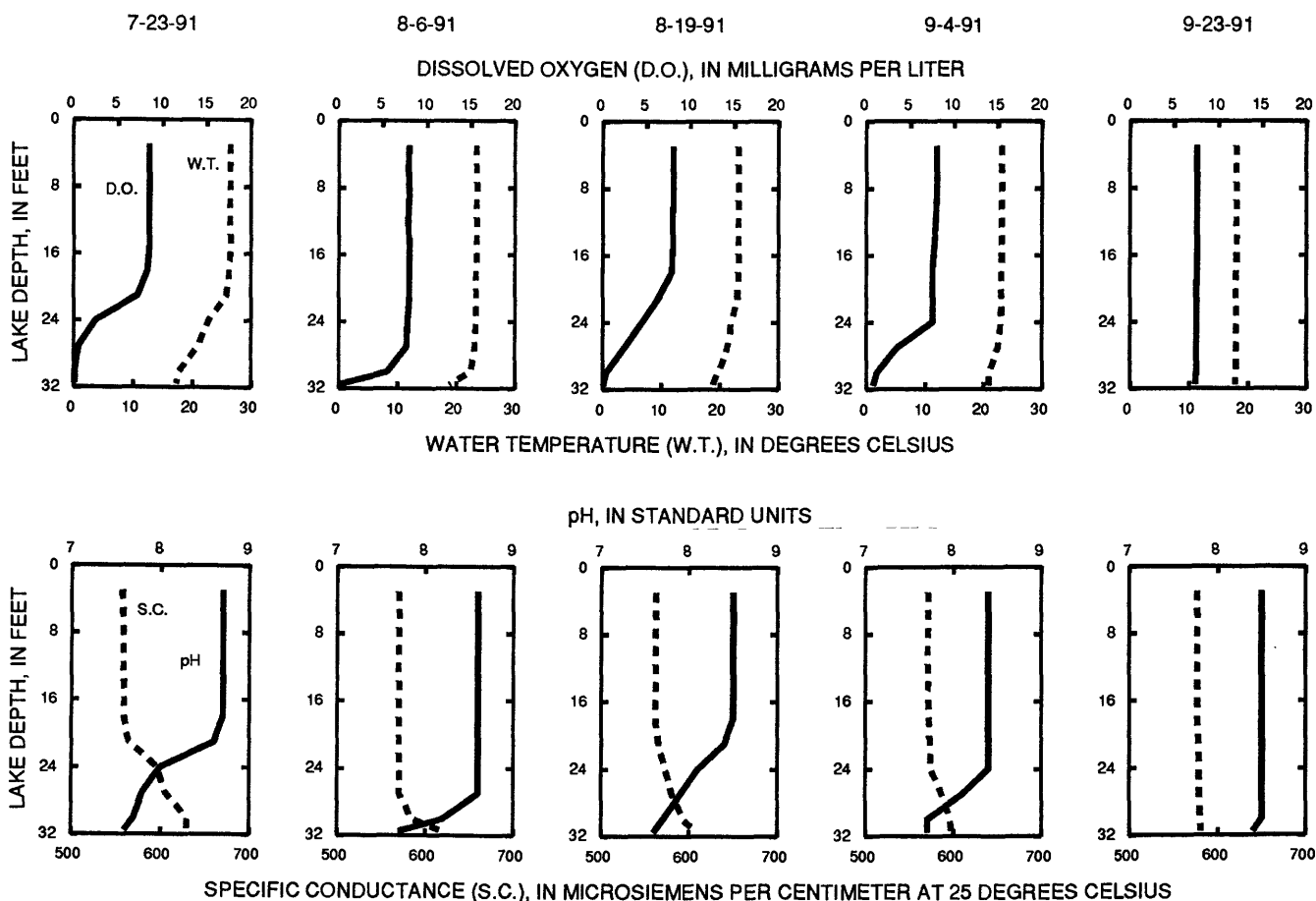
## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

423659088354401 DELAVAN LAKE, AT NORTH END, NEAR LAKE LAWN, WI--CONTINUED

WATER-QUALITY DATA, JULY 23 TO SEPTEMBER 23, 1991  
(Milligrams per liter unless otherwise indicated)

	July 23			Aug. 06		
Depth of sample (ft)	1.5	27.0	31.5	1.5	30.0	31.5
Lake stage (ft)	4.64			4.37		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	557	605	630	570	584	620
pH (units)	8.7	7.8	7.6	8.6	8.2	7.7
Water temperature ( $^{\circ}\text{C}$ )	26.5	21.0	17.3	23.5	22.4	18.9
Secchi-depth (meters)	2.6			4.0		
Dissolved oxygen	8.5	0.6	0.1	8.0	5.5	0.2
Alkalinity, as $\text{CaCO}_3$	154	---	194	157	---	185
Phosphorus, total (as P)	0.011	0.014	0.022	0.016	0.009	0.026
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	160	---	50	160	---	50
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	3.4	---	---	1.3	---	---

	Aug. 19			Sept. 04			Sept. 23	
Depth of sample (ft)	1.5	27.0	31.5	1.5	27.0	31.5	1.5	31.5
Lake stage (ft)	4.45			4.39			4.51	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	562	581	609	571	587	598	577	581
pH (units)	8.5	7.9	7.6	8.4	8.1	7.7	8.5	8.4
Water temperature ( $^{\circ}\text{C}$ )	23.2	21.3	18.7	23.2	22.5	20.9	18.1	17.9
Secchi-depth (meters)	3.4			4.9			3.2	
Dissolved oxygen	8.1	2.5	0.1	8.0	3.5	0.8	7.6	7.4
Alkalinity, as $\text{CaCO}_3$	162	---	190	---	---	---	167	167
Phosphorus, total (as P)	0.028	0.013	0.020	0.009	0.014	0.015	0.010	0.011
Phosphorus, ortho, dissolved (as P)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aluminum, total (Al) $\mu\text{g}/\text{L}$	---	---	---	---	---	---	110	110
Aluminum, dissolved (Al) $\mu\text{g}/\text{L}$	110	---	20	---	---	---	100	100
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	0.8	---	---	---	---	---	1.0	---



## 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 mi<sup>2</sup>, of which 2.3 mi<sup>2</sup> is non-contributing.

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 5, 1989, staff gage at bridge on North Shore Drive at same datum.

REMARKS.--Estimated daily gage heights: Dec. 20-21. Records good except estimated daily gage heights, which are fair. Lake was ice covered from Dec. 26 to Mar. 23. Lake levels controlled by Town of Delavan.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.85 ft, Sept. 30, 1986; minimum daily, -4.44 ft Nov. 6, 1989 (lake drawn down for lake rehabilitation program).

EXTREMES FOR CURRENT YEAR.--Maximum daily gage height, 5.43 ft, Apr. 16; minimum daily, 3.15 ft, Oct. 8.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.19	3.20	4.04	4.64	4.61	4.58	5.13	5.06	5.18	4.86	4.50	4.34
2	3.18	3.20	4.04	4.65	4.60	4.69	5.11	5.05	5.20	4.86	4.48	4.32
3	3.19	3.20	4.14	4.66	4.59	4.72	5.10	5.04	5.19	4.84	4.46	4.36
4	3.23	3.27	4.18	4.67	4.58	4.71	5.09	5.03	5.14	4.82	4.43	4.39
5	3.21	3.33	4.18	4.68	4.60	4.69	5.09	5.07	5.11	4.81	4.40	4.38
6	3.19	3.34	4.18	4.69	4.70	4.67	5.11	5.09	5.09	4.79	4.37	4.37
7	3.17	3.34	4.17	4.69	4.75	4.64	5.13	5.09	5.07	4.78	4.36	4.36
8	3.15	3.33	4.15	4.69	4.79	4.61	5.16	5.10	5.06	4.77	4.48	4.35
9	3.16	3.35	4.14	4.69	4.82	4.59	5.31	5.10	5.04	4.75	4.52	4.34
10	3.20	3.38	4.14	4.69	4.84	4.55	5.34	5.09	5.03	4.73	4.51	4.39
11	3.22	3.39	4.16	4.71	4.83	4.52	5.32	5.10	5.02	4.72	4.50	4.38
12	3.22	3.42	4.17	4.73	4.82	4.50	5.29	5.10	5.04	4.73	4.51	4.44
13	3.21	3.55	4.20	4.74	4.79	4.47	5.25	5.10	5.05	4.73	4.50	4.48
14	3.22	3.63	4.22	4.75	4.78	4.45	5.25	5.09	5.06	4.71	4.49	4.58
15	3.25	3.67	4.25	4.75	4.77	4.42	5.37	5.09	5.11	4.70	4.49	4.66
16	3.24	3.68	4.28	4.76	4.75	4.39	5.43	5.08	5.11	4.68	4.48	4.65
17	3.25	3.68	4.31	4.77	4.72	4.38	5.40	5.08	5.10	4.65	4.47	4.64
18	3.28	3.68	4.36	4.77	4.71	4.39	5.34	5.08	5.09	4.64	4.46	4.61
19	3.26	3.68	4.38	4.77	4.71	4.37	5.28	5.09	5.08	4.63	4.45	4.58
20	3.25	3.69	4.40	4.76	4.71	4.36	5.21	5.08	5.06	4.62	4.43	4.55
21	3.25	3.73	4.41	4.76	4.72	4.37	5.14	5.08	5.04	4.64	4.42	4.54
22	3.25	3.76	4.43	4.75	4.72	4.40	5.08	5.10	5.02	4.65	4.41	4.52
23	3.25	3.78	4.44	4.74	4.71	4.43	5.07	5.11	4.98	4.64	4.41	4.51
24	3.25	3.77	4.44	4.73	4.70	4.45	5.08	5.12	4.97	4.62	4.40	4.50
25	3.24	3.78	4.45	4.73	4.68	4.46	5.07	5.12	4.95	4.61	4.39	4.49
26	3.23	3.79	4.45	4.71	4.65	4.57	5.06	5.16	4.94	4.59	4.39	4.48
27	3.23	3.86	4.45	4.69	4.62	4.82	5.06	5.17	4.92	4.58	4.38	4.47
28	3.22	3.99	4.46	4.68	4.59	5.06	5.06	5.17	4.91	4.56	4.38	4.46
29	3.21	4.02	4.56	4.67	---	5.11	5.05	5.16	4.89	4.56	4.38	4.45
30	3.20	4.05	4.62	4.65	---	5.12	5.06	5.16	4.88	4.55	4.38	4.44
31	3.20	---	4.63	4.63	---	5.13	---	5.18	---	4.52	4.37	---
MEAN	3.22	3.58	4.30	4.71	4.71	4.60	5.18	5.10	5.04	4.69	4.44	4.47
MAX	3.28	4.05	4.63	4.77	4.84	5.13	5.43	5.18	5.20	4.86	4.52	4.66
MIN	3.15	3.20	4.04	4.63	4.58	4.36	5.05	5.03	4.88	4.52	4.36	4.32

CAL YR 1990 MEAN 1.52 MAX 4.63 MIN -4.17

WTR YR 1991 MEAN 4.50 MAX 5.43 MIN 3.15



## ROCK RIVER BASIN

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI

LOCATION.--Lat 42°36'53", long 88°37'29", in SW 1/4 SE 1/4 sec.20, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on right bank 25 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 mi<sup>2</sup>, of which 2.3 mi<sup>2</sup> 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 920 ft, from topographic map

REMARKS.--No estimated daily discharges. Records good except for intermittent flows in November, December, and September, which are poor. Flow regulated by dam upstream from gage. Intermittent flows are from the drainage area between the dam and gage.

AVERAGE DISCHARGE.--8 years, 19.8 ft<sup>3</sup>/s, 6.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 228 ft<sup>3</sup>/s Oct. 1, 1986, gage height, 7.92 ft; minimum daily discharge, no flow June 21-22, 1989, and many days during the 1990 and 1991 water years (lake drawn down for lake rehabilitation program).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 89 ft<sup>3</sup>/s Apr. 16-17, gage height, 6.77 ft; minimum daily discharge, no flow on many days.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 28 to Apr. 27 and May 1 to Sept. 30.)

4.90	0.00	5.40	5.3
4.92	.01	5.50	8.1
5.00	.05	6.00	26
5.10	.35	6.50	47
5.20	1.4	7.00	74
5.30	3.0	7.50	122

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.19	18	34	47	8.4	11	2.9	.04	.00
2	.00	.00	.00	.00	18	36	48	6.9	11	1.5	.04	.00
3	.00	.00	.00	.00	18	35	48	7.4	11	.80	.04	.00
4	.00	.00	.01	4.4	20	34	48	7.4	10	1.7	.04	.00
5	.00	.01	.00	12	21	34	35	8.1	8.8	1.5	.03	.00
6	.00	.01	.00	.12	19	34	9.3	7.1	8.6	1.3	.03	.00
7	.00	.00	.00	11	19	34	8.7	8.2	8.3	1.2	.04	.00
8	.00	.00	.00	11	25	33	9.3	9.4	7.6	1.0	.08	.00
9	.00	.00	.00	11	27	33	41	9.3	7.5	.75	.00	.00
10	.00	.00	.00	10	27	32	58	9.9	6.6	.48	.00	.00
11	.00	.00	.00	10	26	32	59	9.8	6.4	.42	.00	.00
12	.00	.00	.01	10	26	32	66	9.5	7.0	.46	.00	.00
13	.00	.00	.02	10	26	31	69	9.0	7.3	.47	.00	.00
14	.00	.00	.01	9.9	26	29	69	8.8	7.3	.08	.00	.26
15	.00	.00	.02	5.8	25	29	70	8.7	8.7	.03	.00	.00
16	.00	.00	.02	.06	25	29	83	7.8	9.0	.03	.00	.00
17	.00	.00	.02	6.2	25	28	88	8.1	8.6	.03	.00	.00
18	.00	.00	.02	15	25	29	87	8.6	8.3	.04	.00	.00
19	.00	.00	.02	15	27	23	87	7.9	8.3	.03	.00	.00
20	.00	.00	.02	15	28	19	83	7.9	8.1	.02	.00	.00
21	.00	.00	.02	15	27	20	81	8.0	8.2	.01	.00	.00
22	.00	.00	.01	15	28	20	60	7.9	7.5	.01	.00	.00
23	.00	.00	.00	15	27	20	43	7.7	6.9	.00	.00	.00
24	.00	.00	.00	15	27	20	41	7.8	6.1	.01	.00	.00
25	.00	.00	.00	16	30	6.6	39	8.3	5.9	.02	.00	.00
26	.00	.00	.00	20	32	.12	38	8.8	5.2	.02	.00	1.1
27	.00	.02	.00	20	32	2.3	38	9.5	4.5	.03	.00	.02
28	.00	.02	.01	19	32	59	36	9.5	4.1	.04	.00	.00
29	.00	.01	4.1	19	---	46	23	9.2	3.6	.04	.00	.00
30	.00	.01	1.5	19	---	47	10	9.0	3.6	.04	.00	.00
31	.00	---	.56	18	---	47	---	10	---	.04	.00	---
TOTAL	0.00	0.08	6.37	359.55	706	908.02	1522.3	263.9	225.0	15.00	0.34	1.38
MEAN	.000	.003	.21	11.6	25.2	29.3	50.7	8.51	7.50	.48	.011	.046
MAX	.00	.02	4.1	20	32	59	88	10	11	2.9	.08	1.1
MIN	.00	.00	.00	.00	18	.12	8.7	6.9	3.6	.00	.00	.00
CFSM	.00	.00	.01	.29	.63	.74	1.27	.21	.19	.01	.00	.00
IN.	.00	.00	.01	.34	.66	.85	1.42	.25	.21	.01	.00	.00

CAL YR 1990 TOTAL 51.75 MEAN .14 MAX 5.0 MIN .00 CFSM .00 IN. .05  
WTR YR 1991 TOTAL 4007.94 MEAN 11.0 MAX 88 MIN .00 CFSM .28 IN. 3.75

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1983 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Water years 1983-84, October 1989 to September 30, 1991 (discontinued).

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 except for periods Oct. 1 to Jan. 4 and Aug. 10 to Sept. 30, which are poor. 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.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 6.00 mg/L, Jan. 5, 1990; minimum observed, &lt;0.01 mg/L, Mar. 9-10, 1990.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 432 lb, May 28, 1984; minimum daily, 0.00 lb, Aug. 9, 13, 1987, and many days during 1990 and 1991 water years.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 224 mg/L, Mar. 27; minimum observed, 1 mg/L, Apr. 19.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 4.7 tons, Mar. 28; minimum daily, 0.00 ton on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 1.4 mg/L, Mar. 27; minimum observed, 0.07 mg/L, May 2 and June 18.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 64.3 lb, Mar. 28; minimum daily, 0.00 lb, on many days.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)
JAN 1991				
24...	1610	15	--	7
24...	1615	15	0.150	--
FEB				
20...	1350	28	0.190	--
MAR				
27...	1235	0.62	1.40	224
28...	1005	77	0.210	28
28...	1155	78	0.180	35
28...	1405	77	--	22
28...	1505	50	0.180	--
29...	0915	47	0.160	14
29...	1450	47	0.160	17
30...	1010	47	0.150	8
30...	1505	47	0.130	--
30...	1509	47	--	10
31...	0855	47	0.130	8
APR				
01...	0910	47	0.170	17
01...	1355	47	0.150	17
09...	1125	57	0.120	11
11...	1035	59	0.120	5
11...	1505	59	0.100	4
12...	1055	70	0.130	8
12...	1500	70	0.140	9
13...	0855	69	0.120	8
14...	0855	69	0.130	6
15...	1005	69	0.990	2
15...	1435	71	0.130	6
16...	1020	89	0.120	--
16...	1425	89	0.130	--
17...	0855	87	0.150	3
17...	1450	89	0.100	4
18...	1010	87	0.150	2
19...	0955	87	0.110	1
MAY				
02...	1550	6.0	0.070	3
07...	0950	7.5	0.200	2
29...	1203	9.1	--	1
JUN				
10...	1400	6.1	0.100	2
18...	1120	8.4	0.070	5
21...	1203	8.1	--	1
JUL				
10...	1345	0.56	0.150	3
30...	1000	0.04	0.110	3
SEP				
04...	1445	0.01	0.120	12

## ROCK RIVER BASIN

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.39	1.4	2.0	.07	.04	.01	.00	.00
2	.00	.00	.00	.00	.39	1.4	2.0	.06	.04	.01	.00	.00
3	.00	.00	.00	.00	.39	1.4	1.9	.06	.04	.00	.00	.00
4	.00	.00	.00	.06	.46	1.3	1.8	.05	.04	.01	.00	.00
5	.00	.00	.00	.16	.48	1.3	1.3	.05	.04	.01	.00	.00
6	.00	.00	.00	.16	.45	1.3	.32	.04	.04	.01	.00	.00
7	.00	.00	.00	.16	.46	1.2	.28	.04	.04	.01	.00	.00
8	.00	.00	.00	.16	.61	1.2	.28	.05	.03	.01	.00	.00
9	.00	.00	.00	.15	.70	1.2	1.1	.05	.04	.01	.00	.00
10	.00	.00	.00	.15	.70	1.1	1.1	.05	.03	.00	.00	.00
11	.00	.00	.00	.15	.70	1.1	.79	.05	.03	.00	.00	.00
12	.00	.00	.00	.16	.71	1.1	1.3	.05	.04	.00	.00	.00
13	.00	.00	.00	.16	.73	1.0	1.4	.04	.05	.00	.00	.00
14	.00	.00	.00	.15	.73	.95	.89	.04	.06	.00	.00	.01
15	.00	.00	.00	.09	.74	.92	.73	.04	.08	.00	.00	.00
16	.00	.00	.00	.00	.76	.91	.96	.03	.09	.00	.00	.00
17	.00	.00	.00	.10	.77	.87	.75	.03	.10	.00	.00	.00
18	.00	.00	.00	.25	.78	.89	.38	.04	.10	.00	.00	.00
19	.00	.00	.00	.25	.86	.68	.18	.03	.06	.00	.00	.00
20	.00	.00	.00	.25	.90	.57	.18	.03	.04	.00	.00	.00
21	.00	.00	.00	.25	.91	.56	.20	.03	.03	.00	.00	.00
22	.00	.00	.00	.26	.94	.57	.16	.03	.02	.00	.00	.00
23	.00	.00	.00	.26	.95	.55	.13	.03	.02	.00	.00	.00
24	.00	.00	.00	.26	.95	.55	.14	.03	.02	.00	.00	.00
25	.00	.00	.00	.29	1.1	.18	.15	.03	.02	.00	.00	.00
26	.00	.00	.00	.37	1.2	.00	.17	.03	.02	.00	.00	.02
27	.00	.00	.00	.38	1.2	.69	.19	.03	.02	.00	.00	.00
28	.00	.00	.00	.38	1.3	4.7	.20	.03	.02	.00	.00	.00
29	.00	.00	.06	.38	---	1.9	.14	.03	.02	.00	.00	.00
30	.00	.00	.02	.39	---	1.2	.07	.03	.02	.00	.00	.00
31	.00	---	.01	.38	---	1.2	---	.03	---	.00	.00	---
TOTAL	0.00	0.00	0.09	6.16	21.26	33.89	21.19	1.23	1.24	0.08	0.00	0.03

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.10	15.7	33.0	39.7	3.31	6.98	1.71	.02	.00
2	.00	.00	.00	.00	15.7	34.4	37.5	2.62	7.10	.89	.02	.00
3	.00	.00	.00	.00	15.6	33.0	36.6	2.79	6.85	.51	.02	.00
4	.00	.00	.00	2.40	17.9	32.4	35.7	2.79	6.15	1.10	.02	.00
5	.00	.00	.00	6.33	18.6	32.2	25.8	3.05	5.28	1.01	.02	.00
6	.00	.00	.00	6.52	17.1	31.7	6.58	2.91	5.05	.94	.02	.00
7	.00	.00	.00	6.45	17.3	30.9	5.99	7.93	4.78	.85	.02	.00
8	.00	.00	.00	6.41	22.8	30.4	6.19	9.94	4.28	.77	.05	.00
9	.00	.00	.00	6.36	25.4	30.0	26.8	9.61	4.13	.59	.00	.00
10	.00	.00	.00	6.29	25.1	28.9	37.3	10.0	3.58	.39	.00	.00
11	.00	.00	.00	6.42	25.0	28.7	35.7	9.75	3.32	.33	.00	.00
12	.00	.00	.00	6.55	24.7	28.8	46.0	9.21	3.45	.36	.00	.00
13	.00	.00	.01	6.60	25.1	27.0	46.2	8.56	3.45	.36	.00	.00
14	.00	.00	.01	6.55	24.9	25.6	47.9	8.22	3.29	.06	.00	.16
15	.00	.00	.01	3.88	24.8	25.0	48.9	7.96	3.76	.02	.00	.00
16	.00	.00	.01	.04	25.2	24.9	57.5	6.99	3.71	.02	.00	.00
17	.00	.00	.01	4.38	25.1	24.1	59.8	7.11	3.38	.02	.00	.00
18	.00	.00	.01	10.9	25.2	24.9	63.9	7.45	3.16	.03	.00	.00
19	.00	.00	.01	11.2	27.3	19.3	52.6	6.71	3.25	.02	.00	.00
20	.00	.00	.01	11.1	28.3	16.3	47.3	6.53	3.28	.01	.00	.00
21	.00	.00	.01	11.2	27.9	16.3	45.0	6.45	3.43	.01	.00	.00
22	.00	.00	.00	11.4	27.9	16.8	31.9	6.26	3.28	.01	.00	.00
23	.00	.00	.00	11.8	27.3	16.3	22.5	5.98	3.09	.00	.00	.00
24	.00	.00	.00	11.8	26.5	16.4	20.4	5.93	2.85	.01	.00	.00
25	.00	.00	.00	13.2	30.0	5.36	18.8	6.22	2.86	.01	.00	.00
26	.00	.00	.00	16.3	31.3	.10	17.8	6.45	2.57	.01	.00	.69
27	.00	.01	.00	16.5	30.7	8.47	17.3	6.83	2.34	.02	.00	.01
28	.00	.01	.01	16.3	31.0	64.3	15.5	6.70	2.19	.02	.00	.00
29	.00	.01	2.24	16.1	---	40.3	9.53	6.34	2.00	.02	.00	.00
30	.00	.00	.81	16.1	---	35.7	4.15	6.08	2.06	.02	.00	.00
31	.00	---	.30	15.9	---	34.8	---	6.67	---	.02	.00	---
TOTAL	0.00	0.03	3.45	265.08	679.4	816.33	966.84	203.35	114.90	10.14	0.19	0.86

## 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 mi<sup>2</sup>, of which 2.33 mi<sup>2</sup> is noncontributing.

PERIOD OF RECORD.--September 1939 to current year.

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, from topographic map. Published as "Turtle Creek near Clinton" (05431500) prior to January 1980. September 25, 1939 to January 16, 1940, non-recording gage, and January 17, 1940 to December 1979, water-stage recorder at site 1.8 mi downstream at a different datum.

REMARKS.--Estimated daily discharge: Ice periods listed in rating table below. Records good except those for ice-affected periods, which are fair. Some seasonal regulation caused by dams used to maintain levels of Turtle and Delavan Lakes. Flows from Oct. 1 to Jan. 4 were abnormally low because Delavan Lake was being filled and there was minimal outfall during this period.

AVERAGE DISCHARGE.--52 years, 122 ft<sup>3</sup>/s, 8.41 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft<sup>3</sup>/s, Apr. 21, 1973, gage height, 12.85 ft, from rating curve extended above 6,500 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 8.0 ft<sup>3</sup>/s, Dec. 29, 1956, gage height, 2.04 ft, result of freezeup, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 2	0930	*924	*6.46				

Minimum discharge, 8.2 ft<sup>3</sup>/s, Feb. 15, gage height, 2.90 ft, result of freezeup.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-9, Dec. 23 to Feb. 19, and Feb. 25, 26.)

3.2	28	5.0	374
3.5	60	6.0	726
4.0	140	7.0	1,180

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	52	89	80	52	168	208	107	100	48	35	33
2	44	55	81	74	56	792	188	98	151	48	34	33
3	54	56	60	70	64	357	153	92	116	45	34	47
4	89	83	70	66	90	191	146	91	90	44	35	60
5	60	147	84	68	130	158	145	98	77	44	34	42
6	43	169	80	70	160	157	136	108	71	43	33	39
7	38	113	76	70	150	142	107	100	68	42	35	37
8	41	109	74	70	160	135	105	95	65	43	66	35
9	51	82	74	70	180	120	169	94	64	43	87	35
10	73	72	74	70	130	112	191	84	63	41	54	49
11	87	72	73	70	98	111	168	82	63	38	44	47
12	66	71	79	70	80	113	163	82	63	41	41	62
13	60	85	107	72	74	117	167	80	74	47	38	66
14	63	73	99	72	70	114	215	77	76	43	35	83
15	77	67	93	74	68	111	318	75	102	40	34	91
16	73	67	94	74	70	101	291	73	108	38	32	65
17	67	67	90	74	80	104	277	76	81	37	36	59
18	70	65	103	74	110	141	225	87	75	37	38	58
19	71	64	98	74	150	137	213	101	70	35	36	47
20	65	60	90	74	180	136	202	90	66	35	37	42
21	61	63	92	72	213	134	195	83	61	47	37	41
22	59	69	74	66	217	150	187	85	60	55	35	39
23	58	65	72	62	156	199	164	94	60	43	33	39
24	57	63	70	60	117	183	137	93	60	39	33	40
25	55	62	68	56	98	159	118	86	58	37	33	41
26	55	60	66	54	100	219	119	93	56	36	33	41
27	49	87	64	54	100	448	131	94	54	36	32	40
28	43	212	68	52	98	579	169	82	51	35	33	40
29	43	153	80	52	---	327	134	75	49	39	33	41
30	44	106	90	50	---	247	130	81	49	38	35	41
31	45	---	84	50	---	221	---	100	---	36	34	---
TOTAL	1804	2569	2516	2064	3251	6383	5271	2756	2201	1273	1189	1433
MEAN	58.2	85.6	81.2	66.6	116	206	176	88.9	73.4	41.1	38.4	47.8
MAX	89	212	107	80	217	792	318	108	151	55	87	91
MIN	38	52	60	50	52	101	105	73	49	35	32	33
CFSM	.30	.44	.41	.34	.59	1.05	.89	.45	.37	.21	.20	.24
IN.	.34	.49	.48	.39	.61	1.21	1.00	.52	.42	.24	.22	.27

CAL YR 1990 TOTAL 30738 MEAN 84.2 MAX 747 MIN 35 CFSM .43 IN. 5.81  
WTR YR 1991 TOTAL 32710 MEAN 89.6 MAX 792 MIN 32 CFSM .46 IN. 6.19

## ROCK RIVER BASIN

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI

LOCATION.--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<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1987 to September 1991 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,010 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 9-11, 15, and ice periods listed in rating tables below. Records good except periods of no gage-height record, Oct. 9-11, 15, which are fair, and ice-affected periods, which are poor. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,260 ft<sup>3</sup>/s, June 29, 1990, on basis of slope-area measurement of peak flow, gage height, 13.49 ft, from floodmark; minimum discharge, 0.81 ft<sup>3</sup>/s, Mar. 7, 1990, gage height, 2.58 ft, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,060 ft<sup>3</sup>/s, June 15, gage height, 8.40 ft; minimum discharge, 2.1 ft<sup>3</sup>/s, Feb. 14, 24, gage height, 3.23 ft, result of freezeup.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-15, Dec. 21 to Feb. 18, Feb. 23 to Mar. 7, and Mar. 10-15.)

Oct. 1 to Mar. 2 (0900)				Mar. 2 (0915) to Sept. 30			
3.2	1.9	3.8	12	3.4	6.8	5.0	122
3.4	3.7	4.0	21	3.7	13	6.0	257
3.6	6.7	4.3	40	4.0	30	7.0	503
				4.5	71		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.4	4.4	2.6	2.5	8.0	16	21	15	12	9.2	8.4
2	4.5	4.4	4.1	2.5	2.6	35	15	19	14	12	9.1	8.3
3	5.4	4.4	3.5	2.4	2.6	18	14	18	14	12	9.2	12
4	5.2	4.6	3.1	2.4	2.7	16	15	18	13	12	9.1	9.3
5	4.8	4.5	3.7	2.4	2.7	15	14	28	12	12	8.8	8.6
6	4.7	4.4	4.2	2.4	3.0	19	13	22	12	11	8.8	8.6
7	4.4	4.3	4.5	2.4	3.5	15	13	20	12	16	9.2	8.5
8	4.5	4.2	4.8	2.4	4.2	14	13	19	12	13	43	11
9	4.6	4.5	4.8	2.4	4.1	14	29	18	12	11	12	10
10	4.7	4.5	4.8	2.4	4.0	13	19	17	15	11	10	8.9
11	4.9	4.3	4.8	2.5	3.7	17	16	17	13	11	10	9.4
12	4.7	4.3	4.8	2.5	3.6	13	54	17	19	12	9.6	37
13	4.7	4.3	4.7	2.6	3.6	11	37	18	13	11	9.6	10
14	4.8	4.4	4.5	2.7	3.2	13	57	17	30	11	9.8	10
15	4.6	4.5	4.5	2.7	3.4	15	33	16	287	10	9.7	9.0
16	4.6	4.4	4.5	2.7	3.8	16	28	16	27	10	9.5	8.4
17	4.7	4.1	4.5	2.7	4.0	22	25	16	22	10	10	8.1
18	4.9	4.2	4.6	2.7	4.1	28	24	18	19	10	9.6	8.6
19	4.4	4.2	4.5	2.8	4.2	26	23	16	17	10	9.2	7.9
20	4.5	4.2	4.5	2.7	4.0	24	21	15	16	10	9.2	8.0
21	4.7	5.2	4.3	2.5	4.4	23	20	20	16	10	9.3	7.9
22	4.4	4.6	4.0	2.4	4.6	21	20	17	15	11	9.1	7.7
23	4.4	4.4	3.5	2.4	4.1	31	23	16	14	10	8.8	7.8
24	4.3	4.3	3.2	2.3	3.8	19	19	15	14	9.8	8.8	8.1
25	4.4	4.3	3.1	2.3	3.6	16	18	15	14	9.6	8.7	8.4
26	4.4	4.2	3.0	2.4	3.4	16	18	17	13	9.4	8.7	8.3
27	4.4	5.3	3.0	2.4	3.4	54	56	15	13	9.4	8.6	8.0
28	4.2	4.8	3.2	2.5	3.5	23	24	14	13	9.8	8.6	8.1
29	4.3	4.2	3.3	2.5	---	19	30	13	13	10	8.5	8.0
30	4.4	4.4	3.1	2.4	---	18	23	28	12	9.6	8.6	8.0
31	4.4	---	2.8	2.4	---	17	---	16	---	9.6	8.7	---
TOTAL	142.5	132.8	124.3	77.4	100.3	609.0	730	552	731	335.2	321.0	290.3
MEAN	4.60	4.43	4.01	2.50	3.58	19.6	24.3	17.8	24.4	10.8	10.4	9.68
MAX	5.4	5.3	4.8	2.8	4.6	54	57	28	287	16	43	37
MIN	4.2	4.1	2.8	2.3	2.5	8.0	13	13	12	9.4	8.5	7.7

CAL YR 1990 TOTAL 2781.4 MEAN 7.62 MAX 535 MIN 1.7  
WTR YR 1991 TOTAL 4145.8 MEAN 11.4 MAX 287 MIN 2.3

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1987 to September 1991 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1987 to September 1991.

DISSOLVED OXYGEN: July 1987 to September 1991.

INSTRUMENTATION.--Continuous water temperature and dissolved oxygen recorder since July 17, 1987. Automatic pumping sampler since July 17, 1987.

REMARKS.--Water-quality 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, 35.0°C, July 10, 1989; minimum observed, 0.0°C, on many days.

DISSOLVED OXYGEN: Maximum observed, 18.6 mg/L, Apr. 8, 1990; minimum observed, 0.5 mg/L, July 31, 1987.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 30.5°C, Aug. 15; minimum observed, 0.5°C, Nov. 8, 30, Dec. 2-6.

DISSOLVED OXYGEN: Maximum observed, 15.7 mg/L, Oct. 30; minimum observed, 3.4 mg/L, June 14.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

						DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)		SEDI- MENT, SUS- PENDE (MG/L) (80154)			

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

## ROCK RIVER BASIN

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH 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 RECOV- ERABLE (MG/L AS MG) (00927)	SODIUM, TOTAL RECOV- ERABLE (MG/L AS NA) (00929)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
NOV 1990											
*05...	1605	--	4.5	8.4	11	1.2	83	48	8.8	6	496
DEC											
*07...	1330	4.5	--	7.7	11	2.5	79	46	8.3	10	488
JAN 1991											
*07...	1205	2.4	--	7.7	<5	2.0	79	44	7.9	14	488
FEB											
*19...	1450	--	4.1	8.1	15	3.1	76	42	8.2	7	460
APR											
12...	1600	--	56	8.2	--	--	93	50	8.0	2570	2850
12...	1700	--	109	8.0	--	--	86	46	6.3	3260	3600
12...	1800	--	167	7.6	--	--	85	46	7.2	3590	3940
12...	1845	--	183	7.6	--	--	90	49	6.6	5050	5220
12...	2245	--	85	7.6	--	--	60	33	5.6	2340	2570
14...	0730	--	78	8.1	--	--	73	40	7.9	870	1240
14...	0900	--	94	8.0	--	--	91	49	7.3	1670	2240
*15...	1220	--	34	8.1	10	2.2	72	40	7.8	55	520
MAY											
*10...	1040	--	17	8.4	10	--	75	44	8.7	22	478
30...	0200	--	82	7.9	450	46	140	83	8.7	4560	4830
30...	0215	--	96	7.9	450	31	150	84	9.2	5240	5420
30...	0445	--	40	7.6	640	24	80	59	4.7	6300	6720
JUN											
*04...	1400	--	12	8.4	--	3.7	82	48	8.1	56	576
14...	2145	--	43	--	320	--	110	65	7.4	3640	3900
14...	2315	--	251	--	1000	--	230	120	8.9	13040	11990
14...	2345	--	354	--	680	--	100	69	5.0	9600	9100
15...	0215	--	635	--	440	--	68	44	3.5	5760	5630
15...	0400	--	993	--	360	--	50	37	3.1	4840	4670
15...	0500	--	1060	--	280	--	36	28	3.1	3300	3420
15...	0745	--	428	--	160	--	29	21	3.6	1840	2050
15...	0945	--	149	--	120	--	29	19	4.2	1260	1440
*19...	1645	--	17	8.2	10	2.2	77	45	7.8	75	582
JUL											
*09...	1610	--	11	8.3	9	1.8	--	--	--	18	510
*23...	1040	--	10	8.3	6	<1.0	--	--	--	16	504
AUG											
*07...	1200	--	9.0	8.2	<5	1.2	80	47	7.6	12	522
08...	0330	--	34	8.1	75	11	61	37	6.4	396	766
08...	0430	--	52	7.9	110	20	--	--	--	850	1110
08...	0530	--	84	7.8	130	22	--	--	--	1240	1450
08...	0600	--	103	7.8	140	19	--	--	--	1500	1720
*09...	1215	--	12	8.2	28	3.7	--	--	--	84	566
*22...	1415	--	9.0	8.6	6	2.1	79	47	7.8	6	464
SEP											
*10...	1225	--	8.8	8.3	18	2.5	77	46	8.2	10	506
12...	0315	--	28	8.4	58	12	66	40	7.8	198	672
12...	1030	--	60	8.1	120	24	38	24	6.8	450	824
*12...	1230	--	54	8.1	110	24	38	24	6.9	376	744
12...	1231	--	54	8.1	110	25	38	24	6.7	410	766
*12...	1233	--	54	8.0	100	24	39	24	7.2	380	726
12...	1240	--	53	8.1	100	25	38	24	6.8	350	746

\* EQUAL-WIDTH INCREMENT (EWI) SAMPLE.

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SOLIDS, VOLA- TION, TOTAL (MG/L) (00505)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE VOLA- TION, TOTAL (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) (00608)	PHOS- PHORUS TOTAL (MG/L) (00665)	BARIUM, TOTAL RECOV- ERABLE (UG/L) (01007)	COPPER, TOTAL RECOV- ERABLE (UG/L) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L) (01045)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L) (01055)	ZINC, TOTAL RECOV- ERABLE (UG/L) (01092)
NOV 1990											
05...	152	3	3	8.40	<0.100	0.160	80	<20	180	55	<10
DEC											
07...	164	6	4	8.80	0.300	0.230	80	<20	320	99	20
JAN 1991											
07...	144	10	4	10.0	0.160	0.090	70	<20	290	67	<10
FEB											
19...	152	--	<2	8.82	0.891	0.190	60	<20	210	68	<10
APR											
12...	352	2270	300	7.70	0.447	3.87	500	37	47000	2300	460
12...	444	2870	390	5.65	0.687	6.84	600	54	64000	2500	590
12...	482	3160	430	4.63	1.03	8.08	700	66	72000	2800	710
12...	624	4430	620	3.34	1.19	8.54	1000	90	100000	4000	940
12...	368	2000	340	4.64	1.48	6.32	500	43	49000	2000	510
14...	234	730	140	10.1	0.353	1.74	200	<20	17000	690	180
14...	304	1470	200	8.64	0.724	4.14	400	26	31000	1400	320
15...	154	45	10	13.5	0.155	0.270	80	<20	1400	130	30
MAY											
10...	148	18	4	12.9	0.034	0.100	80	<20	620	79	<10
30...	--	4040	520	8.64	0.740	5.90	1000	83	100000	5200	790
30...	--	4680	560	10.6	0.541	5.87	900	73	100000	5400	750
30...	--	5540	760	3.66	1.14	9.18	1600	150	200000	7700	1100
JUN											
04...	214	46	10	13.2	0.092	0.210	100	<20	1400	130	30
14...	540	3200	440	7.01	0.373	5.50	800	69	91000	3700	680
14...	1210	11620	1420	5.24	1.13	7.56	2100	190	250000	11000	2000
14...	972	8520	1080	2.34	1.04	6.04	2000	200	240000	9000	1600
15...	630	5060	700	1.24	1.41	7.85	1100	99	160000	4900	820
15...	550	4260	580	1.04	0.719	7.03	1200	150	130000	4700	870
15...	424	2900	400	1.22	0.573	5.59	1000	92	110000	3700	660
15...	288	1560	280	1.33	0.419	3.99	600	120	70000	2300	440
15...	224	1070	190	1.90	0.365	2.97	400	33	47000	1600	260
19...	190	64	11	14.1	0.049	0.170	90	<20	390	73	<10
JUL											
09...	170	15	3	13.0	0.029	0.170	--	--	--	--	--
23...	162	12	4	12.2	0.036	0.170	--	--	--	--	--
AUG											
07...	164	8	4	11.7	0.041	0.130	80	<20	140	41	<10
08...	190	328	68	7.97	0.083	0.790	100	<20	8700	470	90
08...	234	690	160	6.42	0.247	1.98	--	--	--	--	--
08...	256	1050	190	5.92	0.374	2.50	--	--	--	--	--
08...	322	1260	240	6.17	0.321	2.36	--	--	--	--	--
09...	190	68	16	9.89	0.371	0.630	--	--	--	--	--
22...	130	4	2	10.5	0.020	0.130	80	<20	90	<40	<10
SEP											
10...	154	6	4	10.2	0.075	0.360	90	<20	240	<40	<10
12...	206	156	42	8.43	0.140	0.830	100	<20	5200	290	50
12...	214	340	110	3.73	0.788	2.47	200	<20	16000	800	140
12...	200	300	76	3.28	1.01	2.50	200	<20	15000	670	110
12...	200	310	100	3.20	0.964	2.44	200	<20	16000	680	140
12...	194	300	80	3.22	1.07	2.50	200	<20	14000	630	120
12...	200	260	90	3.23	1.05	2.42	200	<20	15000	650	120

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
OCT 1990					MAY 1991				
16...	1200	4.5	740	11.0	28...	1340	14	765	24.0
NOV					JUL				
20...	1432	4.2	700	6.5	12...	0913	12	760	20.0
JAN 1991					AUG				
07...	1200	2.6	750	0.0	20...	1335	9.0	710	19.0
MAR					SEP				
27...	1110	102	510	12.5	19...	1430	7.9	755	12.0
28...	1155	22	920	6.0					



05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.5	11.5	14.0	14.0	9.5	12.0	5.5	2.5	3.5	---	---	---
2	16.5	9.5	13.0	14.5	12.5	13.5	2.5	.50	1.5	---	---	---
3	16.0	13.5	15.0	13.5	8.5	11.5	1.0	.50	1.0	---	---	---
4	15.5	10.5	13.0	8.0	6.0	7.0	1.0	.50	1.0	---	---	---
5	---	---	---	6.5	4.5	5.5	.50	.50	.50	---	---	---
6	---	---	---	5.0	3.0	4.0	.50	.50	.50	---	---	---
7	---	---	---	5.5	2.5	4.0	---	---	---	---	---	---
8	---	---	---	3.0	.50	1.5	---	---	---	---	---	---
9	---	---	---	5.0	1.5	3.0	---	---	---	---	---	---
10	---	---	---	6.5	2.0	3.5	---	---	---	---	---	---
11	---	---	---	5.5	1.0	3.0	---	---	---	---	---	---
12	---	---	---	5.0	2.0	3.5	---	---	---	---	---	---
13	---	---	---	6.0	3.0	4.5	---	---	---	---	---	---
14	---	---	---	8.5	3.0	6.0	---	---	---	---	---	---
15	---	---	---	12.0	7.0	9.5	---	---	---	---	---	---
16	---	---	---	11.0	6.5	9.5	---	---	---	---	---	---
17	---	---	---	7.0	4.0	6.0	---	---	---	---	---	---
18	---	---	---	8.0	5.5	6.5	---	---	---	---	---	---
19	---	---	---	8.0	5.0	6.5	---	---	---	---	---	---
20	---	---	---	8.5	4.5	6.5	---	---	---	---	---	---
21	---	---	---	13.5	8.5	11.0	---	---	---	---	---	---
22	---	---	---	10.0	6.5	8.0	---	---	---	---	---	---
23	---	---	---	7.0	3.0	5.0	---	---	---	---	---	---
24	---	---	---	5.5	2.5	4.0	---	---	---	---	---	---
25	---	---	---	6.5	4.0	5.0	---	---	---	---	---	---
26	10.0	5.0	7.5	8.5	2.5	4.0	---	---	---	---	---	---
27	11.0	7.0	8.5	---	---	---	---	---	---	---	---	---
28	9.5	4.5	7.0	7.5	2.0	4.0	---	---	---	---	---	---
29	10.5	4.0	7.5	---	---	---	---	---	---	---	---	---
30	13.0	7.5	10.0	4.0	.50	2.5	---	---	---	---	---	---
31	13.5	8.5	11.0	---	---	---	---	---	---	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	11.0	7.0	9.0
2	---	---	---	---	---	---	---	---	---	16.0	6.0	10.5
3	---	---	---	---	---	---	---	---	---	11.0	7.5	9.5
4	---	---	---	---	---	---	---	---	---	14.0	8.0	11.0
5	---	---	---	---	---	---	---	---	---	12.0	8.5	10.5
6	---	---	---	---	---	---	---	---	---	8.5	7.0	8.0
7	---	---	---	---	---	---	---	---	---	18.0	6.5	12.0
8	---	---	---	---	---	---	---	---	---	17.0	11.0	14.0
9	---	---	---	---	---	---	---	---	---	23.0	11.5	17.0
10	---	---	---	---	---	---	---	---	---	19.5	13.5	17.0
11	---	---	---	---	---	---	---	---	---	24.5	13.5	19.0
12	---	---	---	---	---	---	---	---	---	24.0	15.5	20.0
13	---	---	---	---	---	---	---	---	---	25.5	16.0	20.5
14	---	---	---	---	---	---	10.0	6.0	8.0	22.5	16.0	19.0
15	---	---	---	---	---	---	13.0	6.5	9.5	23.5	14.5	19.0
16	---	---	---	---	---	---	14.0	6.0	10.0	20.5	16.5	18.5
17	---	---	---	---	---	---	16.5	6.5	11.5	17.5	12.0	15.5
18	---	---	---	---	---	---	11.5	8.0	9.0	12.0	10.0	11.0
19	---	---	---	---	---	---	10.0	7.5	8.5	18.0	10.0	13.5
20	---	---	---	---	---	---	14.0	5.5	10.0	23.0	12.0	17.5
21	---	---	---	---	---	---	---	---	---	20.5	15.0	18.0
22	---	---	---	---	---	---	---	---	---	24.5	16.5	20.5
23	---	---	---	---	---	---	11.5	7.5	9.0	23.5	18.0	20.5
24	---	---	---	---	---	---	17.5	5.5	11.0	24.5	17.0	20.5
25	---	---	---	---	---	---	13.5	8.5	11.5	19.5	16.5	18.0
26	---	---	---	---	---	---	15.5	7.5	11.5	24.5	17.0	20.5
27	---	---	---	---	---	---	17.5	12.0	14.0	26.5	16.5	21.5
28	---	---	---	---	---	---	19.0	9.0	14.0	28.5	18.0	23.0
29	---	---	---	---	---	---	18.0	13.0	15.0	27.0	19.5	23.5
30	---	---	---	---	---	---	12.5	9.0	10.0	25.0	18.0	21.5
31	---	---	---	---	---	---	---	---	---	21.5	17.0	18.5
MONTH	---	---	---	---	---	---	---	---	---	28.5	6.0	16.7

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991[illegible]

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

## OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	11.3	9.5	10.3
2	---	---	---	---	---	---	---	---	---	12.1	8.9	10.5
3	---	---	---	---	---	---	---	---	---	12.3	9.4	10.8
4	---	---	---	---	---	---	---	---	---	12.5	9.1	10.8
5	---	---	---	---	---	---	---	---	---	10.2	8.7	9.6
6	---	---	---	---	---	---	---	---	---	12.3	9.7	11.1
7	---	---	---	---	---	---	---	---	---	12.9	8.6	11.1
8	---	---	---	---	---	---	---	---	---	13.1	8.7	10.5
9	---	---	---	---	---	---	---	---	---	13.3	7.4	10.4
10	---	---	---	---	---	---	---	---	---	13.5	7.6	9.9
11	---	---	---	---	---	---	---	---	---	13.9	6.9	10.1
12	---	---	---	---	---	---	---	---	---	13.9	6.7	9.6
13	---	---	---	---	---	---	10.7	9.5	10.1	12.0	6.4	8.7
14	---	---	---	---	---	---	10.2	8.4	9.3	12.1	6.5	8.7
15	---	---	---	---	---	---	11.5	9.1	9.9	12.2	6.7	9.2
16	---	---	---	---	---	---	11.6	8.6	10.1	11.4	6.8	9.1
17	---	---	---	---	---	---	11.7	8.4	10.0	11.9	7.7	9.7
18	---	---	---	---	---	---	11.4	9.0	10.2	11.2	9.6	10.3
19	---	---	---	---	---	---	12.1	9.8	10.7	12.7	8.7	10.7
20	---	---	---	---	---	---	12.6	8.9	10.7	12.1	7.3	9.8
21	---	---	---	---	---	---	---	---	---	8.6	6.9	8.0
22	---	---	---	---	---	---	---	---	---	10.1	6.4	8.2
23	---	---	---	---	---	---	13.3	8.6	10.7	10.5	6.5	8.1
24	---	---	---	---	---	---	14.1	7.7	11.0	9.8	6.3	7.8
25	---	---	---	---	---	---	14.0	8.0	10.5	9.0	6.6	7.8
26	---	---	---	---	---	---	14.2	8.0	10.8	9.2	6.3	7.6
27	---	---	---	---	---	---	8.5	3.9	7.1	9.7	5.9	7.7
28	---	---	---	---	---	---	10.2	7.2	8.7	9.9	5.8	7.7
29	---	---	---	---	---	---	8.0	5.7	7.4	10.4	5.9	7.2
30	---	---	---	---	---	---	10.2	7.8	9.4	6.9	3.9	6.1
31	---	---	---	---	---	---	---	---	---	8.1	6.2	7.5
MONTH	---	---	---	---	---	---	---	---	---	13.9	3.9	9.2
JUNE			JULY			AUGUST			SEPTEMBER			
1	9.1	6.7	8.1	10.3	6.3	8.0	12.4	6.5	9.1	12.5	7.3	9.3
2	8.9	6.8	7.9	10.0	6.0	7.9	12.0	6.5	8.5	12.8	6.7	9.1
3	9.2	6.6	8.0	10.0	6.1	7.9	12.1	7.1	9.0	8.7	5.8	7.2
4	10.1	6.9	8.4	10.4	6.6	8.2	13.4	7.8	10.0	12.1	6.0	8.7
5	10.1	7.0	8.5	11.0	6.2	8.4	14.3	8.1	10.6	11.9	6.9	9.1
6	10.6	6.8	8.6	10.9	6.0	8.0	13.6	8.8	10.6	12.5	7.3	9.4
7	---	---	---	10.8	4.0	7.1	13.3	9.7	11.0	12.5	7.1	9.0
8	---	---	---	10.0	5.5	7.8	---	---	---	10.6	6.3	8.2
9	---	---	---	10.4	6.6	8.2	---	---	---	10.5	5.5	7.5
10	10.9	6.4	8.1	10.2	6.8	8.2	10.6	7.5	8.9	10.8	5.8	7.9
11	10.3	6.5	7.9	10.8	6.8	8.5	10.7	5.1	8.7	10.9	7.1	8.5
12	7.8	5.3	6.6	10.2	6.8	8.2	---	---	---	7.5	4.4	6.2
13	9.3	5.9	7.5	11.4	7.5	9.2	---	---	---	9.5	6.5	7.7
14	8.7	3.4	7.2	12.4	8.0	10.0	---	---	---	8.9	6.6	7.5
15	7.1	4.2	6.4	---	---	---	---	---	---	9.8	6.6	7.8
16	8.9	6.6	7.8	---	---	---	---	---	---	10.9	7.1	8.7
17	9.0	6.2	7.7	---	---	---	---	---	---	11.6	8.2	9.3
18	9.6	6.5	8.4	10.7	6.5	8.3	---	---	---	12.1	8.3	10.0
19	9.9	7.0	8.4	10.1	6.6	8.1	---	---	---	12.4	9.7	10.8
20	10.5	6.9	8.6	11.2	6.5	8.5	---	---	---	13.0	9.7	11.0
21	10.9	7.0	8.7	10.5	6.5	8.1	---	---	---	13.0	9.1	10.9
22	11.2	7.7	9.2	10.7	6.5	8.2	---	---	---	12.1	9.0	10.1
23	12.8	7.5	10.1	10.7	6.6	8.5	---	---	---	13.9	9.4	11.1
24	13.3	7.2	9.9	11.2	7.0	8.8	---	---	---	13.0	9.4	10.5
25	13.8	6.8	9.9	11.9	7.2	9.3	---	---	---	13.3	9.3	10.6
26	13.0	6.3	9.2	12.4	7.5	9.6	---	---	---	14.1	9.3	11.2
27	12.0	6.0	8.5	13.3	7.3	9.8	---	---	---	14.8	9.8	11.6
28	11.0	6.0	8.1	10.8	7.2	8.8	---	---	---	14.9	9.7	11.8
29	10.8	5.7	7.9	12.4	8.1	9.7	---	---	---	15.6	9.5	11.8
30	10.1	5.7	7.7	12.4	7.5	9.7	12.0	6.6	8.3	15.5	9.2	11.2
31	---	---	---	12.7	6.9	9.4	12.2	6.9	8.9	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	15.6	4.4	9.5

## ROCK RIVER BASIN

497

05432055 LIVINGSTON BRANCH PECATONICA RIVER NEAR LIVINGSTON, WI--CONTINUED

## PRECIPITATION QUANTITY

PERIOD OF RECORD.--July 1987 to current year (discontinued), during non-freezing periods.

GAGE.--Micrologger.

REMARKS.--Records good. Missing data June 3, July 18-29.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 5.25 in. June 29, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.23 in. Aug. 8.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	---	---	---	---	---	.00	.02	.00	.00	.00
2	.00	.00	---	---	---	---	---	.00	.00	.00	.00	.00
3	.33	.25	---	---	---	---	---	.00	---	.00	.00	1.02
4	.00	.04	---	---	---	---	---	.01	.00	.00	.00	.00
5	.00	.07	---	---	---	---	---	.72	.00	.00	.00	.00
6	.00	.00	---	---	---	---	---	.00	.00	.00	.00	.00
7	.00	.03	---	---	---	---	---	.00	.00	.85	.19	.00
8	.18	.00	---	---	---	---	---	.10	---	.00	3.23	.77
9	.00	.14	---	---	---	---	---	.02	.00	.00	.00	.01
10	.45	.00	---	---	---	---	---	.00	.33	.00	.00	.00
11	.01	.00	---	---	---	---	---	.00	.00	.34	.00	.63
12	.00	.00	---	---	---	---	1.38	.00	.67	.09	.00	.25
13	.00	.00	---	---	---	---	.01	.11	.40	.00	.00	.00
14	.08	.00	---	---	---	---	.79	.00	1.56	.00	.30	.00
15	.00	.00	---	---	---	---	.01	.02	.94	.00	.00	.00
16	.00	.00	---	---	---	---	.00	.02	.00	.00	.34	.00
17	.22	.00	---	---	---	---	.00	.27	.00	.00	.00	.00
18	.01	.00	---	---	---	---	.04	.12	.00	.00	.00	.00
19	.00	.00	---	---	---	---	.06	.01	.00	.05	---	.72
20	.13	---	---	---	---	---	.00	.01	.00	.00	---	.00
21	.01	---	---	---	---	---	.00	.62	.12	.00	---	.00
22	.01	---	---	---	---	---	.38	.14	.00	.16	---	.00
23	.00	---	---	---	---	---	.08	.00	.00	.00	---	.00
24	.00	---	---	---	---	---	.01	.00	.00	.00	---	.24
25	.00	---	---	---	---	---	.00	.34	.00	.00	---	.00
26	.00	---	---	---	---	---	.00	.07	.00	.00	---	.00
27	.00	---	---	---	---	---	1.10	.01	.00	.00	---	.01
28	.00	---	---	---	---	---	.58	.00	.00	.31	---	.00
29	.00	---	---	---	---	---	.19	.22	.00	.00	---	.00
30	.00	---	---	---	---	---	.00	.16	.00	.00	.00	.00
31	.00	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	1.43	---	---	---	---	---	---	2.97	---	1.80	---	3.65

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Ice periods listed in rating tables below. Records good except for ice-affected periods, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 185 ft<sup>3</sup>/s, 9.20 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s, July 16, 1950, gage height, 20.71 ft, from rating curve extended above 11,000 ft<sup>3</sup>/s basis of slope-area determination of peak flow; minimum, 17 ft<sup>3</sup>/s, Nov. 29, 1966, gage height, 2.09 ft, result of freezeup; minimum gage height, 1.07 ft, Dec. 6, 1968, result of freezeup.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of Feb. 21, 1937, reached a stage of 17.6 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Apr. 28	2330	*1,350	*9.84				

Minimum daily discharge, 56 ft<sup>3</sup>/s, Dec. 4.

RATING TABLES (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 1, 2; stage-discharge relation affected by ice Dec. 13-15, 21-24, Jan. 5-15, Jan. 22 to Feb. 1, Feb. 11, 12, 14-17, 25, and 26.)

Oct. 1 to Mar. 2(0315)

Mar. 2(0330) to Sept. 30

1.9	54	3.0	134	2.0	88	6.0	608
2.0	60	4.0	224	3.0	181	8.0	964
				4.0	300	10.0	1,400

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	76	80	73	68	136	322	362	253	169	126	103
2	78	76	78	73	71	993	287	328	247	166	124	99
3	83	78	63	73	71	773	268	306	230	162	124	104
4	116	84	56	72	72	408	260	295	219	158	120	118
5	98	88	87	72	74	330	257	330	207	158	112	109
6	85	86	83	72	76	425	244	428	198	156	109	103
7	81	83	81	72	75	336	233	344	187	155	111	101
8	80	80	86	72	78	282	230	308	180	184	344	100
9	82	81	86	72	81	292	344	297	177	169	431	112
10	89	87	86	72	83	261	426	279	180	154	165	114
11	113	84	85	72	80	270	312	268	197	152	138	104
12	105	81	86	72	74	344	327	261	198	156	131	135
13	91	78	84	72	73	259	1070	257	197	162	125	219
14	87	76	82	74	70	273	1110	256	189	150	123	167
15	93	76	80	74	68	262	1050	244	735	144	129	192
16	88	76	86	75	66	261	732	237	832	141	122	183
17	85	74	84	74	66	263	580	235	351	139	126	151
18	88	72	86	72	70	422	503	284	276	139	129	145
19	99	73	86	72	74	496	464	298	245	139	119	138
20	87	72	84	73	76	482	420	248	226	139	116	122
21	86	81	74	72	84	466	380	264	220	140	114	117
22	86	94	72	68	100	425	361	359	226	141	113	115
23	83	85	72	66	101	504	366	281	217	150	110	114
24	81	78	70	66	92	479	370	253	201	135	108	113
25	79	75	71	64	80	359	325	241	193	131	106	119
26	78	74	70	64	78	372	306	355	187	129	105	116
27	77	97	67	66	80	529	305	314	183	127	103	110
28	76	120	69	70	79	737	485	257	177	127	103	108
29	75	94	79	68	---	482	801	239	172	138	102	107
30	75	82	84	66	---	387	448	248	170	137	103	106
31	77	---	78	66	---	350	---	269	---	130	110	---
TOTAL	2681	2461	2435	2189	2160	12658	13586	8945	7470	4577	4201	3744
MEAN	86.5	82.0	78.5	70.6	77.1	408	453	289	249	148	136	125
MAX	116	120	87	75	101	993	1110	428	832	184	431	219
MIN	75	72	56	64	66	136	230	235	170	127	102	99
CFSM	.32	.30	.29	.26	.28	1.50	1.66	1.06	.91	.54	.50	.46
IN.	.37	.34	.33	.30	.29	1.72	1.85	1.22	1.02	.62	.57	.51

CAL YR 1990	TOTAL 59698	MEAN 164	MAX 7660	MIN 45	CFSM .60	IN. 8.13
WTR YR 1991	TOTAL 67107	MEAN 184	MAX 1110	MIN 56	CFSM .67	IN. 9.14

05433000 EAST BRANCH PECATONICA RIVER NEAR BLANCHARDVILLE, WI

LOCATION.--Lat 42°47'10" long 89°51'40", in 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1939, nonrecording gage at bridge 50 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records fair except for period of ice effect, which is poor. Gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years (1940-86, 1988-91), 145 ft<sup>3</sup>/s, 8.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft<sup>3</sup>/s, Feb. 28, 1948, gage height, 15.74 ft; minimum, 18 ft<sup>3</sup>/s, Nov. 29, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
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Apr. 29	2015	*970	*10.77				
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Minimum daily, 64 ft<sup>3</sup>/s, Dec. 26, 27.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Mar. 2, 4-27, Mar. 29 to Apr. 15, Apr. 17 to May 5, May 7 to June 16, June 18-21, and June 23 to July 20; stage-discharge relation affected by ice Dec. 3 to Mar. 1.)

3.5	60	6.0	274
4.0	95	8.0	526
5.0	177	10.0	894

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	86	87	70	72	100	208	310	186	122	104	91
2	84	85	85	70	74	643	193	266	188	122	103	91
3	86	84	76	70	78	514	186	244	176	120	103	93
4	101	86	70	70	80	246	182	235	168	119	103	95
5	89	87	86	70	82	206	180	277	162	119	101	91
6	86	87	84	70	84	279	174	364	158	118	99	91
7	83	86	82	70	86	226	168	261	155	119	101	91
8	83	84	86	70	88	190	165	238	154	128	139	90
9	84	86	86	70	88	201	260	232	154	120	147	92
10	88	87	86	70	90	180	268	220	155	118	108	92
11	102	87	86	70	86	191	205	212	159	118	104	91
12	96	86	86	70	84	240	217	205	155	119	102	140
13	91	85	84	70	82	193	672	203	152	119	101	143
14	90	84	78	70	80	191	566	210	155	117	99	112
15	92	85	86	70	76	189	558	194	322	114	99	136
16	89	85	82	70	76	188	391	191	223	112	99	122
17	88	83	82	70	76	183	330	189	147	111	101	104
18	91	83	82	70	78	247	294	217	139	114	102	108
19	89	83	82	70	80	227	279	271	135	112	97	104
20	87	83	80	70	82	220	260	201	132	111	97	96
21	88	89	76	70	88	220	245	204	134	111	97	95
22	87	91	70	68	90	213	236	247	188	113	96	95
23	87	87	68	66	90	290	240	206	141	112	94	94
24	86	84	66	66	84	253	244	193	133	107	94	93
25	85	84	66	66	80	207	219	188	131	106	94	95
26	84	83	64	66	78	214	211	210	128	105	93	94
27	85	92	64	68	76	357	209	213	127	105	92	92
28	84	104	66	70	76	397	209	187	124	105	91	91
29	83	90	70	72	---	266	713	179	122	110	91	91
30	84	87	76	72	---	233	561	181	122	108	92	91
31	85	---	72	72	---	222	---	186	---	105	91	---
TOTAL	2721	2593	2414	2156	2284	7726	8843	6934	4725	3539	3134	3004
MEAN	87.8	86.4	77.9	69.5	81.6	249	295	224	157	114	101	100
MAX	102	104	87	72	90	643	713	364	322	128	147	143
MIN	83	83	64	66	72	100	165	179	122	105	91	90
CFSM	.40	.39	.35	.31	.37	1.13	1.33	1.01	.71	.52	.46	.45
IN.	.46	.44	.41	.36	.38	1.30	1.49	1.17	.80	.60	.53	.51

CAL YR 1990	TOTAL 43941	MEAN 120	MAX 1910	MIN 64	CFSM .54	IN. 7.40
WTR YR 1991	TOTAL 50073	MEAN 137	MAX 713	MIN 64	CFSM .62	IN. 8.43

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Prior to Jan. 6, 1940, nonrecording gage at same site and datum. Auxiliary recording gage 1.2 mi downstream, at same datum, which records stage above 7.4 ft.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Diurnal fluctuation at low flow caused by powerplant in Argyle, 28.2 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--52 years, 719 ft<sup>3</sup>/s, 9.44 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,100 ft<sup>3</sup>/s, July 1, 1969, gage height, 21.46 ft; no flow for part of Dec. 14, 1939 (result of regulation).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 5	0230	*2,920	*13.66				

Minimum daily discharge, 241 ft<sup>3</sup>/s, Dec. 4.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used Oct. 1 to Dec. 5, Mar. 5-7, 28-30, Apr. 14-19,  
Apr. 30 to May 2, June 8-12, June 29 to July 31, Sept. 25, and 28-30; stage-  
discharge relation affected by ice Dec. 6 to Mar. 4.)

3.2	237	7.0	1,100
3.5	297	9.0	1,600
4.0	396	11.0	2,140
5.0	626	13.0	2,950

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	365	361	405	310	290	800	1330	1820	849	593	441	379
2	365	373	384	310	300	2000	1220	1750	851	588	421	383
3	361	369	355	310	300	2300	1120	1460	841	576	420	381
4	397	384	241	310	300	2600	1060	1240	793	559	412	397
5	415	412	364	320	310	2830	1020	1180	745	547	418	401
6	441	421	360	330	320	2350	993	1300	705	540	405	396
7	394	412	360	330	320	1850	955	1400	677	539	395	376
8	375	401	360	330	330	1510	929	1300	659	535	387	366
9	371	398	370	330	340	1270	1140	1170	646	545	392	368
10	387	404	370	330	350	1170	1340	1100	637	565	376	372
11	462	407	370	330	340	1080	1380	1050	639	526	703	384
12	513	405	370	330	310	1070	1240	1010	657	511	528	397
13	506	391	380	330	300	1120	1210	977	686	513	498	461
14	466	381	380	320	290	1080	1660	955	707	522	478	619
15	431	374	370	320	280	1030	1920	945	1020	504	452	609
16	421	370	360	320	280	1040	2060	912	1460	484	466	753
17	414	365	360	310	280	1060	2100	892	1530	469	454	747
18	430	360	360	310	290	1290	2010	916	1230	462	469	581
19	439	352	350	310	310	1430	1770	970	952	459	460	519
20	431	351	330	310	320	1490	1550	1050	834	462	444	512
21	421	360	310	300	360	1440	1400	968	776	458	432	467
22	409	368	300	290	420	1400	1290	963	891	469	423	435
23	401	393	300	280	420	1420	1240	1070	960	479	417	424
24	393	395	300	270	380	1510	1230	1040	831	478	412	417
25	387	377	300	270	350	1470	1210	956	742	457	387	415
26	376	363	300	270	340	1360	1140	937	699	435	398	422
27	377	375	300	280	340	1450	1090	975	670	428	391	421
28	374	400	300	290	340	1680	1060	992	647	424	376	403
29	365	465	330	290	---	1780	1230	906	624	429	383	390
30	370	455	340	280	---	1700	1660	840	605	444	392	386
31	368	---	320	280	---	1490	---	822	---	454	372	---
TOTAL	12625	11642	10599	9500	9110	47070	40557	33866	24563	15454	14762	13581
MEAN	407	388	342	306	325	1518	1352	1092	819	499	476	453
MAX	513	465	405	330	420	2830	2100	1820	1530	593	976	753
MIN	361	351	241	270	280	800	929	822	605	424	372	366
CFSM	.39	.38	.33	.30	.31	1.47	1.31	1.06	.79	.48	.46	.44
IN.	.45	.42	.38	.34	.33	1.69	1.46	1.22	.88	.56	.53	.49

CAL YR 1990 TOTAL 243691 MEAN 668 MAX 11400 MIN 200 CFSM .65 IN. 8.77  
WTR YR 1991 TOTAL 243329 MEAN 667 MAX 2830 MIN 241 CFSM .64 IN. 8.75

LOCATION.--Lat 42°57'31", long 89°33'32", in NW 1/4 NW 1/4 sec.33, T.6 N., R.8 E., Dane County, Hydrologic Unit 07090004, at Riverside Road, 2.5 mi southwest of Verona.

PERIOD OF RECORD.--October 1989 to April 1991 (discontinued).

REMARKS.--Bacteria analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, OCTOBER 1990 TO APRIL 1991

[illegible][illegible]



LOCATION.--Lat 42°54'47", long 89°37'19", in NE 1/4 NE 1/4 sec.14, T.5 N., R.7 E., Dane County, Hydrologic Unit 07090004, at State Highway 92, 2.9 mi southeast of Mt. Vernon.

PERIOD OF RECORD.--October 1989 to April 1991 (discontinued).

REMARKS.--Bacteria analyses by Wisconsin State Laboratory of Hygiene.

## WATER-QUALITY DATA, OCTOBER 1990 TO APRIL 1991

[illegible][illegible]

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 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1914 to current year. Monthly discharge only 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 National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1938, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice periods listed in rating table below. Records good except those for periods of ice effect, which are fair. Some regulation from dam and powerplant upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--77 years, 348 ft<sup>3</sup>/s, 9.04 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft<sup>3</sup>/s, Sept. 13, 1915, gage height, 11.4 ft from floodmarks, from rating curve extended above 7,500 ft<sup>3</sup>/s; minimum, 35 ft<sup>3</sup>/s, Sept. 19, 1959, gage height, -0.16 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)	DATE	TIME	DISCHARGE (ft <sup>3</sup> /s)	GAGE HEIGHT (ft)
Mar. 4	0100	*2,450	*6.24	No other peak greater than base discharge.			
Minimum discharge, 117 ft <sup>3</sup> /s, Dec. 4, result of freezeup.							

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 3-10, 13-16 and Dec. 21 to Feb. 28.)

0.10	123	4.0	1,310
1.0	316	6.0	2,320
2.0	592		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145	206	207	170	160	340	466	442	310	194	173	143
2	141	180	198	170	160	1660	419	406	306	197	162	144
3	150	179	170	170	170	2260	385	356	305	217	161	150
4	156	199	130	170	170	2100	364	335	286	202	162	161
5	165	222	180	170	170	1400	350	358	269	197	162	160
6	182	233	200	170	180	875	341	465	260	196	161	153
7	149	253	190	170	180	683	326	572	255	193	160	150
8	159	214	190	170	190	626	317	555	249	182	245	151
9	158	211	190	170	190	511	373	441	244	188	345	151
10	166	200	190	170	190	450	501	390	242	199	351	148
11	182	185	200	170	190	412	561	364	227	193	263	147
12	209	186	207	170	180	401	504	348	234	194	217	168
13	198	192	210	170	170	400	425	331	236	194	197	215
14	190	193	210	170	170	374	487	327	241	191	189	219
15	185	194	210	170	160	349	709	314	321	183	189	227
16	187	194	220	170	160	337	825	307	420	176	185	271
17	210	189	225	170	160	338	814	302	440	173	185	359
18	203	186	225	170	170	381	593	325	331	172	183	331
19	199	185	223	170	180	436	453	388	278	170	181	249
20	197	182	216	170	190	427	428	406	258	168	177	228
21	193	193	210	170	250	408	402	373	251	195	177	212
22	186	199	200	160	500	395	363	358	307	224	176	201
23	178	205	190	150	560	435	368	383	375	219	172	197
24	178	196	180	150	470	493	373	370	363	208	179	192
25	176	191	170	150	350	541	371	377	283	187	159	194
26	174	186	160	150	260	490	349	387	256	171	154	191
27	177	197	150	150	240	551	343	417	242	167	154	185
28	172	219	150	160	250	675	339	435	231	166	152	183
29	172	230	170	160	---	766	380	361	225	173	154	179
30	173	218	180	160	---	751	406	323	222	179	140	179
31	176	---	170	160	---	579	---	315	---	181	146	---
TOTAL	5486	6017	5921	5120	6370	20844	13335	11831	8467	5849	5811	5838
MEAN	177	201	191	165	227	672	444	382	282	189	187	195
MAX	210	253	225	170	560	2260	825	572	440	224	351	359
MIN	141	179	130	150	160	337	317	302	222	166	140	143
CFSM	.34	.38	.37	.32	.43	1.29	.85	.73	.54	.36	.36	.37
IN.	.39	.43	.42	.36	.45	1.48	.95	.84	.60	.42	.41	.42

CAL YR 1990 TOTAL 98219 MEAN 269 MAX 2030 MIN 130 CFSM .51 IN. 6.99  
WTR YR 1991 TOTAL 100889 MEAN 276 MAX 2260 MIN 130 CFSM .53 IN. 7.18

## 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 mi<sup>2</sup>.

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.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 707.94 ft above National Geodetic Vertical Datum of 1929 (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: Dec. 24 to Feb. 5. Water-discharge records good except those for estimated daily discharges, which are poor. Low flow regulated by powerplant above station. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--59 years (water years 1904-5, 1915-19, 1940-91), 4,055 ft<sup>3</sup>/s, 8.65 in/yr, discharge for site at Rockford adjusted for difference in drainage area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft<sup>3</sup>/s, Mar. 30, 1916, gage height, 13.06 ft, site and datum then in use; minimum daily, 501 ft<sup>3</sup>/s, Sept. 14, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1937 reached a stage of 14.6 ft (backwater from ice), from painted floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,500 ft<sup>3</sup>/s, Mar. 29, gage height, 7.87 ft; minimum daily discharge, 1,290 ft<sup>3</sup>/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1540	2000	2390	3900	1700	4110	11100	7000	3570	3100	1950	1340
2	1440	1860	2680	3500	1700	7790	10700	7490	3680	2900	2090	1410
3	1510	1990	2830	3300	1800	8980	10200	7700	3560	2800	2150	1350
4	1520	2090	2640	3000	1900	9130	9640	7770	3500	2480	2030	1510
5	1660	2550	2340	2600	2050	9570	9160	7480	3260	2520	2000	1370
6	1420	2610	2760	2300	2510	10600	8680	7150	3240	2360	1880	1330
7	1580	3070	2570	2100	2700	10500	8200	6680	2920	2410	1770	1330
8	1640	2590	2820	2000	3130	10100	8130	6760	2740	2390	2640	1410
9	1770	2780	2920	2100	3850	9870	8240	6560	2810	2300	2850	1290
10	1770	2630	3160	2200	4030	9530	8320	6390	2650	2290	2790	1370
11	1850	2430	3130	2200	4000	9050	8460	5820	2630	2330	2890	1360
12	2390	2450	3210	2000	3640	8610	8820	5430	2600	2460	2890	1700
13	1830	2750	3150	2100	3220	8070	8960	5210	2700	2350	2510	1920
14	2010	3080	2990	2100	3090	7630	9060	4720	2610	2360	2210	2050
15	2060	2520	3150	2000	2660	7380	9390	4760	3110	2230	2340	2390
16	2100	2690	3280	2000	2410	7350	9650	4470	3300	2010	1990	2490
17	2040	2500	3370	2100	2670	7380	10100	4360	3690	1610	2010	2530
18	2260	2660	3490	2100	2730	8020	10500	4510	3900	1300	1920	3140
19	2170	2380	3330	2000	3540	8710	10700	4440	4360	1540	1920	3170
20	2690	2410	3570	1900	3670	8760	10600	4180	3960	1710	1830	3130
21	2710	2210	3520	1900	4090	8830	10300	4120	4160	1700	1540	2980
22	2730	2350	3470	1800	4910	8710	9890	4190	3970	1600	1450	2720
23	2580	2250	2490	1800	5210	8750	9430	4200	4130	2200	1590	2690
24	2700	2110	2400	1750	5310	8370	9140	3890	4100	2480	1580	2620
25	2570	2320	2300	1700	4950	8900	8740	4580	3740	2120	1570	2730
26	2530	2220	2300	1700	4330	9060	8460	4610	3880	2210	1500	2390
27	2470	2430	2400	1750	3850	10100	8340	4170	3340	2180	1300	2450
28	2320	2520	2700	1700	3920	11000	8160	4060	3190	2000	1510	2330
29	2360	2370	3300	1700	---	11300	7910	3880	3170	2070	1520	2260
30	2290	2740	4000	1750	---	11400	7250	3820	3060	2120	1320	2230
31	2210	---	4250	1700	---	11200	---	4090	---	1970	1460	---
TOTAL	64720	73560	92910	66750	93570	278760	276230	164490	101530	68100	61000	62990
MEAN	2088	2452	2997	2153	3342	8992	9208	5306	3384	2197	1968	2100
MAX	2730	3080	4250	3900	5310	11400	11100	7770	4360	3100	2890	3170
MIN	1420	1860	2300	1700	1700	4110	7250	3820	2600	1300	1300	1290
CFSM	.33	.39	.47	.34	.53	1.41	1.45	.83	.53	.35	.31	.33
IN.	.38	.43	.54	.39	.55	1.63	1.61	.96	.59	.40	.36	.37
CAL YR 1990	TOTAL 1296550	MEAN 3552	MAX 11100	MIN 1090	CFSM .56	IN. 7.58						
WTR YR 1991	TOTAL 1404610	MEAN 3848	MAX 11400	MIN 1290	CFSM .60	IN. 8.21						

## 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 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929. Oct. 17, 1961, to June 29, 1967, crest-stage gage at left downstream side of bridge at datum 4.29 ft higher.

REMARKS.--Estimated daily discharges: Jan. 11 to Feb. 3. Water-discharge records good except those for estimated daily discharges, which are poor. Recording rain gage and gage-height telemeter at station.

AVERAGE DISCHARGE.--24 years, 96.5 ft<sup>3</sup>/s, 10.65 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,120 ft<sup>3</sup>/s, Mar. 21, 1979, gage height, 9.69 ft; maximum gage height, 10.75 ft, Mar. 6, 1976, and Sept. 27, 1986; no flow at times during several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 587 ft<sup>3</sup>/s, Mar. 30, gage height, 8.24 ft; no flow Sept. 28. 0.80 ft<sup>3</sup>/s, Oct.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	21	192	167	32	58	492	134	116	8.2	6.7	4.6
2	1.6	23	192	148	32	105	430	117	146	7.9	7.4	5.0
3	1.8	22	193	118	45	153	380	96	157	7.7	5.6	6.1
4	4.8	22	198	92	126	177	341	75	139	7.4	7.0	6.1
5	9.8	77	194	77	227	170	305	74	102	7.5	7.2	4.0
6	11	167	178	71	281	165	271	102	67	7.0	6.8	3.3
7	15	207	160	65	305	145	237	119	49	7.8	5.6	2.8
8	23	229	141	61	302	121	204	120	42	7.5	5.8	2.7
9	34	240	123	59	288	100	201	108	36	6.8	15	3.2
10	72	240	120	57	276	84	217	92	32	6.7	12	2.8
11	124	230	132	54	262	74	220	78	29	6.8	7.3	1.7
12	143	213	148	52	240	73	220	68	27	7.0	5.7	2.4
13	132	186	161	49	193	79	214	60	25	6.8	5.1	2.1
14	96	151	171	45	153	75	231	53	23	7.3	4.0	3.2
15	89	114	180	49	134	68	310	47	26	8.9	3.7	8.8
16	99	87	186	56	96	59	392	44	26	7.2	3.7	9.2
17	103	70	187	54	76	58	440	47	24	7.4	4.0	7.2
18	96	61	191	52	72	82	447	49	20	7.4	4.0	5.6
19	88	54	192	54	112	106	414	48	19	7.3	4.1	3.9
20	85	49	194	59	133	114	371	44	19	6.5	4.2	2.8
21	77	48	190	56	142	119	333	40	19	4.1	4.2	2.1
22	65	50	181	52	144	120	297	37	19	2.2	4.1	1.6
23	52	51	165	50	146	124	266	35	22	4.8	4.6	1.0
24	44	47	154	47	123	123	244	34	21	6.7	4.8	.63
25	38	43	127	44	111	124	223	37	21	6.5	4.2	.52
26	34	39	96	43	85	144	209	119	19	6.4	3.8	.17
27	32	48	68	40	68	249	196	155	16	6.3	2.9	.01
28	29	129	56	38	59	405	181	151	14	5.9	3.8	.00
29	26	172	98	35	---	528	162	120	11	7.7	3.0	.59
30	23	186	150	35	---	579	147	83	9.2	7.0	4.6	.54
31	22	---	166	33	---	554	---	79	---	6.9	4.8	---
TOTAL	1671.9	3276	4884	1912	4263	5135	8595	2465	1295.2	211.6	169.7	94.66
MEAN	53.9	109	158	61.7	152	166	286	79.5	43.2	6.83	5.47	3.16
MAX	143	240	198	167	305	579	492	155	157	8.9	15	9.2
MIN	1.6	21	56	33	32	58	147	34	9.2	2.2	2.9	.00
CFSM	.44	.89	1.28	.50	1.24	1.35	2.33	.65	.35	.06	.04	.03
IN.	.51	.99	1.48	.58	1.29	1.55	2.60	.75	.39	.06	.05	.03
CAL YR 1990	TOTAL 43156.9	MEAN 118	MAX 825	MIN 1.6	CFSM .96	IN. 13.05						
WTR YR 1991	TOTAL 33973.06	MEAN 93.1	MAX 579	MIN .00	CFSM .76	IN. 10.27						

## ILLINOIS RIVER BASIN

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 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 793.04 ft above National Geodetic Vertical Datum of 1929 (levels by city of Waukesha).

REMARKS.--Estimated daily discharge: July 7-23 and ice periods listed in rating table below. Records good except for periods of ice effect, which are fair, and period of missing record, which is poor. There is occasional regulation from mill dam 1.0 mi upstream.

AVERAGE DISCHARGE.--28 years, 99.8 ft<sup>3</sup>/s, 10.76 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,260 ft<sup>3</sup>/s, Apr. 22, 1973, gage height, 7.42 ft; minimum, 3.0 ft<sup>3</sup>/s, Jan. 1, 1964, gage height, 1.52 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 755 ft<sup>3</sup>/s, Apr. 16, gage height, 5.34 ft; minimum daily, 25 ft<sup>3</sup>/s, Sept. 1, 2.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Stage-discharge relation affected by ice Dec. 24, 26, 30, 31, Jan. 22-31, Feb. 15, 16.)

2.6	21	4.0	308
2.8	39	5.0	624
3.0	74	6.0	1,050
3.5	182		

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	54	128	85	44	101	355	203	57	66	37	25
2	40	58	111	76	45	270	299	182	90	93	31	25
3	69	61	94	69	55	263	253	159	102	68	30	30
4	86	91	81	66	84	249	221	136	106	44	29	37
5	79	144	95	64	131	239	204	141	107	42	31	36
6	61	178	96	63	157	231	186	164	96	40	31	32
7	53	171	95	62	161	190	169	162	76	70	30	28
8	51	144	92	62	165	165	164	144	61	76	114	28
9	62	125	91	62	181	134	241	134	54	64	130	38
10	112	110	105	60	181	120	308	123	59	54	90	43
11	124	96	115	62	163	113	294	116	64	45	57	46
12	112	88	127	59	137	112	277	107	30	86	46	186
13	90	81	156	60	112	108	280	103	41	76	40	140
14	86	72	150	62	95	105	373	93	59	62	37	147
15	90	72	150	65	68	105	671	91	117	50	36	155
16	90	77	153	66	66	103	747	84	114	45	34	121
17	86	80	158	66	66	108	648	79	97	44	34	88
18	87	79	166	63	72	127	514	78	82	41	34	68
19	93	79	170	70	83	136	415	83	67	40	31	59
20	86	79	159	70	86	135	339	80	56	36	32	50
21	79	95	154	60	97	138	288	73	51	70	33	42
22	76	103	149	58	126	162	255	83	51	80	32	41
23	75	99	110	56	121	186	257	124	48	70	30	42
24	71	89	100	52	106	205	275	111	45	45	29	42
25	67	70	86	48	82	193	259	103	44	40	28	42
26	64	61	72	46	74	285	235	116	40	36	29	41
27	63	99	64	45	70	462	235	124	42	33	31	40
28	57	154	69	46	69	571	228	120	38	32	31	36
29	57	165	119	45	---	575	223	103	38	37	28	35
30	61	147	110	44	---	493	213	90	36	36	35	36
31	56	---	96	43	---	417	---	108	---	37	27	---
TOTAL	2322	3021	3621	1855	2897	6801	9426	3617	1968	1658	1267	1779
MEAN	74.9	101	117	59.8	103	219	314	117	65.6	53.5	40.9	59.3
MAX	124	178	170	85	181	575	747	203	117	93	130	186
MIN	39	54	64	43	44	101	164	73	30	32	27	25
CFSM	.59	.80	.93	.47	.82	1.74	2.49	.93	.52	.42	.32	.47
IN.	.69	.89	1.07	.55	.86	2.01	2.78	1.07	.58	.49	.37	.53

CAL YR 1990	TOTAL 49316	MEAN 135	MAX 1130	MIN 31	CFSM 1.07	IN. 14.56
WTR YR 1991	TOTAL 40232	MEAN 110	MAX 747	MIN 25	CFSM .87	IN. 11.88

[illegible]

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1991.

REMARKS.--Lake sampled near southeast end of lake at a lake depth of about 8 ft. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, APRIL 11 TO AUGUST 06, 1991  
(Milligrams per liter unless otherwise indicated)

	Apr. 11		June 11		July 09		Aug. 06	
Depth of sample (ft)	1.0	6.0	1.5	4.5	1.5	4.5	1.5	4.0
Lake stage (ft)	10.57		10.59		10.59		10.52	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	414	416	434	419	437	440	420	440
pH (units)	8.9	8.7	8.4	8.5	8.6	8.6	8.8	8.7
Water temperature ( $^{\circ}\text{C}$ )	10.7	10.8	26.4	25.5	26.7	26.6	24.1	24.1
Color (Pt-Co. scale)	10	10	---	---	---	---	---	---
Turbidity (NTU)	1.4	1.7	---	---	---	---	---	---
Secchi-depth (meters)	1.4		1.3		1.3		1.2	
Dissolved oxygen	10.1	10.2	10.0	11.1	9.5	9.9	10.6	11.4
Hardness, as $\text{CaCO}_3$	230	230	---	---	---	---	---	---
Calcium, dissolved (Ca)	48	48	---	---	---	---	---	---
Magnesium, dissolved (Mg)	26	26	---	---	---	---	---	---
Sodium, dissolved (Na)	4.0	4.0	---	---	---	---	---	---
Potassium, dissolved (K)	1.20	1.13	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	209	211	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	16	16	---	---	---	---	---	---
Fluoride, dissolved (F)	0.09	0.10	---	---	---	---	---	---
Chloride, dissolved (Cl)	11	11	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	3.4	3.7	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	254	258	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	0.863	0.853	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.022	0.023	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.50	0.60	---	---	---	---	---	---
Phosphorus, total (as P)	0.010	0.013	0.009	0.013	0.016	0.020	0.016	0.020
Phosphorus, ortho, dissolved (as P)	0.003	0.003	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	7.0	---	4.0	---	10.0	---	7.0	---

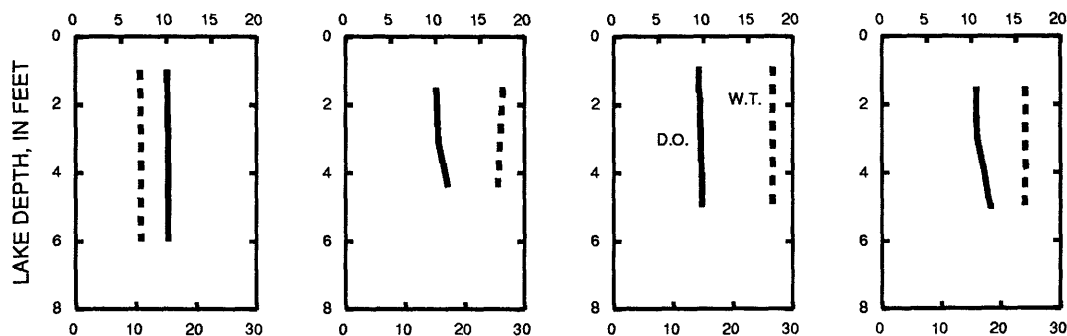
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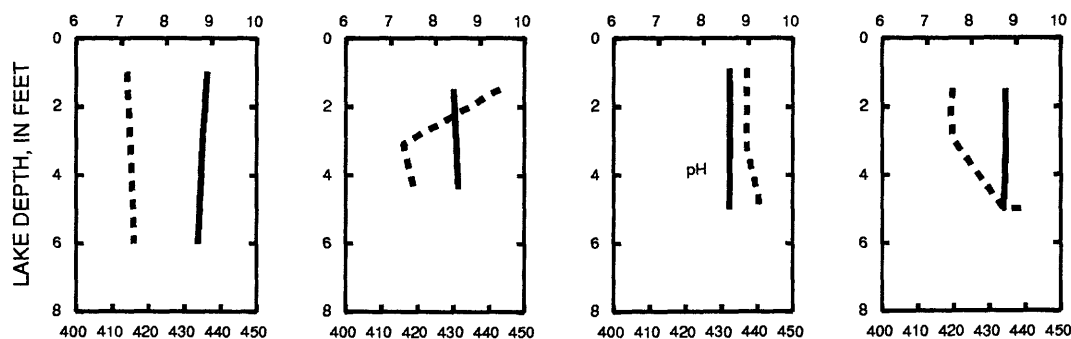
8-6-91

## 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

## ILLINOIS RIVER BASIN

509

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 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 779.23 ft above National Geodetic Vertical Datum of 1929 (South-eastern Wisconsin Regional Planning Commission bench mark). Prior to Oct. 19, 1981, at datum 0.85 ft higher.

REMARKS.--Estimated daily discharges: Ice period listed in rating table below. Records good except those for ice-affected period, which is fair. Discharge affected by manipulation of gates at dams 800 ft and 11.4 mi upstream.

AVERAGE DISCHARGE.--18 years, 56.2 ft<sup>3</sup>/s, 10.30 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 300 ft<sup>3</sup>/s, Mar. 5, 1976, gage height, 2.50 ft, datum then in use; maximum gage height, 3.55 ft, Sept. 29, 1986; minimum daily, 1.8 ft<sup>3</sup>/s, Dec. 23, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 193 ft<sup>3</sup>/s, Mar. 27, gage height, 2.97 ft; minimum daily, 9.4 ft<sup>3</sup>/s, Sept. 24.

RATING TABLE (gage height, in feet, and discharge, in cubic feet per second).  
(Shifting-control method used July 14 to Aug. 11 and Aug. 19 to Sept. 28;  
stage-discharge relation affected by ice Dec. 4.)

1.8	8.3	2.2	39
1.9	12	2.4	69
2.0	16	2.7	132
2.1	25	3.0	200

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	28	80	44	31	55	67	76	21	16	12	13
2	21	29	72	44	34	84	39	58	27	16	13	13
3	18	29	71	44	37	92	45	38	32	15	14	14
4	25	35	70	45	40	92	50	29	33	15	14	15
5	30	45	69	47	43	88	54	35	32	15	14	18
6	31	50	67	48	47	85	57	60	31	15	13	20
7	28	87	64	48	48	81	56	65	30	15	13	19
8	31	120	61	46	49	77	59	61	27	14	16	17
9	39	82	59	43	49	73	119	60	25	18	18	15
10	56	49	55	40	51	69	134	47	23	16	20	14
11	63	52	34	40	52	65	121	32	22	14	23	13
12	64	74	28	42	51	61	88	31	22	17	35	57
13	64	56	33	41	50	60	77	30	21	21	33	70
14	65	46	38	40	47	58	84	29	22	24	30	69
15	65	48	43	39	43	55	114	30	27	23	26	66
16	63	45	46	40	40	52	122	29	31	20	23	66
17	70	40	50	40	39	51	117	28	41	20	21	67
18	91	37	52	39	38	33	111	29	42	18	19	64
19	81	35	51	41	41	30	104	33	35	15	22	57
20	73	32	51	42	44	36	96	36	31	14	22	52
21	69	36	51	43	48	45	89	37	26	20	21	47
22	47	41	53	43	51	49	64	40	23	44	19	45
23	36	46	51	41	52	61	38	43	21	59	17	20
24	36	39	50	38	52	61	36	56	24	55	16	9.4
25	37	38	49	36	49	70	42	54	23	50	16	11
26	39	38	44	35	45	122	45	54	21	42	15	12
27	41	44	42	33	43	174	49	53	19	37	14	12
28	34	54	41	32	40	178	53	54	17	22	14	12
29	32	54	47	32	---	164	88	53	16	12	14	13
30	31	77	47	31	---	154	107	53	16	13	14	14
31	29	---	46	30	---	144	---	31	---	13	13	---
TOTAL	1438	1486	1615	1247	1254	2519	2325	1364	781	708	574	934.4
MEAN	46.4	49.5	52.1	40.2	44.8	81.3	77.5	44.0	26.0	22.8	18.5	31.1
MAX	91	120	80	48	52	178	134	76	42	59	35	70
MIN	18	28	28	30	31	30	36	28	16	12	12	9.4
CFSM	.63	.67	.70	.54	.60	1.10	1.05	.59	.35	.31	.25	.42
IN.	.72	.75	.81	.63	.63	1.26	1.17	.68	.39	.36	.29	.47

CAL YR 1990 TOTAL 18750 MEAN 51.4 MAX 225 MIN 15 CFSM .69 IN. 9.41  
WTR YR 1991 TOTAL 16245.4 MEAN 44.5 MAX 178 MIN 9.4 CFSM .60 IN. 8.16



425425088083500 LITTLE MUSKEGO LAKE AT MUSKEGO, WI

LOCATION.--Lat 42°54'25", long 88°08'35", in SE 1/4 NW 1/4 sec.9, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, at Muskego.

DRAINAGE AREA.--11.6 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

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

GAGE.--Staff gage at lake inlet. Datum of gage is 693.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Lake levels controlled at dam outlet. Lake levels drawn down approximately 1.5 ft from October through April. Published previously as station number 425450088083500.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height observed, 99.99 ft, May 11, 1990; minimum observed, 95.92 ft, Jan. 28, 1991, due to lake draw-down.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 99.07 ft, Apr. 9; minimum observed, 95.92 ft, Jan. 28, due to lake draw-down.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

[illegible]

425425088083500 LITTLE MUSKEGO LAKE AT MUSKEGO, WI--CONTINUED

## WATER-QUALITY RECORDS

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

REVISIONS.--The labels for dissolved oxygen and water temperature for the plot of 2-24-87 are reversed. Dissolved oxygen is the solid line and water temperature is the dashed line.

REMARKS.--Lake sampled about 1,000 ft north-northwest of dam outlet at an approximate lake depth of 65 ft. An aeration system in the lake may disrupt the physical and chemical measurements in the lake. Water-quality analyses by Wisconsin State Laboratory of Hygiene. January sampling during ice cover. Published previously as station number 425450088083500.

WATER-QUALITY DATA, OCTOBER 10, 1990 TO MAY 07, 1991  
(Milligrams per liter unless otherwise indicated)

	Oct. 10		Jan. 28		Apr. 09		May 07		
Depth of sample (ft)	1.5	63.0	1.5	63.0	3.0	55.0	1.5	60.0	66.0
Lake stage (ft)	98.14		95.92		99.07		98.94		
Specific conductance (µS/cm)	616	612	723	795	670	676	671	689	694
pH (units)	8.0	8.0	8.3	7.5	8.3	7.9	8.2	8.1	7.7
Water temperature (°C)	13.2	13.1	1.0	2.4	11.7	7.2	11.7	10.9	9.6
Color (Pt-Co. scale)	---	---	---	---	10	10	---	---	---
Turbidity (NTU)	---	---	---	---	2.8	1.7	---	---	---
Secchi-depth (meters)	1.0		3.8		1.1		1.1		
Dissolved oxygen	8.3	8.3	10.8	4.0	10.8	7.9	9.2	5.5	0.2
Hardness, as CaCO <sub>3</sub>	---	---	---	---	260	270	---	---	---
Calcium, dissolved (Ca)	---	---	---	---	53	54	---	---	---
Magnesium, dissolved (Mg)	---	---	---	---	32	33	---	---	---
Sodium, dissolved (Na)	---	---	---	---	37	38	---	---	---
Potassium, dissolved (K)	---	---	---	---	2.4	2.5	---	---	---
Alkalinity, as CaCO <sub>3</sub>	---	---	---	---	214	214	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	---	---	---	---	41	42	---	---	---
Fluoride, dissolved (F)	---	---	---	---	0.2	0.1	---	---	---
Chloride, dissolved (Cl)	---	---	---	---	71	72	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	---	---	---	---	1.6	4.1	---	---	---
Solids, dissolved, at 180°C	---	---	---	---	380	378	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	0.020	<0.020	---	---	0.355	0.324	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.330	0.330	---	---	0.023	0.090	---	---	---
Nitrogen, amm. + org., total (as N)	1.02	1.09	---	---	0.80	0.70	---	---	---
Phosphorus, total (as P)	0.048	0.058	0.030	0.160	0.027	0.024	0.036	0.041	0.107
Phosphorus, ortho, dissolved (as P)	0.012	0.014	0.007	0.102	0.004	0.005	0.003	0.025	0.055
Iron, dissolved (Fe) µg/L	---	---	---	---	<50	<50	---	---	---
Manganese, dissolved (Mn) µg/L	---	---	---	---	<40	<40	---	---	---
Chlorophyll a, phytoplankton (µg/L)	23	---	4.0	---	16	---	20	---	---

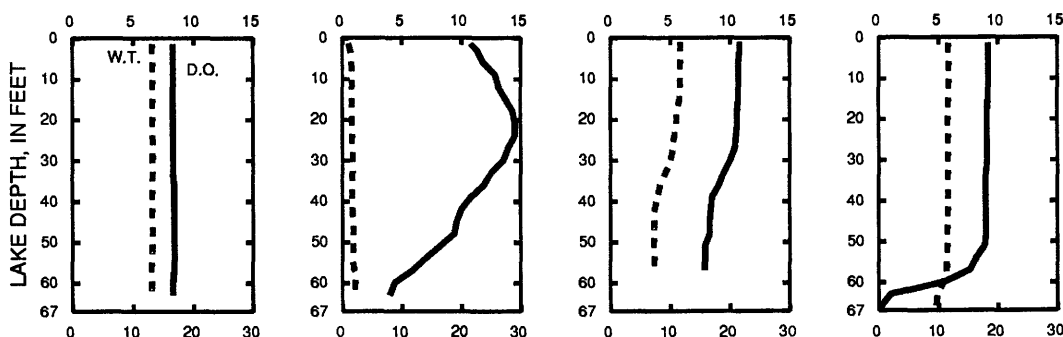
10-10-90

1-28-91

4-9-91

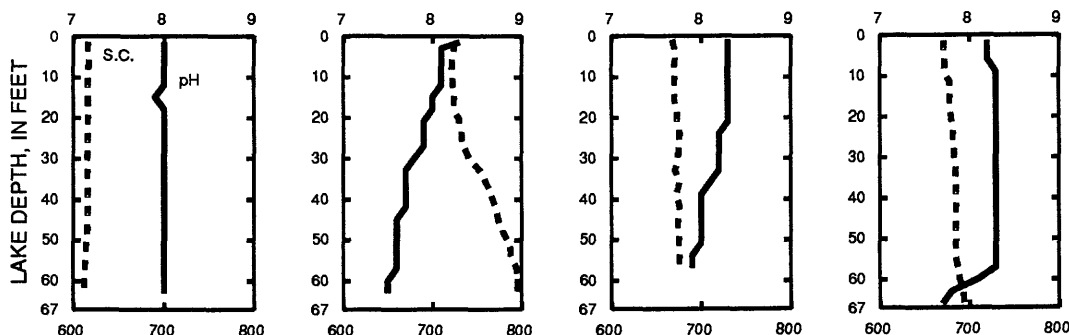
5-7-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

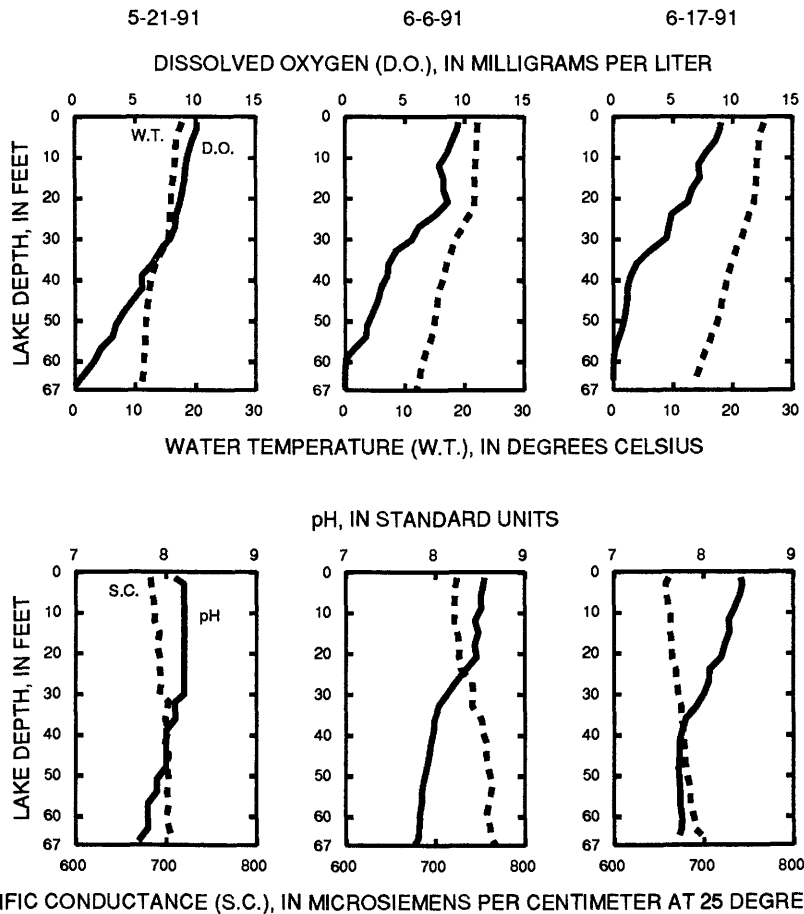


## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

425425088083500 LITTLE MUSKEGO LAKE AT MUSKEGO, WI--CONTINUED

WATER-QUALITY DATA, MAY 21 TO JUNE 17, 1991  
(Milligrams per liter unless otherwise indicated)

	May 21			June 06			June 17		
Depth of sample (ft)	1.5	36.0	65.0	1.5	30.0	65.0	1.5	33.0	64.0
Lake stage (ft)	98.85			98.79			98.83		
Specific conductance ( $\mu\text{S}/\text{cm}$ )	683	699	708	685	652	576	662	674	696
pH (units)	8.1	8.1	7.7	8.6	8.2	7.8	8.4	7.9	7.7
Water temperature ( $^{\circ}\text{C}$ )	17.8	13.5	11.1	22.2	18.7	12.2	25.1	20.6	13.7
Secchi-depth (meters)	1.8			1.4			1.1		
Dissolved oxygen	10.1	6.5	0.0	9.5	5.4	0.1	9.1	3.1	0.0
Phosphorus, total (as P)	0.021	0.026	0.122	0.024	0.032	0.157	0.048	0.040	0.230
Phosphorus, ortho, dissolved (as P)	0.006	0.010	0.098	0.003	0.007	0.139	0.003	0.027	0.200
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	9	---	---	17	---	---	32	---	---



425425088083500 LITTLE MUSKEGO LAKE AT MUSKEGO, WI--CONTINUED

WATER-QUALITY DATA, JULY 11 TO AUGUST 08, 1991  
(Milligrams per liter unless otherwise indicated)

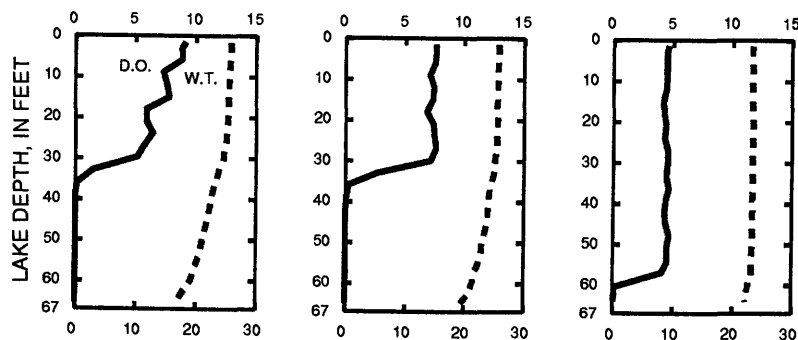
	July 11			July 25			Aug. 08	
Depth of sample (ft)	1.5	39.0	66.0	1.5	39.0	65.0	1.5	64.0
Lake stage (ft)	98.78			98.79			98.78	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	648	674	694	636	658	692	648	654
pH (units)	8.6	7.8	7.6	8.4	7.7	7.3	8.1	7.3
Water temperature ( $^{\circ}\text{C}$ )	25.8	22.8	16.7	25.8	24.2	19.4	23.3	22.2
Secchi-depth (meters)	1.1			0.9			1.0	
Dissolved oxygen	9.1	0.0	0.0	7.6	0.1	0.0	4.6	0.0
Phosphorus, total (as P)	0.033	0.045	0.087	0.038	0.048	0.250	0.052	0.079
Phosphorus, ortho, dissolved (as P)	0.003	0.026	0.069	0.004	0.028	0.200	0.005	0.030
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	23	---	---	30	---	---	27	---

7-11-91

7-25-91

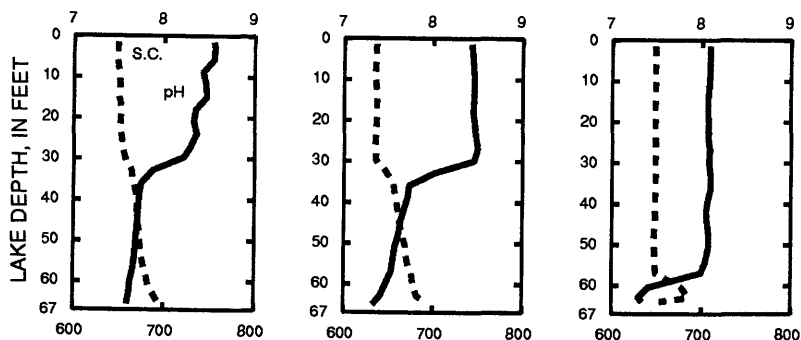
8-8-91

## DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



## WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

## pH, IN STANDARD UNITS

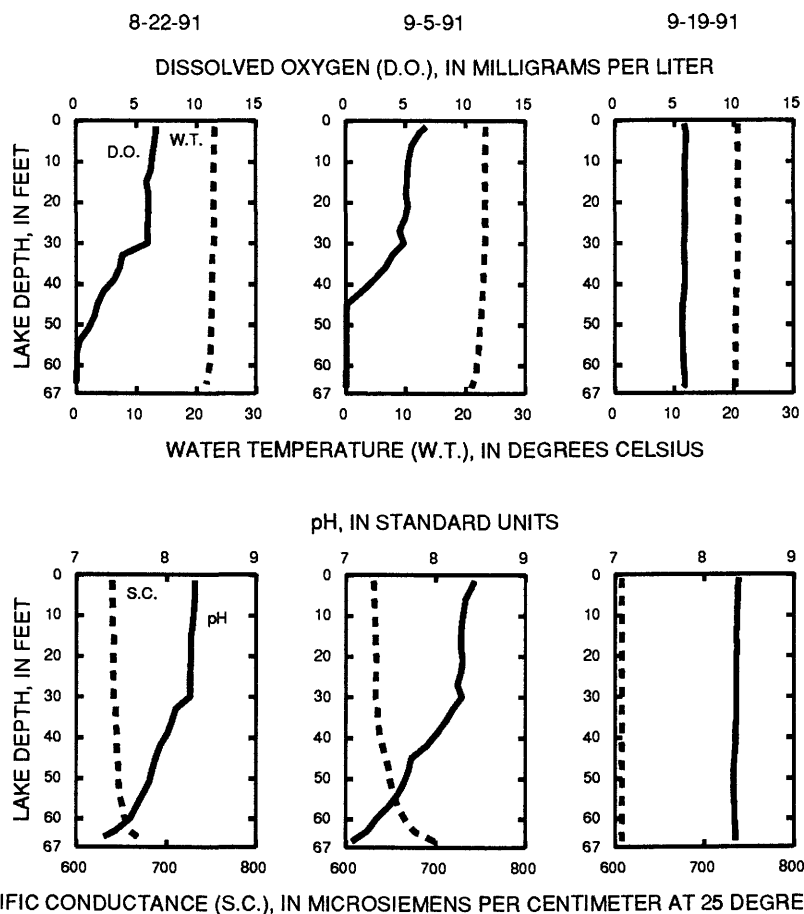


## SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

425425088083500 LITTLE MUSKEGO LAKE AT MUSKEGO, WI--CONTINUED

WATER-QUALITY DATA, AUGUST 22 TO SEPTEMBER 19, 1991  
(Milligrams per liter unless otherwise indicated)

	Aug. 22		Sept. 05			Sept. 19	
Depth of sample (ft)	1.5	64.0	1.5	45.0	65.0	1.5	65.0
Lake stage (ft)	98.70		98.75			98.85	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	639	668	631	645	699	608	608
pH (units)	8.3	7.3	8.4	7.7	7.1	8.4	8.4
Water temperature ( $^{\circ}\text{C}$ )	23.1	21.6	23.4	22.8	21.0	20.7	20.3
Secchi-depth (meters)	0.9		0.8			0.8	
Dissolved oxygen	6.6	0.0	6.7	0.1	0.0	6.0	5.9
Phosphorus, total (as P)	0.053	0.190	0.057	0.065	---	0.063	0.079
Phosphorus, ortho, dissolved (as P)	0.006	0.152	0.004	0.048	0.450	0.007	0.006
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	30	---	44	---	---	42	---



425344088070100 BIG MUSKEGO LAKE, BASS BAY, NEAR MUSKEGO, WI

LOCATION.--Lat 42°53'44", long 88°07'01", in SW 1/4 NE 1/4 sec.15, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, 1.3 mi southeast of Muskego.

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

REMARKS.--Lake sampled near center of lake at depth of about 26 ft. Lake ice-covered during January 28 sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, JANUARY 28 TO AUGUST 22, 1991  
(Milligrams per liter unless otherwise indicated)

	Jan. 28		Apr. 10		June 17		July 25		Aug. 22	
Depth of sample (ft)	1.5	24.0	1.0	24.0	1.5	24.0	1.5	23.0	1.5	22.0
Lake stage (ft)	---	---	11.98	---	11.53	---	11.28	---	11.16	---
Specific conductance ( $\mu$ S/cm)	614	715	548	547	506	502	511	642	505	568
pH (units)	8.3	7.2	8.6	8.5	8.5	7.4	8.6	7.1	8.6	7.2
Water temperature ( $^{\circ}$ C)	1.1	2.9	10.4	10.7	26.8	12.2	26.2	14.6	23.9	20.2
Secchi-depth (meters)	---	---	0.4	---	1.3	---	0.9	---	0.7	---
Dissolved oxygen	12.3	0.0	9.7	9.7	7.7	0.0	8.0	0.0	8.8	0.1
Phosphorus, total (as P)	---	---	---	---	0.032	0.210	0.035	0.396	0.040	0.280
Phosphorus, ortho, dissolved(as P)	---	---	0.005	0.006	---	---	---	---	---	---
Chlorophyll a, phytoplankton( $\mu$ g/L)	---	---	70	---	10	---	18	---	23	---

1-28-91

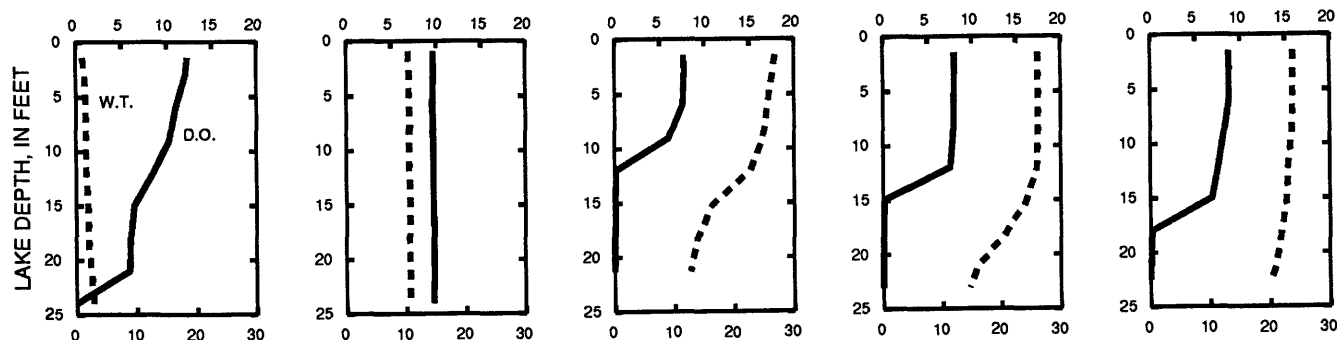
4-10-91

6-17-91

7-25-91

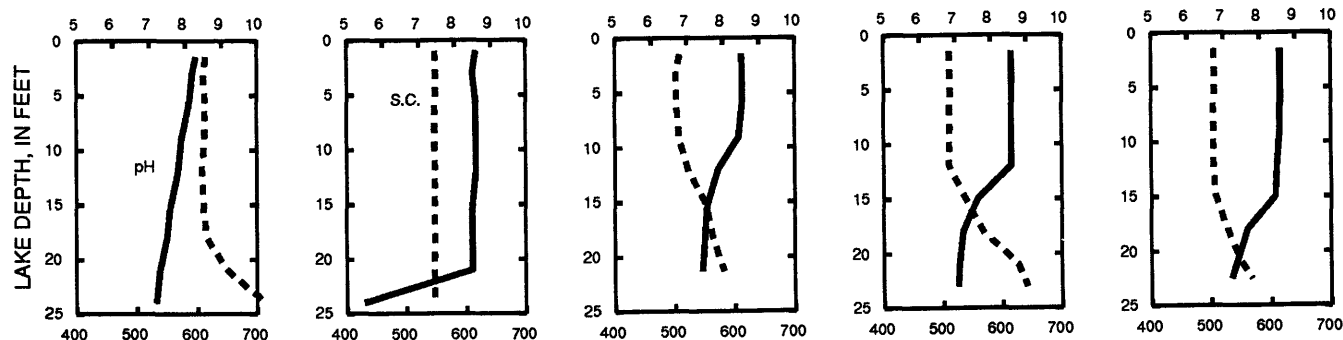
8-22-91

## 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

425212088072800 BIG MUSKEGO LAKE, SOUTH SITE, NEAR MUSKEGO, WI

LOCATION.--Lat 42°52'12", long 88°07'28", in NW 1/4 NW 1/4 sec.27, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, near Muskego.

DRAINAGE AREA.--33.9 mi<sup>2</sup>.

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

REMARKS.--Lake sampled at south end of lake at a depth of about 3 ft. Lake ice-covered during January sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, JANUARY 28 TO AUGUST 22, 1991  
(Milligrams per liter unless otherwise indicated)

	Jan. 28		Apr. 10		June 17		July 25		Aug. 22	
Depth of sample (ft)	0.5	1.5	1.0	2.0	0.5	2.0	0.5	2.0	0.5	1.5
Lake stage (ft)	11.69		11.98		11.53		11.28		11.16	
Specific conductance (μS/cm)	860	854	446	447	500	512	488	488	497	492
pH (units)	6.5	7.1	8.6	8.6	9.0	8.9	9.1	9.1	9.1	9.1
Water temperature (°C)	1.5	2.5	8.3	8.3	27.4	25.4	23.6	23.2	24.4	24.4
Color (Pt-Co. scale)	---	---	30	---	---	---	---	---	---	---
Turbidity (NTU)	---	---	12	---	---	---	---	---	---	---
Secchi-depth (meters)	---		0.2		0.3		0.2		0.1	
Dissolved oxygen	14.0	14.3	11.0	10.8	11.0	11.7	9.1	7.8	9.5	9.4
Hardness, as CaCO <sub>3</sub>	---	---	200	---	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	43	---	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	23	---	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	16	---	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.4	---	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	---	---	172	---	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	---	---	35	---	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.1	---	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	30	---	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	---	---	<0.2	---	---	---	---	---	---	---
Solids, dissolved, at 180°C	---	---	278	---	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	---	---	0.076	---	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.025	---	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	1.60	---	---	---	---	---	---	---
Phosphorus, total (as P)	0.060	0.070	0.121	---	0.082	0.109	0.159	0.159	0.236	0.224
Phosphorus, ortho, dissolved (as P)	0.004	0.004	0.005	---	0.004	0.003	---	---	---	---
Iron, dissolved (Fe) μg/L	---	---	<50	---	---	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	---	---	<40	---	---	---	---	---	---	---
Chlorophyll a, phytoplankton(μg/L)	32	---	79	---	29	---	38	---	36	---

## 517

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 071200006, on left bank 8 ft upstream of dam outlet of Muskego Lake, 700 ft north of Muskego Dam Drive, 2 mi northeast of Wind Lake.

PERIOD OF RECORD.--October 1987 to September 1989, January to September 1991.

GAGE.--Nonrecording gage. Staff read by the City of Muskego, Department of Public Works. Datum of gage is 760 ft above National Geodetic Vertical Datum of 1929. Between December 1987 and September 1989, data were collected using a water-stage recorder located on the right bank and at the same datum. Prior to December 18, 1987, nonrecording gage on right bank and at the same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum instantaneous gage height, 12.44 ft, Apr. 6, 1988; minimum instantaneous, 9.81 ft, Sept. 20, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage-height, 11.98 ft, Apr. 10; minimum instantaneous, 10.82 ft, Sept. 9.

[illegible]



LOCATION.--Lat 42°49'15", long 88°08'39", in NW 1/4 SW 1/4 sec.9, T.4 N., R.20 E., Racine County, Hydrologic Unit 07120006, at Wind Lake.

PERIOD OF RECORD.--February 1985 to current year.

REMARKS.--Lake sampled near center at a lake depth of about 50 feet. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 21, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 10		June 06		July 11		Aug. 21	
Depth of sample (ft)	3.0	49.0	1.0	45.0	1.5	49.0	1.5	50.0	1.5	49.5
Lake stage (ft)		6.46		8.00		8.06		7.60		7.29
Specific conductance ( $\mu\text{S}/\text{cm}$ )	627	822	555	573	552	455	529	578	512	621
pH (units)	7.7	7.5	8.4	7.9	8.7	7.5	8.6	7.3	8.7	7.0
Water temperature ( $^{\circ}\text{C}$ )	2.5	2.2	11.2	8.5	22.5	11.5	26.1	11.7	22.6	11.8
Color (Pt-Co. scale)	---	---	30	30	---	---	---	---	---	---
Turbidity (NTU)	---	---	5.0	3.3	---	---	---	---	---	---
Secchi-depth (meters)	---	---	0.7	---	1.0	---	0.6	---	0.8	---
Dissolved oxygen	9.7	9.4	10.5	6.4	9.0	0.0	8.0	0.0	8.3	0.0
Hardness, as $\text{CaCO}_3$	---	---	240	240	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	48	50	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	28	28	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	22	23	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	3.4	3.2	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	187	194	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	43	42	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.2	0.2	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	44	46	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	<0.2	<0.2	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	332	346	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.242	0.220	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.099	0.316	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	1.40	1.80	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.048	0.054	0.036	0.250	0.037	0.340	0.029	0.480
Phosphorus, ortho, dissolved (as P)	---	---	0.005	0.005	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	33	---	22	---	14	---	14	---

2-5-91

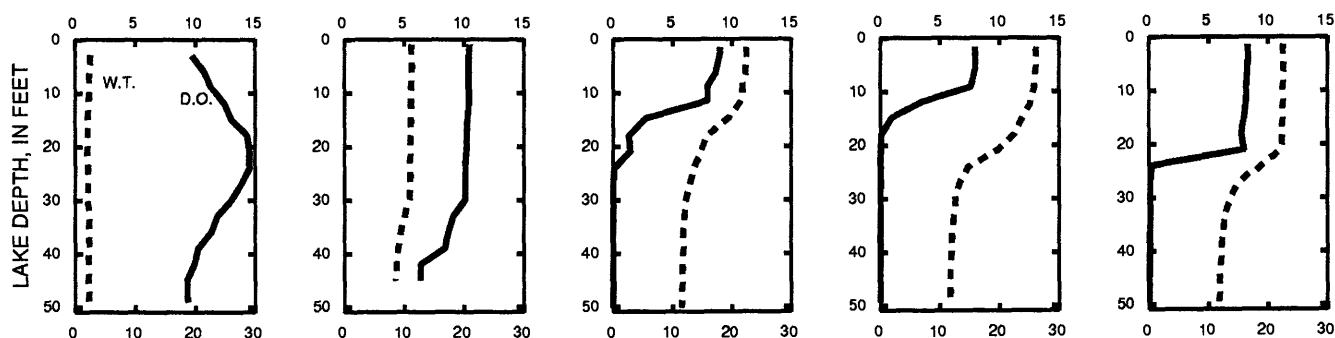
4-10-91

6-6-91

7-11-91

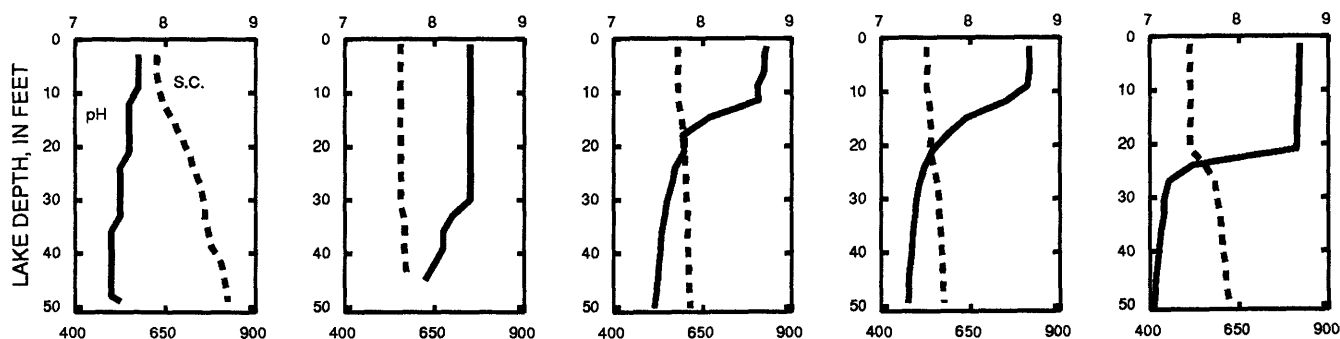
8-21-91

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

## 424848088083100 WIND LAKE OUTLET AT WIND LAKE, WI

LOCATION.--Lat 42°48'48" long 88°08'31", in NE 1/4 NW 1/4 sec.16, T.4 N., R.20 E., Racine County, Hydrologic Unit 07120006, at Wind Lake.

DRAINAGE AREA.--39.6 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1985 to current year.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 760.30 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1987, nonrecording gage at same site and datum.

REMARKS.--Lake ice-covered Dec. 8-10 and Dec. 23 to Mar. 13. Records good. Lake level regulated by dam with two 10-foot gates at outlet. Previously published as Wind Lake at Wind Lake, Wis.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 8.61 ft, Sept. 1, 1989; minimum recorded, 6.27 ft, revised, Jan. 7 and 10, 1991, but may have been lower during period Jan. 7-10, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 8.52 ft, Nov. 5; minimum recorded, 6.27 ft, Jan. 7 and 10, but may have been lower during period Jan. 7-10.

REVISIONS.--The minimum gage height for water year 1988 has been revised to 6.35 ft, Feb. 19, 1988; revised daily mean gage heights, in feet, for February 13 to 29, 1988 are given below. These figures supersede those published in the report for 1988.

Feb. 13	6.53	Feb. 21	---	Feb. 24	---	Feb. 27	---
14	---	22	---	25	---	28	---
15	6.45	23	---	26	---	29	6.40
20	---						

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.20	8.22	7.85	6.89	6.38	7.50	7.97	8.08	8.32	7.73	7.39	7.13
2	8.18	8.24	7.89	6.83	6.39	7.63	7.79	8.11	8.26	7.76	7.38	7.11
3	8.20	8.27	8.07	6.74	6.39	7.71	7.61	8.15	8.22	7.73	7.36	7.12
4	8.23	8.38	8.18	6.63	6.41	7.74	7.47	8.19	8.15	7.71	7.35	7.15
5	8.22	8.47	8.17	6.55	6.46	7.76	7.45	8.26	8.09	7.69	7.32	7.13
6	8.22	8.34	8.13	6.46	6.54	7.79	7.49	8.31	8.07	7.67	7.30	7.12
7	8.24	8.17	8.06	6.32	6.61	7.75	7.52	8.34	8.05	7.66	7.29	7.10
8	8.25	8.00	8.01	---	6.69	7.70	7.58	8.36	8.03	7.67	7.41	7.08
9	8.30	7.89	7.94	---	6.77	7.67	7.81	8.35	8.01	7.64	7.46	7.07
10	8.34	7.78	7.89	6.27	6.85	7.61	8.00	8.33	7.99	7.62	7.45	7.09
11	8.19	7.67	7.83	6.32	6.91	7.56	8.15	8.31	7.98	7.60	7.43	7.08
12	8.02	7.57	7.77	6.39	6.96	7.55	8.29	8.29	7.97	7.61	7.42	7.30
13	7.88	7.51	7.76	6.41	7.01	7.57	8.34	8.28	7.95	7.61	7.40	7.37
14	7.79	7.47	7.72	6.44	7.09	7.59	8.38	8.27	7.94	7.59	7.39	7.40
15	7.79	7.45	7.71	6.46	7.12	7.60	8.43	8.25	8.01	7.56	7.38	7.43
16	7.75	7.47	7.69	6.50	7.15	7.62	8.45	8.24	8.00	7.54	7.36	7.44
17	7.71	7.47	7.67	6.51	7.19	7.65	8.42	8.25	7.98	7.52	7.34	7.43
18	7.70	7.47	7.67	6.51	7.23	7.71	8.34	8.25	7.97	7.51	7.34	7.42
19	7.67	7.47	7.64	6.51	7.28	7.74	8.26	8.25	7.95	7.49	7.33	7.41
20	7.71	7.48	7.60	6.53	7.32	7.78	8.17	8.24	7.93	7.47	7.31	7.39
21	7.78	7.49	7.56	6.53	7.36	7.82	8.00	8.24	7.92	7.53	7.29	7.38
22	7.83	7.50	7.54	6.51	7.42	7.89	7.86	8.27	7.90	7.54	7.28	7.37
23	7.89	7.50	---	6.51	7.45	7.99	7.85	8.30	7.88	7.53	7.27	7.37
24	7.95	7.50	7.43	6.49	7.50	8.11	7.89	8.32	7.86	7.51	7.26	7.37
25	8.00	7.52	7.33	6.46	7.53	8.22	7.95	8.34	7.84	7.49	7.24	7.37
26	8.03	7.52	7.21	6.44	7.55	8.34	8.03	8.39	7.81	7.47	7.23	7.37
27	8.06	7.57	7.09	6.42	7.53	8.42	8.12	8.41	7.80	7.45	7.22	7.36
28	8.10	7.69	7.00	6.40	7.51	8.41	8.21	8.42	7.78	7.43	7.21	7.35
29	8.12	7.77	7.02	6.38	---	8.36	8.27	8.43	7.77	7.43	7.19	7.35
30	8.15	7.81	7.01	6.37	---	8.26	8.16	8.42	7.75	7.42	7.19	7.33
31	8.19	---	6.95	6.38	---	8.12	---	8.37	---	7.40	7.17	---
MAX	8.34	8.47	---	---	7.55	8.42	8.45	8.43	8.32	7.76	7.46	7.44
MIN	7.67	7.45	---	---	6.38	7.50	7.45	8.08	7.75	7.40	7.17	7.07

## ILLINOIS RIVER BASIN

425044088100300 DENOON LAKE AT WIND LAKE, WI

LOCATION.--Lat 42°50'44" long 88°10'03", in SW 1/4 SW 1/4 sec.32, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, at Wind Lake.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--June to August 1991.

GAGE.--Nonrecording gage. Staff read by Ken Werra. Elevation of lake is 780 ft, from topographic map.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height observed, 7.28 ft, June 21; minimum observed, 6.71 ft, Aug. 30.

GAGE HEIGHT, FEET, JUNE TO AUGUST 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	7.16	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	7.10	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	7.10	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	6.85	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	7.00	---	---
16	---	---	---	---	---	---	---	---	---	---	6.83	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	6.81	---
21	---	---	---	---	---	---	---	---	7.28	---	---	---
22	---	---	---	---	---	---	---	---	---	6.96	6.79	---
23	---	---	---	---	---	---	---	---	---	---	6.77	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	6.94	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	6.90	---	---
30	---	---	---	---	---	---	---	---	---	6.86	6.71	---
31	---	---	---	---	---	---	---	---	---	6.89	---	---

425044088100300 DENOON LAKE AT WIND LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1991.

REMARKS.--Lake sampled near center at a lake depth of about 56 ft. Lake ice-covered during February sampling.  
Water-quality analyses by Wisconsin State Laboratory of Hygiene.WATER-QUALITY DATA, FEBRUARY 06 TO AUGUST 23, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 06		Apr. 09		June 12		July 30		Aug. 23	
Depth of sample (ft)	3.0	54.0	3.0	54.0	1.5	51.0	1.5	52.0	1.5	50.0
Lake stage (ft)	---	---	---	---	---	---	6.86	---	6.77	---
Specific conductance ( $\mu$ S/cm)	501	525	---	---	456	494	---	---	436	517
pH (units)	8.3	7.5	8.4	8.1	8.8	7.7	8.6	7.4	8.8	7.3
Water temperature ( $^{\circ}$ C)	1.7	2.4	11.6	6.6	25.1	10.3	23.5	10.1	23.8	10.1
Color (Pt-Co. scale)	---	---	15	15	---	---	---	---	---	---
Turbidity (NTU)	---	---	1.5	1.1	---	---	---	---	---	---
Secchi-depth (meters)	---	---	1.8	---	2.0	---	2.7	---	2.1	---
Dissolved oxygen	11.7	2.8	11.3	10.3	9.6	0.1	8.2	0.0	9.0	0.1
Hardness, as $\text{CaCO}_3$	---	---	220	220	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	41	42	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	28	28	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	14	15	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	3.7	3.8	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	171	173	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	37	37	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.1	0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	31	32	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	<0.2	<0.2	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	274	278	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.269	0.297	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.023	0.128	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.9	1.2	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.034	0.029	0.015	0.230	0.014	0.330	0.013	0.350
Phosphorus, ortho, dissolved (as P)	---	---	0.004	0.003	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g/L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g/L}$	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g/L}$ )	---	---	15	---	7.0	---	4.0	---	4.0	---

2-6-91

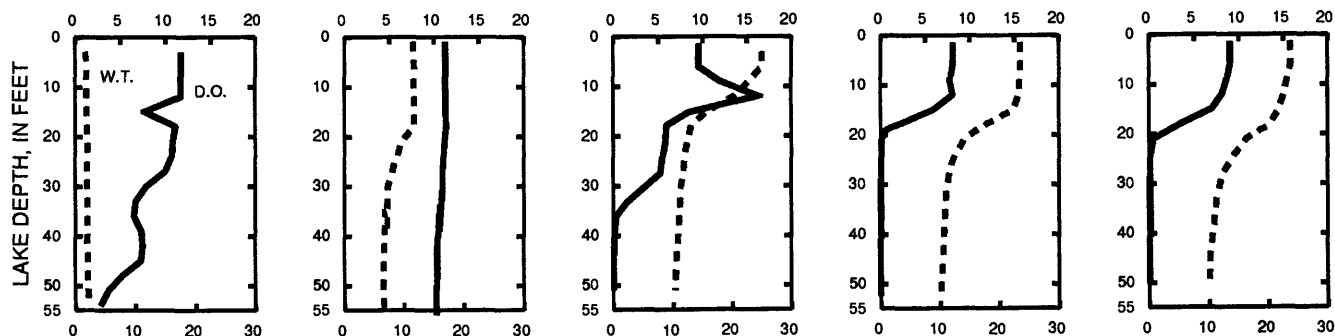
4-9-91

6-12-91

7-30-91

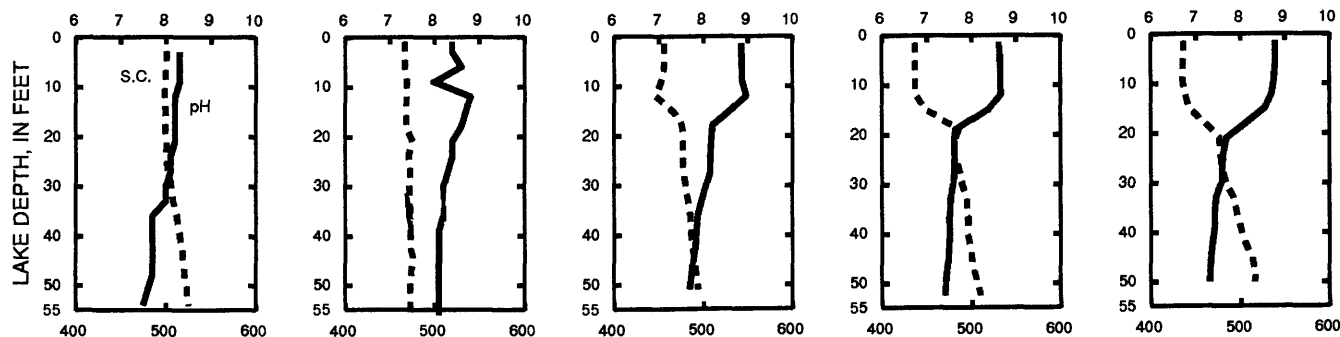
8-23-91

## 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

## ILLINOIS RIVER BASIN

424937088103400 LONG (KEE NONG GO-MONG) LAKE AT WIND LAKE, WI

LOCATION.--Lat 42°49'37", long 88°10'34", in NW 1/4 NW 1/4 sec.7, T.4 N., R.20 E., Racine County, Hydrologic Unit 07120006, at Wind Lake.

DRAINAGE AREA.--4.29 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--February 1988 to September 1989, February to September 1991.

GAGE.--Staff gage at lake outlet read by Marilyn Starck. Elevation of lake is 777 ft, from topographic map.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 6.39 ft, Sept. 10, 1989; minimum observed, less than 3.92 ft, Sept. 6, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 5.90 ft, Apr. 11; minimum observed, 5.00 ft, Aug. 26, 31, and Sept. 1, 2, 4, 9.

GAGE HEIGHT, FEET, FEBRUARY TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	5.82	---	---	5.00
2	---	---	---	---	---	---	---	---	---	5.50	---	5.00
3	---	---	---	---	---	---	---	---	5.80	---	---	---
4	---	---	---	---	---	---	---	---	---	5.46	---	5.00
5	---	---	---	---	---	---	---	---	---	---	5.10	---
6	---	---	---	---	5.33	---	---	---	5.77	5.44	---	---
7	---	---	---	---	---	---	---	---	---	---	5.06	---
8	---	---	---	---	---	---	---	---	5.72	5.42	---	---
9	---	---	---	---	---	---	---	---	---	---	---	5.00
10	---	---	---	---	---	---	---	---	---	---	5.22	---
11	---	---	---	---	---	---	5.90	---	5.70	---	---	---
12	---	---	---	---	---	---	---	---	---	---	5.20	5.14
13	---	---	---	---	---	---	---	---	---	5.36	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	5.72	5.34	5.16	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	5.70	5.28	5.12	5.14
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	5.10	---
20	---	---	---	---	---	---	---	---	5.64	5.24	---	5.10
21	---	---	---	---	---	---	---	5.58	---	---	5.06	---
22	---	---	---	---	---	---	---	---	5.64	5.32	---	---
23	---	---	---	---	---	---	---	5.65	---	---	5.04	5.08
24	---	---	---	---	---	---	---	---	5.58	5.28	---	---
25	---	---	---	---	---	---	---	5.72	---	---	---	5.06
26	---	---	---	---	---	---	---	---	5.56	---	5.00	---
27	---	---	---	---	---	---	---	---	---	5.20	---	---
28	---	---	---	---	---	---	---	5.85	---	---	---	5.02
29	---	---	---	---	---	---	---	---	5.50	5.20	---	---
30	---	---	---	---	---	---	---	5.85	---	---	---	---
31	---	---	---	---	---	---	---	---	---	5.16	5.00	---

424937088103400 LONG (KEE NONG GO-MONG) LAKE AT WIND LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1988 to August 1989, February to September 1991.

REMARKS.--Lake sampled in southwest end of lake at an approximate lake depth of 26 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 06 TO AUGUST 23, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 06		Apr. 11		June 06		July 31		Aug. 23	
Depth of sample (ft)	3.0	25.0	1.0	27.0	1.5	25.0	1.5	26.0	1.5	26.0
Lake stage (ft)	5.33		5.90		5.77		5.16		5.040	
Specific conductance ( $\mu$ S/cm)	552	649	470	488	502	402	450	521	446	537
pH (units)	7.9	7.0	8.1	7.6	8.8	2.5	8.5	7.2	8.6	7.1
Water temperature ( $^{\circ}$ C)	3.2	4.3	11.4	6.8	24.2	10.8	23.2	11.2	24.5	11.3
Color (Pt-Co. scale)	---	---	60	60	---	---	---	---	---	---
Turbidity (NTU)	---	---	4.0	3.0	---	---	---	---	---	---
Secchi-depth (meters)	---		0.6		1.3		1.5		1.5	
Dissolved oxygen	9.5	4.4	9.3	2.5	9.3	0.0	7.4	0.0	8.4	0.1
Hardness, as CaCO <sub>3</sub>	---	---	240	250	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	51	53	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	27	28	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	10	10	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.99	3.21	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	---	---	200	207	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	---	---	33	33	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.15	0.15	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	23	23	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	---	---	0.3	1.0	---	---	---	---	---	---
Solids, dissolved, at 180 $^{\circ}$ C	---	---	314	324	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	---	---	0.068	0.090	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.027	0.419	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	1.4	1.8	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.045	0.043	0.027	0.156	0.018	0.440	0.020	0.550
Phosphorus, ortho, dissolved (as P)	---	---	0.006	0.004	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu$ g/L	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu$ g/L	---	---	<40	300	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu$ g/L)	---	---	31	---	18	---	9.0	---	7.0	---

2-6-91

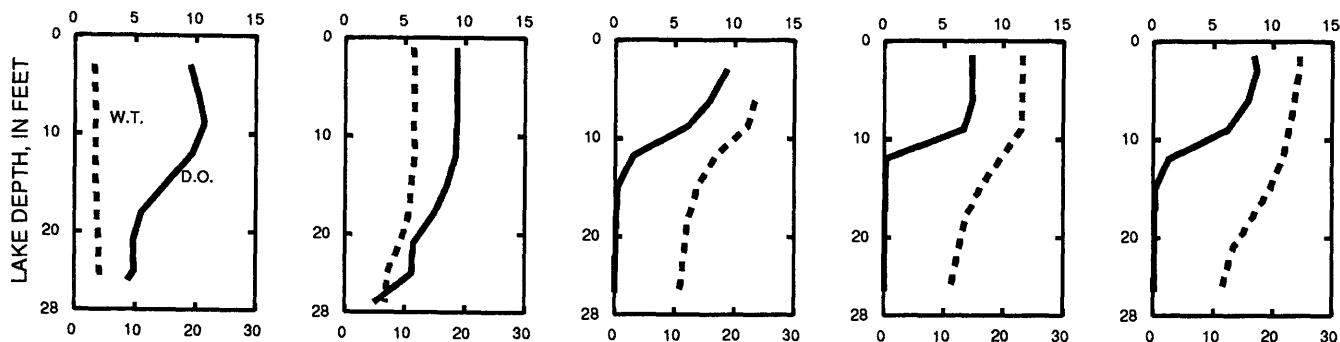
4-11-91

6-6-91

7-31-91

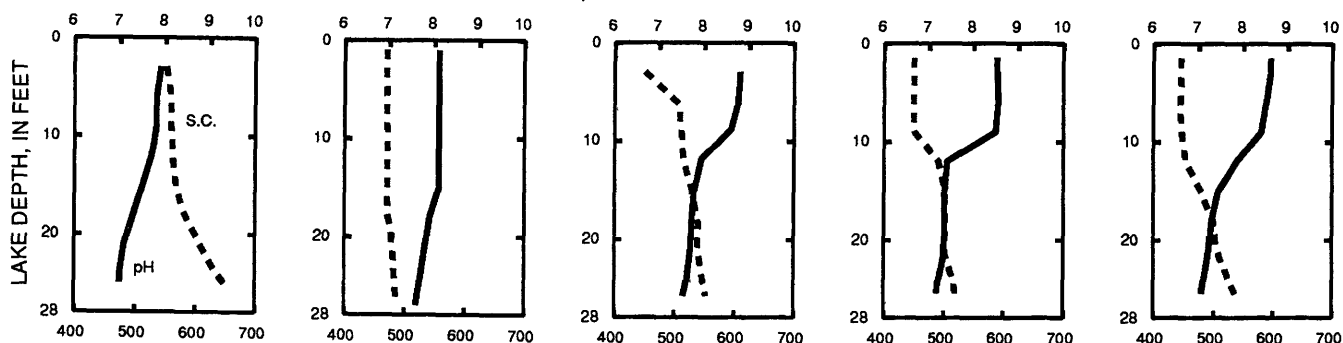
8-23-91

## 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

## ILLINOIS RIVER BASIN

424857088101500 WAUBEESEE LAKE AT WIND LAKE, WI

LOCATION.--Lat 42°48'57", long 88°10'15", in SE 1/4 SE 1/4 sec.7, T.4 N., R.20 E., Racine County, Hydrologic Unit 07120006, at Wind Lake.

DRAINAGE AREA.--5.16 mi<sup>2</sup>.

## LAKE-STAGE RECORDS

PERIOD OF RECORD.--February 1988 to September 1989, May to September 1991.

GAGE.--Staff gage read by Mike Mehring.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.52 ft, Sept. 9, 1989; minimum observed, 3.38 ft, Nov. 3, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 5.22 ft, May 5 and 7; minimum observed, 4.09 ft, Sept. 19.

GAGE HEIGHT, FEET, MAY TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	5.04	4.68	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	5.22	---	---	---	---
6	---	---	---	---	---	---	---	---	4.94	4.62	---	---
7	---	---	---	---	---	---	---	5.22	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	4.32	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	4.90	4.50	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	4.85	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	4.18
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	5.16	---	---	---	---
17	---	---	---	---	---	---	---	---	---	4.40	4.16	---
18	---	---	---	---	---	---	---	5.14	4.86	---	---	---
19	---	---	---	---	---	---	---	5.14	---	---	---	4.09
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	4.80	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	4.10	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	5.04	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	4.30	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	4.74	---	---	---
30	---	---	---	---	---	---	---	5.05	---	---	---	---
31	---	---	---	---	---	---	---	---	---	4.24	---	---

424857088101500 WAUBEESEE LAKE AT WIND LAKE, WI--CONTINUED

## WATER-QUALITY RECORDS

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

REMARKS.--Lake sampled near southwest end at a lake depth of about 70 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 05 TO AUGUST 23, 1991  
(Milligrams per liter unless otherwise indicated)

	Feb. 05		Apr. 17		June 12		July 31		Aug. 23	
Depth of sample (ft)	3.0	69.0	1.5	71.0	1.5	70.0	1.5	69.0	1.5	69.0
Lake stage (ft)	---		---		4.85		4.24		4.10	
Specific conductance ( $\mu\text{S}/\text{cm}$ )	483	504	474	500	483	485	467	490	461	488
pH (units)	8.0	7.6	7.4	7.7	8.6	7.7	8.6	7.6	8.6	7.4
Water temperature ( $^{\circ}\text{C}$ )	2.5	2.9	10.0	5.9	24.2	6.5	23.8	6.7	24.1	6.8
Color (Pt-Co. scale)	---	---	30	30	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.6	0.6	---	---	---	---	---	---
Secchi-depth (meters)	---		4.9		4.0		2.7		2.3	
Dissolved oxygen	12.0	5.6	10.6	7.0	8.5	0.8	8.2	0.0	8.6	0.1
Hardness, as $\text{CaCO}_3$	---	---	230	240	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	47	48	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	28	28	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	12	12	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	3.1	3.2	---	---	---	---	---	---
Alkalinity, as $\text{CaCO}_3$	---	---	188	185	---	---	---	---	---	---
Sulfate, dissolved ( $\text{SO}_4$ )	---	---	38	41	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.1	0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	25	25	---	---	---	---	---	---
Silica, dissolved ( $\text{SiO}_2$ )	---	---	0.8	1.8	---	---	---	---	---	---
Solids, dissolved, at $180^{\circ}\text{C}$	---	---	300	308	---	---	---	---	---	---
Nitrogen, $\text{NO}_2 + \text{NO}_3$ , diss. (as N)	---	---	0.162	0.210	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.084	0.140	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	1.1	1.1	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.028	0.030	0.008	0.176	0.012	0.135	0.010	0.190
Phosphorus, ortho, dissolved (as P)	---	---	0.004	0.022	---	---	---	---	---	---
Iron, dissolved (Fe) $\mu\text{g}/\text{L}$	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) $\mu\text{g}/\text{L}$	---	---	<40	83	---	---	---	---	---	---
Chlorophyll a, phytoplankton ( $\mu\text{g}/\text{L}$ )	---	---	2.0	---	2.0	---	4.0	---	4.0	---

2-5-91

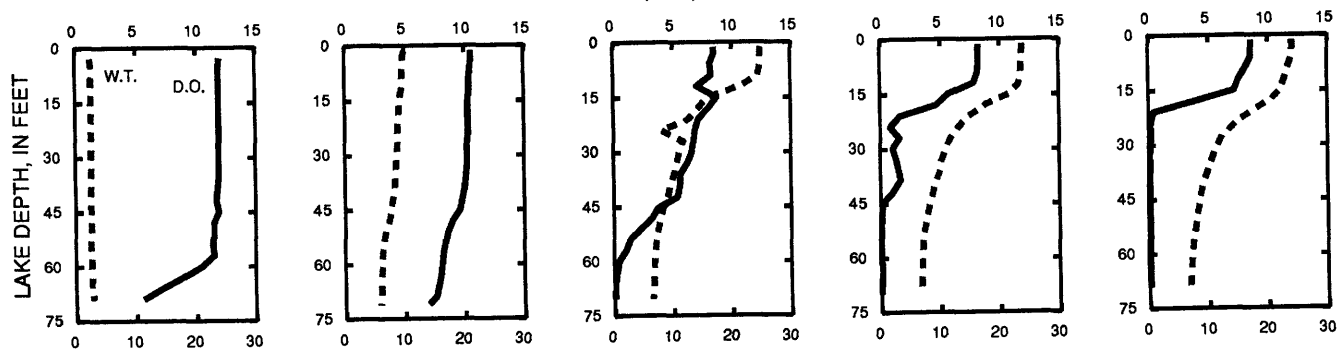
4-17-91

6-12-91

7-31-91

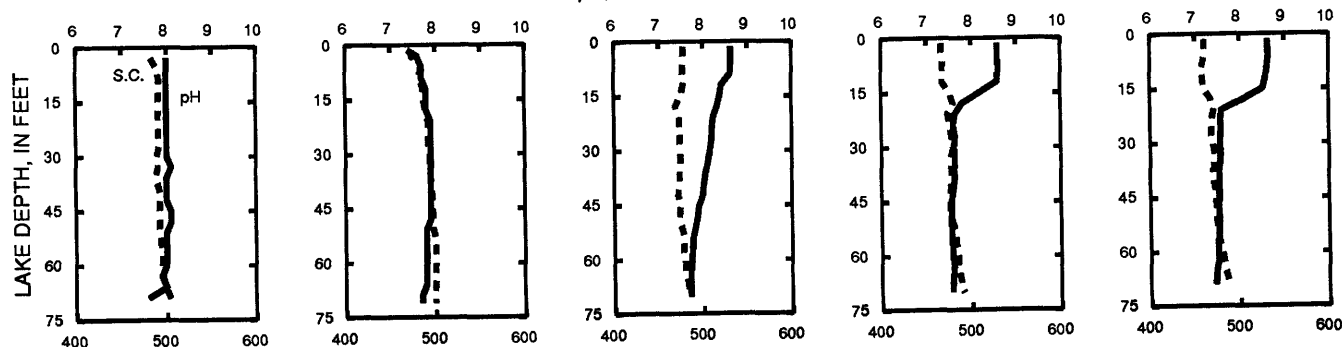
8-23-91

## 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



## ILLINOIS RIVER BASIN

05546500 FOX RIVER AT WILMOT, WI

LOCATION.--Lat 42°30'40", long 88°10'45", in SW 1/4 sec.30, T.1 N., R.20 E., Kenosha County, Hydrologic Unit 07120006, on right bank 100 ft downstream from bridge on County Trunk Highway C, 300 ft upstream from Wilmot Dam, 1.0 mi north of Wisconsin-Illinois State line, and 6.0 mi upstream from Fox Chain of Lakes.

DRAINAGE AREA.--868 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1308: 1943(M), 1945(M). WDR WI-67-1: Drainage area.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 735.22 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1965, nonrecording gage at bridge 100 ft upstream at same datum, and concrete dam.

REMARKS.--Estimated daily discharges: Ice periods, Dec. 23-28, Jan. 5-11, Jan. 23 to Feb. 1, and Feb. 16, 17. Records are good, except for estimated periods, which are fair. Three 6-ft lift gates in Wilmot dam were in operation during the year; discharge through gates computed by weir and orifice formulas and added to flow over dam. Gage-height telemeter and data-collection platform at station.

AVERAGE DISCHARGE.--52 years, 548 ft<sup>3</sup>/s, 8.57 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,520 ft<sup>3</sup>/s, Mar. 31, 1960, gage height, 9.25 ft, from graph, based on gage readings; no flow part of day Oct. 26, 1945, and Aug. 10, 1990; minimum daily discharge, 35 ft<sup>3</sup>/s, Sept. 9, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,810 ft<sup>3</sup>/s, Mar. 29, gage height, 7.32 ft; minimum daily, 100 ft<sup>3</sup>/s, Aug. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	282	936	661	270	541	2150	976	642	150	138	109
2	196	272	873	619	268	1040	1970	969	592	151	132	104
3	199	273	844	562	268	1050	1820	932	539	149	130	117
4	227	333	704	526	349	1000	1680	887	475	157	129	148
5	246	661	677	490	667	876	1570	873	430	166	123	147
6	259	1180	790	470	989	813	1380	1040	390	164	118	137
7	294	1190	701	460	1110	800	1230	1060	327	155	116	130
8	295	1090	720	440	1090	724	1140	945	332	156	181	124
9	292	948	709	420	1070	687	1180	912	318	155	257	117
10	347	903	731	400	1070	637	1480	877	297	157	264	133
11	666	884	796	370	1000	581	1460	829	281	157	260	129
12	551	840	882	340	896	505	1400	782	273	162	250	171
13	590	767	982	329	852	426	1320	731	258	169	225	279
14	570	611	1010	335	791	551	1380	674	235	198	197	382
15	608	583	980	358	653	636	1850	474	243	232	177	477
16	640	535	987	377	640	588	2390	370	292	228	161	508
17	590	454	981	391	640	578	2520	421	316	206	150	559
18	489	455	1040	389	636	635	2360	480	311	189	146	489
19	652	454	1080	405	647	696	2200	485	303	171	152	455
20	526	445	1030	421	681	719	2090	489	296	155	151	415
21	423	445	999	395	718	736	2000	468	279	165	137	256
22	461	474	994	390	735	837	1870	454	259	202	129	255
23	430	508	620	380	712	971	1710	482	251	207	122	247
24	390	507	560	370	679	1150	1610	509	233	202	117	235
25	368	493	540	350	660	1180	1490	565	222	190	112	215
26	334	468	520	340	610	1190	1380	663	201	182	107	184
27	311	485	480	330	598	1670	1310	711	181	175	106	163
28	312	877	470	320	561	2420	1190	677	192	161	104	151
29	300	1180	647	310	---	2770	1140	622	162	162	101	147
30	283	1070	787	300	---	2590	1060	588	155	164	100	173
31	283	---	725	280	---	2340	---	632	---	150	116	---
TOTAL	12343	19667	24795	12528	19860	31937	49330	21577	9285	5387	4708	7156
MEAN	398	656	800	404	709	1030	1644	696	309	174	152	239
MAX	666	1190	1080	661	1110	2770	2520	1060	642	232	264	559
MIN	196	272	470	280	268	426	1060	370	155	149	100	104
CFSM	.46	.76	.92	.47	.82	1.19	1.89	.80	.36	.20	.17	.27
IN.	.53	.84	1.06	.54	.85	1.37	2.11	.92	.40	.23	.20	.31

CAL YR 1990 TOTAL 257780 MEAN 706 MAX 2730 MIN 122 CFSM .81 IN. 11.05  
WTR YR 1991 TOTAL 218573 MEAN 599 MAX 2770 MIN 100 CFSM .69 IN. 9.37

423246088175800 POWERS LAKE AT POWERS LAKE, WI

LOCATION.--Lat 42°32'46", long 88°17'58", in NW 1/4 SE 1/4 sec.13, T.1 N., R.18 E., Walworth County, Hydrologic Unit 07120006, at Powers Lake.

DRAINAGE AREA.--3.42 mi<sup>2</sup>.

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

REMARKS.--Lake sampled near center at a lake depth of about 32 ft. Lake ice-covered during February sampling. Water-quality analyses by Wisconsin State Laboratory of Hygiene.

WATER-QUALITY DATA, FEBRUARY 06 TO AUGUST 06, 1990  
(Milligrams per liter unless otherwise indicated)

	Feb. 06		Apr. 08		June 11		July 09		Aug. 06	
Depth of sample (ft)	3.0	34.0	3.0	33.5	1.5	33.0	1.5	32.0	1.5	31.0
Lake stage (ft)	---		10.42		9.92		9.72		9.41	
Specific conductance (μS/cm)	490	532	460	460	473	482	465	487	472	505
pH (units)	8.2	7.6	8.2	8.2	8.6	7.8	8.6	7.7	8.7	7.5
Water temperature (°C)	1.9	3.9	12.1	10.8	24.4	12.7	26.5	13.2	23.9	13.7
Color (Pt-Co. scale)	---	---	5.0	5.0	---	---	---	---	---	---
Turbidity (NTU)	---	---	0.5	0.7	---	---	---	---	---	---
Secchi-depth (meters)	---		3.6		3.5		1.8		2.0	
Dissolved oxygen	13.4	4.5	10.6	10.0	8.5	0.2	8.4	0.1	8.2	0.0
Hardness, as CaCO <sub>3</sub>	---	---	220	200	---	---	---	---	---	---
Calcium, dissolved (Ca)	---	---	35	32	---	---	---	---	---	---
Magnesium, dissolved (Mg)	---	---	33	29	---	---	---	---	---	---
Sodium, dissolved (Na)	---	---	14	13	---	---	---	---	---	---
Potassium, dissolved (K)	---	---	2.6	2.3	---	---	---	---	---	---
Alkalinity, as CaCO <sub>3</sub>	---	---	181	181	---	---	---	---	---	---
Sulfate, dissolved (SO <sub>4</sub> )	---	---	33	33	---	---	---	---	---	---
Fluoride, dissolved (F)	---	---	0.1	<0.1	---	---	---	---	---	---
Chloride, dissolved (Cl)	---	---	28	29	---	---	---	---	---	---
Silica, dissolved (SiO <sub>2</sub> )	---	---	4.8	5.0	---	---	---	---	---	---
Solids, dissolved, at 180°C	---	---	262	264	---	---	---	---	---	---
Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> , diss. (as N)	---	---	0.032	0.255	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	---	---	0.016	0.017	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	---	---	0.50	0.50	---	---	---	---	---	---
Phosphorus, total (as P)	---	---	0.007	0.010	0.006	0.009	0.011	0.020	0.008	0.028
Phosphorus, ortho, dissolved (as P)	---	---	0.003	0.004	---	---	---	---	---	---
Iron, dissolved (Fe) μg/L	---	---	<50	<50	---	---	---	---	---	---
Manganese, dissolved (Mn) μg/L	---	---	<40	<40	---	---	---	---	---	---
Chlorophyll a, phytoplankton (μg/L)	---	---	2.0	---	2.0	---	4.0	---	4.0	---

2-6-91

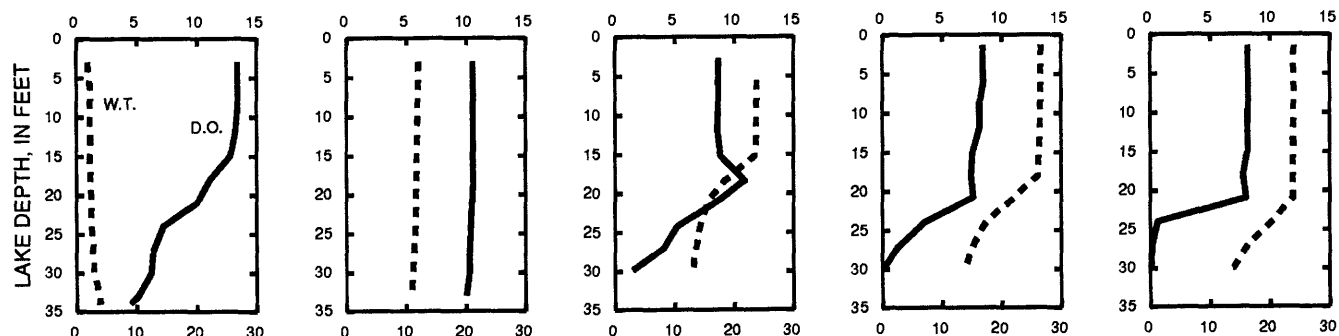
4-8-91

6-11-91

7-9-91

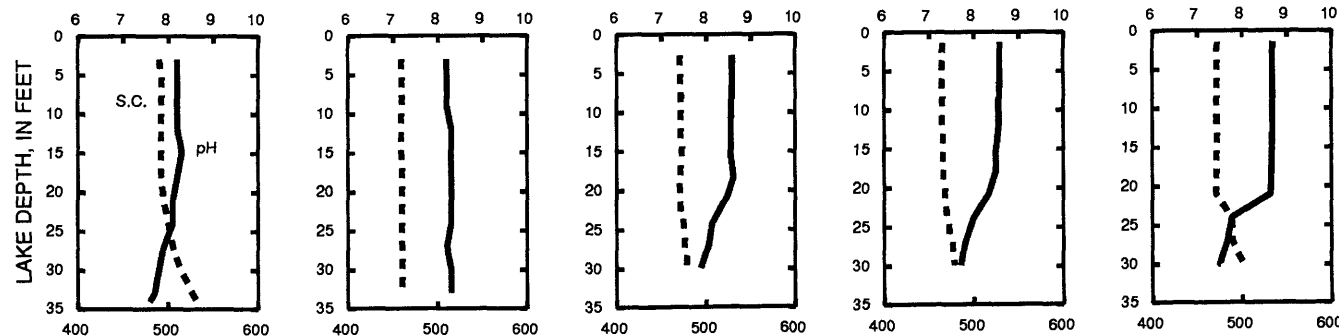
8-6-91

## 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

LOCATION.--Lat 42°32'40", long 88°18'41', in NW 1/4 SE 1/4 sec.13, T.1 N., R.18 E., Walworth County, Hydrologic Unit 07120006, 50 ft upstream of Powers Lake Outlet at Powers Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.05 ft, Sept. 29, 1986; minimum observed, 9.41 ft, Aug. 6, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 10.51 ft Apr. 16, minimum observed, 9.41 Aug. 6.

[illegible]

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 and 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 these 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 and for special studies 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 minimum has been determined.

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS			Period of record maximum		
			Water year 1991 maximum Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR								
04024400 Stony Brook near Superior, WI	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 area is 1.86 mi <sup>2</sup> .	1959-91	05-30-91 09-14-90	15.54 >17.01	220 E>300	09-02-85	35.23	595
04025200 Pearson Creek near Maple, WI	Lat 46°38'51", long 91°42'55", on common 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 is 4.07 mi <sup>2</sup> .	1957-91	05-30-91	18.59	795	09-02-85	31.83	1,440
04026200 Sand River Tributary near Red Cliff, WI	Lat 46°53'53", long 90°56'47", in NE 1/4 sec.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. Drainage area is 1.09 mi <sup>2</sup> .	1959-91	07-28-91	C17.08	F530	05-23-64	16.86	624
*04026300 Sioux River near Washburn, WI	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 High- way C, 2.5 mi west of Washburn. Drainage area is 33.9 mi <sup>2</sup> .	1959-65 1966# 1967-91	07-28-91	12.18	470	09-02-85	29.45	2,200
04026450 Bad River near Mellen, WI	Lat 46°16'14", long 90°42'26", in NE 1/4 NW 1/4 sec.26, T.44 N., R.3 W., Ashland County, Hydrologic Unit 04010302, on left bank 150 ft downstream from bridge on U.S. Forest Service Road, 4.4 mi south- east of Mellen. Drainage area is 82.0 mi <sup>2</sup> .	1971-75# 1976-91	03-27-91	5.33	973	07-23-72	7.61	2,130
*04027200 Pearl Creek at Grandview, WI	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 box culvert on U.S. Highway 63, 0.8 mi east of Grandview. Drainage area is 16.9 mi <sup>2</sup> .	1960-91	03-27-91	11.23	83	08-16-72	C15.99	540

## STREAMS TRIBUTARY TO LAKE MICHIGAN

*04059900 Allen Creek Tributary near Alvin, WI	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 Highway 70, 2.2 mi southeast of Alvin. Drainage area is 1.22 mi <sup>2</sup> .	1960-91	03-28-91	10.36	7	05-22-83	11.38	23			
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## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS			Period of record maximum			
			Water year 1991 maximum Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED									
04063640 North Branch Pine River at Windsor Dam near Alvin, WI	Lat 45°55'43", long 88°51'38", in SE 1/4 sec.21, T.40 N., R.13 E., Forest County, Hydrologic Unit 04030108, at bridge on country road, at Windsor Dam, 3.8 mi up- stream from confluence of North and South Forks, 4.0 mi southwest of Alvin. Drainage area is 27.8 mi <sup>2</sup> .	1967-68# 1970-91	03-28-91 06-13-90	2.60 2.12	68 E17	04-09-80	3.89	165	
04063688 South Branch Popple River near Newald, WI	Lat 45°44'42", long 88°35'31", in NW 1/4 sec.26, T.38 N., R.15 E., Florence County, Hydrologic Unit 04030108, at corrugated twin barrel culverts on U.S. Forest Service Road 2159, 5.4 mi east of Newald. Drainage area is 9.47 mi <sup>2</sup> .	1970-91	07-28-91	12.16	54	04-15-71	12.81	71	
*04063800 Woods Creek near Fence, WI	Lat 45°49'53", long 88°23'17", in SE 1/4 sec.29, T.39 N., R.17 E., Florence County, Hydrologic Unit 04030108, at box culvert on State Highway 101, 6.0 mi north of Fence. Drainage area is 41.90 mi <sup>2</sup> .	1958-91	05-30-91	13.08	420	05-07-65	15.80	853	
04064800 Little Popple River near Aurora, WI	Lat 45°47'34", long 88°11'40", in SW 1/4 sec.1, T.38 N., R.18 E., Florence County, Hydrologic Unit 04030108, at 3-barrel corrugated culvert on County Trunk Highway N, 5.5 mi west of Aurora. Drainage area is 35.0 mi <sup>2</sup> .	1970-91	05-30-91	14.00	480	05-31-70	15.5	595	
04067760 Peshtigo River near Cavour, WI	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. High- way 8, 0.7 mi northwest of Cavour. Drainage area is 150 mi <sup>2</sup> .	1970-91	05-30-91	13.81	1,050	06-10-79	15.06	1,440	
04067800 Armstrong Creek near Armstrong Creek, WI	Lat 45°39'29", long 88°28'44", in W 1/2 sec.27, T.37 N., R.16 E., Forest County, Hydrologic Unit 04040105, at bridge on U.S. High- way 8, 1.8 mi northwest of Armstrong Creek. Drainage area is 23.2 mi <sup>2</sup> .	1958-91	05-30-91	10.78	172	04-25-75 06-14-81	11.28 11.27	260 260	
04069700 North Branch Oconto River near Wabeno, WI	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 intersection with State Highway 32 at Wabeno. Drainage area is 34.1 mi <sup>2</sup> .	1970-91	05-30-91	12.28	196	06-14-81	13.62	420	
04071700 North Branch Little River near Coleman, WI	Lat 45°00'37", long 88°02'43", on common boundary of secs.2 and 3, T.29 N., R.20 E., Oconto County, Hydrologic Unit 04030104, at bridge on U.S. Highway 141, 3.8 mi south of Coleman. Drainage area is 21.4 mi <sup>2</sup> .	1958-91	04-14-91	12.61	210	03-30-67	14.50	640	
*04071800 Pensaukee River near Pulaski, WI	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 High- way 32, 6.1 mi north of Pulaski. Drainage area is 48.80 mi <sup>2</sup> .	1961-91	03-24-91	12.63	430	05-28-73	17.10	1,700	
*04073400 Bird Creek at Wautoma, WI	Lat 44°06'00", long 89°18'00", in S 1/2 sec.34, T.19 N., R.10 E., Waushara County, Hydrologic Unit 04030201, at concrete culvert on State Highway 21, 0.2 mi west of Wautoma. Drainage area is 4.14 mi <sup>2</sup> .	1959-91	04-15-91	11.14	52	03-07-73	13.07	190	

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS									
Station number and name	Location and drainage area	Period of record	Water year 1991 maximum			Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED									
04074300 Mud Creek near Nashville, WI	Lat 45°34'19", long 89°02'39", in SW 1/4 sec.30, T.36 N., R.12 E., Forest County, Hydrologic Unit 04030202, at concrete circular culvert on U.S. Highway 8, 3.5 mi north of Nashville. Drainage area is 9.05 mi <sup>2</sup> .	1970-91	05-30-91	13.18	D71	06-14-81	14.06	105	
*04074700 Hunting River near Elcho, WI	Lat 45°25'10", long 89°11'15", in N 1/2 sec.24, T.34 N., R.10 E., Langlade County, Hydrologic Unit 04030202, at twin culverts on U.S. Highway 45 and State Highway 47, 1.5 mi south of Elcho. Drainage area is 9.00 mi <sup>2</sup> .	1958-91	05-30-91 06-13-90	11.82 10.62	73 E47	09-28-59	12.98	200	
*04074850 Lily River near Lily, WI	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 is 45.6 mi <sup>2</sup> .	1970-91	05-30-91	10.43	102	10-29-74	11.00	158	
*04075200 Evergreen Creek near Langlade, WI	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 southwest of Langlade. Drainage area is 8.09 mi <sup>2</sup> .	1959-65 1966-72# 1973-91	--	--	--	07-11-82	11.66	80	
*04079700 Spaulding Creek near Big Falls, WI	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 is 5.57 mi <sup>2</sup> .	1959-65 1966# 1967-91	03-24-91	F10.86	53	05-07-60	11.64	101	
04081900 Sawyer Creek at Oshkosh, WI	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. High- way 41, 1.0 mi southwest of bridge on Algoma Street at Fox River, at Oshkosh. Drainage area is 12.10 mi <sup>2</sup> .	1961-91	03-29-91	11.03	330	09-11-86	17.47	2,350	
*04085030 Apple Creek near Kaukauna, WI	Lat 44°19'15", long 88°17'33", on west boundary sec.2, T.21 N., R.18 E., Outagamie County, Hydrologic Unib 04030204, at bridge on State Highway 55, 3.0 mi north of Kaukauna. Drainage area is 15.2 mi <sup>2</sup> .	1960-91	03-24-91	14.85	1,210	10-18-84	15.29	1,510	
04085300 Neshota River Tributary near Denmark, WI	Lat 44°23'43", long 87°52'13", in NE 1/4 sec.7, T.22 N., R.22 E., Brown County, Hydrologic Unit 04030101, at box culvert on U.S. Highway 141, 3.8 mi northwest of Denmark. Drainage area is 4.31 mi <sup>2</sup> .	1959-91	03-24-91	12.88	190	06-23-90	16.46	1,040	
*04085400 Killsnake River near Chilton, WI	Lat 44°03'33", long 88°08'36", in E 1/2 sec.6, T.18 N., R.20 E., Calument County, Hydrologic Unit 04030101, at bridge on country road, 2.4 mi northeast of Chilton. Drainage area is 29.4 mi <sup>2</sup> .	1961-91	03-24-91	11.58	860	03-30-79	14.37	1,840	
*04087050 Little Menomonee River near Freistadt, WI	Lat 43°12'24", long 88°02'24", on common boundary of secs.29 32, T.9 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, at bridge on Donges Bay Road, 2.0 mi south of Freistadt. Drainage area is 8.00 mi <sup>2</sup> .	1958-91	--	B	<127	04-21-73	13.14	360	

## MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

Station number and name	Location and drainage area	Period of record	Water year 1991 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED								
04087100 Honey Creek at Milwaukee, WI	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 southwest of mouth of Milwaukee River, at Milwaukee. Drainage area is 3.26 mi <sup>2</sup> .	1959-91	07-07-91	21.17	580	12-02-82	22.60	1,050
*04087200 Oak Creek near South Milwaukee, WI	Lat 42°52'58", long 87°53'31", on common boundary of secs.21 and 22, T.5 N., R.22 E., Milwaukee County, Hydrologic Unit 04040002, at bridge on West Nicholson Road, 3.0 mi southwest of South Milwaukee. Drainage area is 13.8 mi <sup>2</sup> .	1958-91	12-29-90 04-09-91	GI15.64 15.18	--- 225	03-30-60	17.49	1,100
04087230 West Branch Root River Canal Tributary near North Cape, WI	Lat 42°45'44", long 88°01'04", in SE 1/4 sec.33, T.4 N., R.21 E., Racine County, Hydrologic Unit 04040002, at culvert on County Trunk Highway U, 3.0 mi southeast of North Cape. Drainage area is 3.99 mi <sup>2</sup> .	1962-91	03-27-91	12.51	123	08-17-87	12.88	182
*04087250 Pike Creek near Kenosha, WI	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 northwest of Kenosha. Drainage area is 7.25 mi <sup>2</sup> .	1960-91	03-27-91	15.30	100	09-17-78	F17.6	220
ST. CROIX RIVER BASIN								
*05333100 Little Frog Creek near Minong, WI	Lat 46°05'48", long 91°46'39", in NW 1/4 sec.29, T.42 N., R.11 W., Washburn County, Hydrologic Unit 07030002, at culvert on country road, 2.5 mi east of Minong. Drainage area is 13.0 mi <sup>2</sup> .	1961-91	05-05-91	13.93	160	05-11-82	16.31	600
*05335380 Bashaw Brook near Shell Lake, WI	Lat 45°47'02", long 92°07'51", in SW 1/4 sec.8, T.38 N., R.14 W., Burnett County, Hydrologic Unit 07030001, at twin box culverts on country road, 10.5 mi north- west of Shell Lake. Drainage area is 26.6 mi <sup>2</sup> .	1959-65 1966# 1967-91	03-24-91	12.51	95	04-11-65	14.90	600
*05340300 Trade River near Frederic, WI	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 south- west of Frederic. Drainage area is 6.34 mi <sup>2</sup> .	1958-91	05-06-91	14.96	325	06-12-84	18.89	1,050
05341900 Kinnickinnic River Tributary at River Falls, WI	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 south- west of River Falls. Drainage area is 7.26 mi <sup>2</sup> .	1959-91	03-24-91	13.64	1,720	08-09-88	15.99	5,200
CHIPPEWA RIVER BASIN								
05357360 Bear River near Powell, WI	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 High- way 182, 3.0 mi west of Powell. Drainage area is 120 mi <sup>2</sup> .	1970-91	03-27-91	11.81	370	04-16-82	12.83	720
05357390 Weber Creek near Mercer, WI	Lat 46°11'16", long 90°07'57", in SE 1/4 sec.21, T.43 N., R.3 E., Iron County, Hydrologic Unit 07050002, at culvert on U.S. High- way 51, 3.7 mi northeast of Mercer. Drainage area is 7.10 mi <sup>2</sup> .	1970-91	03-27-91	11.22	79	08-17-72	12.65	270

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS			Period of record maximum		
			Water year Date	1991 maximum Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
CHIPPEWA RIVER BASIN--CONTINUED								
05358100 Smith Creek near Park Falls, WI	Lat 45°57'06", long 90°28'07", in NE 1/4 sec.15, T.40 N., R.1 W., Price County, Hydrologic Unit 07050002, at culvert on State High- way 13, 1.5 mi northwest of Park Falls. Drainage area is 9.46 mi <sup>2</sup> .	1970-91	06-21-91 04-04-88	12.74 E12.16	185 E136	09-08-85	14.49	330
*05359600 Price Creek near Phillips, WI	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 is 16.9 mi <sup>2</sup> .	1958-65 1966# 1967-91	03-27-91 09-14-90	11.69 11.86	115 E125	09-22-59	15.78	400
*05361400 Hay Creek near Prentice, WI	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. High- way 8, 3.5 mi west of Prentice. Drainage area is 22.6 mi <sup>2</sup> .	1961-91	03-23-91	G12.86	350	03-31-86	14.47	1,090
05361420 Douglas Creek near Prentice, WI	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 is 25.2 mi <sup>2</sup> .	1970-91	03-23-91	13.17	505	06-14-81	15.80	1,200
05361600 North Fork Jump River near Phillips, WI	Lat 45°37'45", long 90°23'32", in SW 1/4 sec.5, T.36 N., R.1 E., Price County, Hydrologic Unit 07050004, at culvert on State High- way 13, 4.0 mi south of Phillips. Drainage area is 10.5 mi <sup>2</sup> .	1970-91	03-24-91 03-12-90 03-27-89 04-04-88 10-12-86 03-31-86 09-08-85	11.80 11.29 G11.08 11.00 11.29 12.01 11.48	125 E78 E36 E58 E78 E150 E92	06-14-81	12.72	250
*05364000 Yellow River at Cadott, WI	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 High- way 27, at Cadott. Drainage area is 364 mi <sup>2</sup> .	1943-61# 1962-91	03-23-91	G13.26	5,600	07-27-86	15.82	16,600
05364100 Seth Creek near Cadott, WI	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 Highway 27, 3.1 mi north of Cadott. Drainage area is 3.25 mi <sup>2</sup> .	1962-91	05-26-91	12.83	208	09-22-86	18.00	785
05364500 Duncan Creek at Bloomer, WI	Lat 45°07'00", long 91°30'00", in sec. 8, T.30 N., R.9 W., Chippewa County, Hydrologic Unit 07050005, 0.2 mi below Bloomer dam, at Bloomer. Drainage area is 50.3 mi <sup>2</sup> .	1945-51# 1958-91	03-23-91 1988 1987 09-22-86 1985 1984 1983 1982 1981 06-06-80	8.23 H H E11.0 H H H H H E11.8	2,900 H H E3,700 H H H H H E5,400	06-29-79	11.81	5,400
*05365700 Goggle-Eye Creek near Thorp, WI	Lat 44°58'40", long 90°48'00", on west boundary sec.19, T.29 N., R.3 W., Clark County, Hydrologic Unit 07050006, at culvert on State Highway 73, 1.3 mi north of Thorp. Drainage area is 6.42 mi <sup>2</sup> .	1958-91	03-23-91 06-13-90	14.30 E16.20	700 E1,360	06-05-80	21.68	2,880
*05366500 Eau Claire River near Fall Creek, WI	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 is 760 mi <sup>2</sup> .	1943-55# 1958-91	03-23-91	10.00	6,700	09-21-86	17.77	20,800



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

MAXIMUM DISCHARGE AT CREST--STAGE PARTIAL-RECORD STATIONS									
Station number and name	Location and drainage area	Period of record	Water year 1991 maximum			Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	
CHIPPEWA RIVER BASIN--CONTINUED									
05367030 Willow Creek near Eau Claire, WI	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 is 3.83 mi <sup>2</sup> .	1958-91	05-27-91	11.13	125	07-08-59	14.12	400	
*05367480 East Branch Pine Creek Tributary near Dallas, WI	Lat 45°16'50", long 91°48'30", in SW 1/4 sec.1, T.32 N., R.12 W., Barron County, Hydrologic Unit 07050007, at culvert on County Trunk Highway O, 1.5 mi north of Dallas. Drainage area is 3.95 mi <sup>2</sup> .	1960-91	03-23-91	G15.48	165	08-28-60	18.75	735	
05367700 Lightning Creek at Almena, WI	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 is 19.0 mi <sup>2</sup> .	1958-91	05-27-91	12.71	750	03-30-67	12.39	1,550	
05370600 Arkansasaw Creek Tributary near Arkansaw, WI	Lat 44°38'31", long 92°03'09", in SW 1/4 sec.14, T.25 N., R.14 W., Pepin County, Hydrologic Unit 07050005, at box culvert on U.S. Highway 10, 1.2 mi northwest of Arkansaw. Drainage area is 2.61 mi <sup>2</sup> .	1959-91	1991	B	<100	08-23-75	14.10	420	
*05370900 Spring Creek near Durand, WI	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 is 6.45 mi <sup>2</sup> .	1962-91	1991	B	<80	08-23-75	15.71	860	
BUFFALO RIVER BASIN									
05371800 Buffalo River Tributary near Osseo, WI	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. High- way 10, 6.5 mi east of Osseo. Drainage area is 1.44 mi <sup>2</sup> .	1960-91	05-27-91	11.28	65	09-12-78	12.85	188	
05371920 Buffalo River near Mondovi, WI	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, Hydro- logic Unit 07040003, at bridge on State Highway 88, 4.0 mi south of Mondovi. Drainage area is 279 mi <sup>2</sup> .	1974-91	06-22-91	11.29	750	09-10-75	15.39	5,180	
WAUMANDEE CREEK BASIN									
*05378200 Eagle Creek near Fountain City, WI	Lat 44°09'49", long 91°42'28", in SW 1/4 sec.33, T.20 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, at bridge on County Trunk Highway G, 2.5 mi north of Fountain City. Drainage area is 26.6 mi <sup>2</sup> .	1961-91	05-16-91 --	-- DI17.23	F770 --	07-07-78	18.35	6,000	
BLACK RIVER BASIN									
05380800 Black River Tributary near Whittlesey, WI	Lat 45°12'34", long 90°19'05", in SW 1/4 sec.35, T.32 N., R.1 E., Taylor County, Hydrologic Unit 07040007, at bridge on State High- way 13, 1.1 mi south of Whittlesey. Drainage area is 2.12 mi <sup>2</sup> .	1960-91	03-23-91	11.66	64	09-21-90	13.33	305	

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS			Period of record maximum		
			Water year	1991 maximum		Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
			Date			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
BLACK RIVER BASIN--CONTINUED								
*05380900 Poplar River near Owen, WI	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 is 157 mi <sup>2</sup> .	1958-65 1966# 1967-91	03-23-91	17.44	6,600	06-06-80	20.12	12,500
*05380970 Cawley Creek near Neillsville, WI	Lat 44°36'42", 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 High- way 73, 3.7 mi north of Neillsville. Drainage area is 38.6 mi <sup>2</sup> .	1961-91	03-23-91	15.39	1,700	09-22-86	20.62	7,880
*05382200 French Creek near Ettrick, WI	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 is 14.3 mi <sup>2</sup> .	1960-91	05-17-91	11.00	390	04-28-75	13.16	1,350
MORMON CREEK BASIN								
*05386300 Mormon Creek near La Crosse, WI	Lat 43°46'00", long 91°08'27", in NE 1/4 sec.19, T.15 N., R.6 W., La Crosse County, Hydrologic Unit 07060001, at bridge on country road, 6.0 mi southeast of La Crosse. Drainage area is 25.5 mi <sup>2</sup> .	1961-91	08-07-91	12.88	1,100	07-02-78	20.60	6,600
BAD AXE RIVER BASIN								
*05387100 North Fork Bad Axe River near Genoa, WI	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 High- way 56, 4.1 mi southeast of Genoa. Drainage area is 80.8 mi <sup>2</sup> .	1959-65 1966# 1967-91	1991	B	<500	08-27-59	19.59	10,000
WISCONSIN RIVER BASIN								
*05390140 Muskrat Creek at Conover, WI	Lat 46°03'27", long 89°15'24", in SW 1/4 sec.4, T.41 N., R.10 E., Vilas County, Hydrologic Unit 07070001, at corrugated culvert on U.S. Highway 45, 0.1 mi north of Conover. Drainage area is 10.2 mi <sup>2</sup> .	1970-91	03-28-91	G12.11	F42	04-11-71	13.26	122
05390240 Fourmile Creek near Three Lakes, WI	Lat 45°50'17", long 89°04'32", in NE 1/4 sec.26, T.39 N., R.11 E., Oneida County, Hydrologic Unit 07070001, at 2-barrel corrugated culvert on Fourmile Creek Road, 5.5 mi northeast of Three Lakes. Drainage area is 10.3 mi <sup>2</sup> .	1970-91	05-29-91	13.00	122	05-29-91	13.00	122
05391260 Gudagast Creek near Starks, WI	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 is 14.0 mi <sup>2</sup> .	1970-91	05-29-91	11.93	65	05-09-90	13.33	130
05391950 Squaw Creek near Harrison, WI	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 is 3.23 mi <sup>2</sup> .	1970-91	03-28-91 05-29-91	FG11.01 10.68	-- 18	04-30-84	11.32	32

## MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS

Station number and name	Location and drainage area	Period of record	Water year 1991 maximum		Period of record maximum		Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
			Date		Date				
WISCONSIN RIVER BASIN--CONTINUED									
*05392150 Mishonagon Creek near Woodruff, WI	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 State Highway 47, 3.0 mi north- west of Woodruff. Drainage area is 17.6 mi <sup>2</sup> .	1958-91	03-28-91	9.85	49	08-17-72	11.33	117	
*05392350 Bearskin Creek near Harshaw, WI	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 south- west of Harshaw. Drainage area is 31.1 mi <sup>2</sup> .	1958-65 1966# 1967-91	05-26-91	9.46	63	06-14-81	10.97	180	
05393640 Little Pine Creek near Irma, WI	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 is 22.0 mi <sup>2</sup> .	1970-91	03-23-91	G13.50	F175	06-14-81	14.38	310	
*05394200 Devil Creek near Merrill, WI	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. Drainage area is 9.58 mi <sup>2</sup> .	1961-91	03-23-91	G13.70	360	06-13-90	17.98	1,600	
05395020 Lloyd Creek near Doering, WI	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 is 7.80 mi <sup>2</sup> .	1970-91	05-26-91	12.87	255	06-13-90	>16.00	>1,000	
05395100 Trappe River Tributary near Merrill, WI	Lat 45°08'07", long 89°30'08", in SW 1/4 sec.28, T.31 N., R.8 E., Lincoln County, Hydrologic Unit 07070002, at culvert on County Trunk Highway P, 9.5 mi southeast of Merrill. Drainage area is 1.58 mi <sup>2</sup> .	1959-91	04-09-91	12.55	120	06-13-90	17.57	390	
05396100 Pet Brook near Edgar, WI	Lat 44°56'40", long 89°57'05", in SE 1/4 sec.31, T.29 N., R.5 E., Marathon County, Hydrologic Unit 07070002, at culvert on State High- way 29, 1.5 mi northeast of Edgar. Drainage area 6.86 mi <sup>2</sup> .	1962-91	07-17-91	16.21	1,100	06-06-80	20.40	2,280	
05396300 Wisconsin River Tributary at Wausau, WI	Lat 44°57'28", long 89°39'52", in NE 1/4 NW 1/4 sec.34, T.29 N., R.7 E., Marathon County, Hydro- logic 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 is 1.10 mi <sup>2</sup> .	1982-91	07-17-91	6.99	305	06-12 or 13-90	9.11	740	
05397600 Big Sandy Creek near Wausau, WI	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 High- way 52, 10.0 mi northeast of Wausau. Drainage area is 11.5 mi <sup>2</sup> .	1959-91	03-23-91	13.01	730	09-27-59	15.18	2,120	
05400025 Johnson Creek near Knowlton, WI	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 is 25.1 mi <sup>2</sup> .	1973-91	03-23-91	14.56	610	06-06-80	21.78	3,700	
05401800 Yellow River Tributary near Pittsville, WI	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 is 7.23 mi <sup>2</sup> .	1959-91	03-23-91	12.34	390	05-02-73	13.82	810	

MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS									
Station number and name	Location and drainage area	Period of record	Water year 1991 maximum			Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)	
WISCONSIN RIVER BASIN--CONTINUED									
*05403520 Webster Creek at New Lisbon, WI	Lat 43°51'23", long 90°10'25", in NE 1/4 sec.19, T.16 N., R.3 E., Juneau County, Hydrologic Unit 07070003, at bridge on State High- way 80, 1.2 mi south of New Lisbon. Drainage area is 11.8 mi <sup>2</sup> .	1961-91	04-04-91	12.59	97	08-17 or 18-90	15.12	580	
*05403550 Onemile Creek near Mauston, WI	Lat 43°45'50", long 90°04'45", in SE 1/4 sec.24, T.15 N., R.3 E., Juneau County, Hydrologic Unit 07070003, at bridge on State High- way 58, 2.4 mi south of Mauston. Drainage area is 30.2 mi <sup>2</sup> .	1958-91	04-04-91	13.87	370	06-17-84	17.18	2,800	
05403630 Hulbert Creek near Wisconsin Dells, WI	Lat 43°37'37", long 89°48'36", in SE 1/4 SW 1/4 sec.5, T.13 N., R.6 E., Sauk County, Hydrologic Unit 07070003, 1.6 mi upstream from mouth, and 2.0 mi west of Wisconsin Dells. Drainage area is 11.2 mi <sup>2</sup> .	1971-77# 1978-91	09-15-91	3.56	86	08-08-80	6.41	470	
05403700 Dell Creek near Lake Delton, WI	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 is 44.9 mi <sup>2</sup> .	1957-65# 1966-70 1971-80# 1983-91	04-09-91	5.29	150	01-29-68	8.76	1,130	
*05404200 Narrows Creek at Loganville, WI	Lat 43°26'32", long 90°02'06", in SE 1/4 sec.8, T.11 N., R.4 E., Sauk County, Hydrologic Unit 07070004, at bridge on State Highways 23 and 154, 0.2 mi north of Loganville. Drainage area is 40.1 mi <sup>2</sup> .	1958-65 1966# 1967-91	04-09-91	11.62	450	06-29-90	16.74	7,200	
*05405600 Rowan Creek at Poynette, WI	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 is 10.4 mi <sup>2</sup> .	1961-91	03-02-91	--	170	09-09-65	17.90	2,260	
05406800 Rocky Branch near Richland Center, WI	Lat 43°18'52", long 90°23'22", in E 1/2 sec.29, T.10 N., R.1 E., Richland County, Hydrologic Unit 07070005, at culvert on State Highway 80, 1.5 mi south of Richland Center. Drainage area is 1.68 mi <sup>2</sup> .	1960-91	--	B	<40	08-26-72	17.40	870	
*05407100 Richland Creek near Plugtown, WI	Lat 43°11'12", long 90°44'23", in NW 1/4 sec.9, T.8 N., R.3 W., Crawford County, Hydrologic Unit 07070005, at bridge on U.S. High- way 61, 2.0 mi south of Plugtown. Drainage area is 19.2 mi <sup>2</sup> .	1958-91	05-26-91	14.35	460	08-04-82	18.87	4,400	
*05407200 Crooked Creek near Boscobel, WI	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. High- way 61, 1.6 mi south of Boscobel. Drainage area is 12.9 mi <sup>2</sup> .	1959-91	05-24-89 09-15-91	11.69 10.95	E400 260	07-27-64	18.21	2,460	
GRANT RIVER BASIN									
*05413400 Pigeon Creek near Lancaster, WI	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 is 6.93 mi <sup>2</sup> .	1960-65 1966# 1967-91	06-15-91	15.15	990	01-24-67	20.85	2,800	

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS			Period of record maximum		
			Water year 1991 maximum			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
			Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)			
PLATTE RIVER BASIN								
*05414200 Bear Branch near Platteville, WI	Lat 42°45'46", long 90°30'06", in NW 1/4 sec.4, T.3 N., R.1 W., Grant County, Hydrologic Unit 07060003, at box culvert on State Highway 81, 2.3 mi northwest of Platteville. Drainage area is 2.72 mi <sup>2</sup> .	1958-91	08-08-91	12.88	305	06-20-74	20.35	1,330
05414213 Little Platte River near Platteville, WI	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 is 79.7 mi <sup>2</sup> .	1987-90# 1991	08-08-91 03-11-89 09-22-88	12.56 11.55 8.90	2,190 E1,660 E426	06-29-90	15.35	3,800
GALENA RIVER BASIN								
*05414900 Pats Creek near Elk Grove, WI	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 is 8.50 mi <sup>2</sup> .	1960-91	06-15-91	12.23	320	06-29-69	17.32	7,040
05414915 Madden Branch Tributary near Belmont, WI	Lat 42°40'03", long 90°19'45", in NE 1/4 NE 1/4 sec.11, T.2 N., R.1 E., Lafayette County, Hydrologic Unit 07090003, at State Highway 81, 4.7 mi south of Belmont. Drainage area is 2.83 mi <sup>2</sup> .	1981-82# 1984-91	06-15-91	7.50	168	06-29-90	14.29	1,800
ROCK RIVER BASIN								
*05423800 East Branch Rock River Tributary near Slinger, WI	Lat 43°23'06", long 88°18'29", in S 1/2 sec.26, T.11 N., R.18 E., Washington County, Hydrologic Unit 07090001, at culvert on U.S. High- way 41, 4.0 mi northwest of Slinger. Drainage area is 4.42 mi <sup>2</sup> .	1960-91	03-27-91	F12.3	210	08-14-72	13.12	340
*05425700 Robbins Creek at Columbus, WI	Lat 43°20'48", long 89°01'55", in SE 1/4 sec.11, T.10 N., R.12 E., Columbia County, Hydrologic Unit 07090002, at culvert on U.S. Highway 16, at Columbus. Drainage area is 8.01 mi <sup>2</sup> .	1960-91	03-02-91	12.09	167	09-08-85	14.70	335
*05427200 Allen Creek near Fort Atkinson, WI	Lat 42°53'54", long 88°51'35", in NE 1/4 sec.17, T.5 N., R.14 E., Jefferson County, Hydrologic Unit 07090001, at box culvert on State Highway 26, 2.5 mi southwest of Fort Atkinson. Drainage area is 10.2 mi <sup>2</sup> .	1958-91	03-02-91	10.73	122	03-29-60	13.24	380
05427800 Token Creek near Madison, WI	Lat 43°10'52", Long 89°19'28", in SW 1/4SW 1/4 sec.4, T.8 N., R.10 E., Dane County, Hydrologic Unit 07090001, at culvert on U.S. Highway 51, 8 mi northeast of State Capitol in Madison. Drainage area is 24.3 mi <sup>2</sup> .	1961-65 1966# 1967-75 1976-81# 1982-91	03-02-91	13.25	370	03-12-76	14.16	576
05430403 Fisher Creek Tributary at Janesville, WI	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 High- way D, at Janesville. Drainage area is 1.42 mi <sup>2</sup> .	1982-91	08-08-91	6.61	365	06-29-90	7.62	830

Station number and name	Location and drainage area	Period of record	MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS				Period of record		
			Water year	1991	maximum		Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
							Date	Gage height (ft)	Dis- charge (ft <sup>3</sup> /s)
ROCK RIVER BASIN--CONTINUED									
*05431400 Little Turtle Creek at Allens Grove, WI	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 is 42.4 mi <sup>2</sup> .	1962-91	1991	B	<280		04-21-73	18.28	8,400
*05432300 Rock Branch near Mineral Point, WI	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 is 4.83 mi <sup>2</sup> .	1959-91	04-13-91	11.31	151		01-24-67	16.19	1,180
*05433500 Yellowstone River near Blanchard- ville, WI	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 High- way F, 7.0 mi west-southwest of Blanchardville. Drainage area is 28.5 mi <sup>2</sup> .	1954-65# 1966-91	04-13-91	7.62	800		03-29-60	10.47	4,500
05435900 Sugar River Tributary near Pine Bluff, WI	Lat 43°02'48", long 89°38'42", in SE 1/4 sec.27, T.7 N., R.7 E., Dane County, Hydrologic Unit 07090004, at culvert on County Trunk Highway J, 1.1 mi southeast of Pine Bluff. Drainage area is 7.42 mi <sup>2</sup> .	1961-91	03-02-91	12.67	160		01-24-67	15.02	460
*05436200 Gill Creek near Brooklyn, WI	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 is 3.33 mi <sup>2</sup> .	1961-91	09-12-91	12.63	75		03-31-65	15.06	370
*05437200 East Fork Raccoon Creek Tributary near Beloit, WI	Lat 42°30'44", long 89°06'40", on common boundary of secs.30 and 31, T.1 N., R.12 E., Rock County, Hydrologic Unit 07090003, at culvert on State Highway 81, 2.9 mi west of Beloit. Drainage area is 4.64 mi <sup>2</sup> .	1958-91	03-02-91	12.63	155		06-25-78	15.35	690
ILLINOIS RIVER BASIN									
05545100 Sugar Creek at Elkhorn, WI	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 is 6.63 mi <sup>2</sup> .	1962-91	04-14-91	11.51	75		04-21-73	17.47	900
05545200 White River Tributary near Burlington, WI	Lat 42°41'03", long 88°21'37", on common boundary 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 is 2.42 mi <sup>2</sup> .	1958-91	03-27-91	11.02	58		04-21-73	14.10	290
*05548150 North Branch Nippersink Creek Tributary near Genoa City, WI	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, Hydro- logic Unit 07120006, at bridge on County Trunk Highway B, 3.0 mi west of Genoa City. Drainage area is 13.6 mi <sup>2</sup> .	1962-91	03-27-91	11.46	180		09-25-86	13.63	475

\* ALSO A LOW-FLOW PARTIAL-RECORD STATION.

# OPERATED AS A CONTINUOUS-RECORD STATION.

B PEAK DID NOT REACH BOTTOM OF GAGE.

C BACKWATER FROM DEBRIS.

D BACKWATER FROM BEAVER DAM.

E REVISED.

F ESTIMATED.

G BACKWATER FROM ICE.

H PEAK UNKNOWN - PREVIOUSLY PUBLISHED PEAK IN ERROR.

I ANNUAL MAXIMUM STAGE ALSO OCCURRED AT DIFFERENT DATE FROM DISCHARGE PEAK.

## MEASUREMENTS AT MISCELLANEOUS SITES

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

## DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1991

Stream	Tributary to	Location	Drainage Area (mi <sup>2</sup> )	Measured Previously (Water Years)	Date	Measurements Discharge (ft <sup>3</sup> /s)
STREAMS TRIBUTARY TO LAKE MICHIGAN						
Brule River	Menominee River	Lat 45°56'51", long 88°13'04", in NW 1/4 SW 1/4 sec.17, T.41 N., R.31 W., Michigan Meridian, Iron County, Hydrologic Unit 04030106, 150 ft downstream from Brule Dam, 2.3 mi northeast of Florence.	1,020	1945-46 1953 1989	10-02-90 12-18-90 12-18-90	77.4 131 123
Menominee River	Lake Michigan	Lat 45°45'53", long 87°58'00", in NE 1/4 sec.23, T.39 N., R.30 W., Dickinson County, Hydrologic Unit 04030108, at intake at Champion International Corp. Quinnesec Pulp-mill, 2.0 mi southeast of Niagara.	2,470	1987-89	07-15-91 08-16-91 08-21-91 09-24-91	1,740 927 1,260 1,220
Portage Canal	Fox River	Lat 43°32'19", long 89°27'32", in NE 1/4 NW 1/4 sec.8, T.12 N., R.9 E., Columbia County, Hydrologic Unit 04030201, at bridge on U.S. Highway 51, at Portage.	0.05	1965-66 1969-71 1974 1983	05-30-91	48.3
Red River	Wolf River	Lat 44°55'15", long 88°53'39", in NE 1/4 SW 1/4 sec.11, T.28 N., R.13 E., Shawano County, Hydrologic Unit 04030202, at River Road near Neopit.	--	--	08-14-91	57.4
West Branch Red	Red River	Lat 44°54'28", long 88°54'56", in SE 1/4 SW 1/4 NW 1/4 sec.15, T.28 N., R.13 E., Shawano County, Hydrologic Unit 04030202, downstream of sewage detention pond, 4.5 mi northeast of Bowler.	--	1987	08-13-91	33.5
Smith Creek	Red River	Lat 44°52'32", long 88°50'45", in SW 1/4 NW 1/4 SE 1/4 sec.30, T.28 N., R.14 E., Shawano County, Hydrologic Unit 04030202, 3.5 mi northwest of Gresham, 0.4 mi upstream from mouth at Red River.	--	1987	08-13-91	0.94
Miller Creek	Red River	Lat 44°52'27", long 88°47'04", in SW 1/4 NW 1/4 NE 1/4 sec.27, T.28 N., R.14 E., Shawano County, Hydrologic Unit 04030202, at Highway G 1.5 mi north of Gresham.	--	1987-88	08-14-91	6.0
CHIPPEWA RIVER BASIN						
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 0705002, at County Trunk Highway N, near Boulder Junction.	--	--	09-05-91	1.22
WAUMANDEE CREEK BASIN						
Eagle Creek	Waumandee Creek	Lat 44°14'01", long 91°40'52", in NW 1/4 SE 1/4 sec.3, T.20 N., R.6 W., Buffalo County, Hydrologic Unit 07040003, at Schaffner Valley Road, about 7.2 mi northeast of Fountain City.	4.52	--	06-25-91	1.71
WISCONSIN RIVER BASIN						
Wisconsin River	Mississippi River	Lat 45°17'41", long 89°47'34", in SW 1/4 SW 1/4 sec.31, T.33 N., R.6 E., Lincoln County, Hydrologic Unit 0707001, 0.5 mi downstream from powerplant at Grandfather Dam, 9.5 mi northwest of Merrill.	2,280	1989-90	07-17-91 08-01-91 08-14-91 09-06-91 09-17-91 09-27-91	2,770 1,030 1,000 1,100 1,080 1,070
Yellow River	Wisconsin River	Lat 44°12'50", long 90°07'12", in SW 1/4 SE 1/4 sec.10, T.20 N., R.3 E., Juneau County, Hydrologic Unit 0707003, at bridge on County Trunk F, 0.8 mi east of Finley.	379	1990	10-04-91	53.3

## DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1991

Stream	Tributary to	Location	Drainage Area (mi <sup>2</sup> )	Measured Previously (Water Years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
ROCK RIVER BASIN						
Mauneshia 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 0709002, at country road, 4.7 mi northeast of Sun Prairie.	37.1	1967 1990	10-28-90	4.0
					12-08-90	6.1
Koshkonong Creek	Rock River	Lat 42°58'20", long 89°01'56", in SW 1/4 NW 1/4 sec.24, T.6 N., R.12 E., Dane County, Hydrologic Unit 0709001, at sewage treatment plant in Rockdale just downstream from dam on Rockdale Mill pond.	146	1973-75 1990	10-28-90	24
					12-08-90	30
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 0709001, on right bank at bridge on town road, 1.5 mi southeast of Waunakee.	41.1	1976-81#	04-28-91	8.7
					06-28-91	4.2
					08-02-91	2.1
					09-01-91	1.4
Sugar River	Pecatonica River	Lat 42°57'31", long 89°33'32", in NW 1/4 NW 1/4 sec.33, T.6 N., R.8 E., Dane County, Hydrologic Unit 0709004, at Riverside Road, 2.5 mi southwest of Verona.	80	1990	10-21-90	17
					12-02-90	17
W Br Sugar River	Sugar River	Lat 42°54'47", long 89°37'19", in NE 1/4 NE 1/4 sec.14, T.5 N., R.7 E., Dane County, Hydrologic Unit 07090004, at State Highway 92, 2.9 mi southeast of Mt. Vernon.	32.7	1959	10-21-90	13
				1969	12-02-90	12
				1979-80# 1990		

# OPERATED AS A CONTINUOUS-RECORD STATION.



Water-quality partial-record stations are particular sites where chemical-quality, biological, physical, and/or sediment data are collected systematically over a period of years for use in hydrologic analyses.

## MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
STREAMS TRIBUTARY TO LAKE SUPERIOR									
04024430 NEMADJI RIVER NEAR SOUTH SUPERIOR, WI (LAT 46 38 00N LONG 092 05 38W)									
OCT 1990					APR 1991				
15...	1330	164	220	9.0	17...	1550	951	140	6.0
NOV					JUN				
28...	1330	140	255	0.0	05...	0945	568	160	16.0
JAN 1991					SEP				
10...	1100	53	353	0.0	09...	1815	2480	120	15.5
FEB					10...	1200	3370	120	15.0
19...	1410	59	370	0.0					
04025500 BOIS BRULE RIVER AT BRULE, WI (LAT 46 32 16N LONG 091 35 43W)									
OCT 1990					APR				
15...	1540	149	130	9.0	17...	1130	258	128	6.0
NOV					JUN				
28...	1530	147	131	1.0	04...	1830	247	100	19.0
JAN 1991					JUL				
09...	1450	125	140	0.0	31...	0930	256	105	17.0
FEB					AUG				
19...	1150	119	150	1.0	22...	1115	124	130	16.0
04027500 WHITE RIVER NEAR ASHLAND, WI (LAT 46 29 50N LONG 090 54 15W)									
OCT 1990					APR 1991				
16...	1215	185	180	9.0	16...	1330	658	115	3.0
NOV					JUN				
29...	0935	179	194	0.5	04...	1300	336	150	18.5
JAN 1991					JUL				
09...	0900	58	220	0.5	30...	1300	384	122	17.0
FEB					AUG				
18...	1630	173	320	0.0	22...	0920	170	185	19.5
STREAMS TRIBUTARY TO LAKE MICHIGAN									
04066003 MENOMINEE RIVER BELOW PEMENE CRK NR PEMBINE, WI (LAT 45 34 46N LONG 087 47 13W)									
OCT 1990					APR 1991				
05...	1200	1260	250	13.5	18...	1115	6210	145	6.5
NOV					JUN				
28...	0850	1720	275	2.5	19...	1445	2550	245	25.0
04069500 PESHTIGO RIVER AT PESHTIGO, WI (LAT 45 02 49N LONG 087 44 40W)									
OCT 1990					MAR 1991				
03...	1120	564	285	14.5	27...	0934	2920	257	5.0
NOV					JUL				
29...	0941	763	302	2.5	24...	1540	275	232	26.5
JAN 1991					SEP				
18...	1320	447	328	1.0	13...	0906	267	270	20.5
FEB									
19...	1450	256	593	1.5					
04071000 OCONTO RIVER NEAR GILLET, WI (LAT 44 51 53N LONG 088 18 00W)									
OCT 1990					MAR 1991				
02...	1336	475	270	13.5	28...	1600	1710	170	6.0
NOV					MAY				
28...	1220	499	293	3.0	20...	1324	688	216	18.5
JAN 1991					JUL				
09...	1000	292	240	0.0	26...	1319	342	272	23.0
FEB					SEP				
22...	1010	337	290	0.0	12...	0930	337	291	18.0

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED									
04071858 PENSANKEE RIVER NEAR PENSANKEE, WI (LAT 44 49 08N LONG 087 57 12W)									
OCT 1990					MAR 1991				
02...	1550	27	550	12.0	28...	1200	469	492	7.0
NOV					MAY				
28...	0807	47	650	5.5	21...	0937	49	555	18.0
JAN 1991					JUL				
18...	1100	17	738	1.0	26...	1015	7.9	459	20.0
FEB					SEP				
19...	0941	15	837	1.0	10...	1623	6.7	538	24.5
04073500 FOX RIVER AT BERLIN, WI (LAT 43 57 14N LONG 088 57 08W)									
OCT 1990					FEB 1991				
16...	1245	1060	370	--	20...	1100	787	460	0.0
NOV 1990					JUN				
29...	1040	1090	395	2.5	12...	1130	796	370	24.5
JAN 1991					AUG				
11...	1250	688	480	0.0	05...	1630	860	335	23.5
04077400 WOLF RIVER NEAR SHAWANO, WI (LAT 44 50 09N LONG 088 37 30W)									
OCT 1990					MAR				
02...	1105	800	230	11.5	05...	0830	--	280	0.5
24...	1530	772	204	8.5	MAY				
NOV					09...	1600	1200	184	11.0
27...	1408	613	265	1.5	JUN				
DEC					19...	1130	869	198	26.0
11...	1545	--	258	2.0	JUL				
JAN 1991					11...	1141	725	235	24.0
08...	1640	493	277	0.0	14...	1700	695	243	23.0
23...	1645	--	276	0.0	30...	1700	778	251	19.5
FEB					SEP				
18...	1500	473	314	1.5	12...	1252	597	272	18.5
					19...	1038	705	245	13.5
04079000 WOLF RIVER AT NEW LONDON, WI (LAT 44 23 32N LONG 088 44 25W)									
OCT 1990					APR 1991				
01...	1200	1630	300	15.5	15...	1940	4940	300	7.5
NOV					JUN				
27...	0950	1230	443	4.5	11...	1540	3440	335	23.5
JAN 1991					AUG				
09...	1530	870	270	0.0	06...	1040	1680	294	21.5
FEB									
20...	1520	845	405	0.0					
04085200 KEWAUNEE RIVER NEAR KEWAUNEE, WI (LAT 44 27 30N LONG 087 33 23W)									
OCT 1990					MAR 1991				
30...	0730	50	--	6.5	25...	1557	317	552	6.0
DEC					28...	0837	640	599	6.5
13...	1015	183	755	1.5	MAY				
JAN 1991					29...	0945	141	669	20.0
10...	1155	31	480	0.0	JUL				
FEB					25...	0927	25	680	19.5
21...	0915	41	744	1.0	SEP				
					11...	0840	13	655	19.0
04085281 EAST TWIN RIVER AT MISHICOT, WI (LAT 44 14 16N LONG 087 38 11W)									
DEC 1990					JUN 1991				
13...	1315	144	590	1.0	03...	1238	45	599	21.0
JAN 1991					JUL				
17...	1350	33	666	0.5	25...	1115	18	600	22.5
FEB					SEP				
21...	1130	32	719	1.5	11...	1120	9.0	648	21.0
MAR									
26...	1017	303	460	5.0					
04086000 SHEBOYGAN RIVER AT SHEBOYGAN, WI (LAT 43 44 25N LONG 087 45 35W)									
OCT 1990					JUN 1991				
29...	1320	184	665	8.0	26...	1400	161	530	25.5
FEB 1991					AUG				
20...	1425	189	705	0.5	27...	1510	46	550	27.0
MAY									
15...	1410	235	550	25.5					

## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	MEDIUM	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	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)
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## STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04077590 RED RIVER NEAR NEOPIT, WI (LAT 44 56 35N LONG 088 55 42W)

AUG 1991										
12...	1430	SEDIMENT	--	--	--	--	--	--	--	--
12...	1430	WATER	--	395	7.8	21.5	200	41	24	3.6

040775902 RED RIVER AT RIVER ROAD NEAR NEOPIT, WI (LAT 44 55 15N LONG 088 53 39W)

AUG 1991										
14...	0930	SEDIMENT	57	--	--	--	--	--	--	--
14...	0930	WATER	57	375	8.1	19.0	200	41	24	2.5

04077622 WEST BRANCH RED RIVER ABOVE SDP NEAR BOWLER, WI (LAT 44 54 36N LONG 088 55 15W)

AUG 1991										
13...	0930	SEDIMENT	--	--	--	--	--	--	--	--
13...	0930	WATER	--	410	7.9	19.0	220	48	25	3.0

04077623 WEST BRANCH RED RIVER BELOW SDP NEAR BOWLER, WI (LAT 44 54 28N LONG 088 54 56W)

AUG 1991										
13...	1100	SEDIMENT	34	--	--	--	--	--	--	--
13...	1100	WATER	34	385	8.3	19.0	220	48	25	3.0

04077650 RED RIVER NEAR MORGAN, WI (LAT 44 53 49N LONG 088 50 36W)

AUG 1991										
13...	1430	SEDIMENT	--	--	--	--	--	--	--	--
13...	1430	WATER	--	360	7.9	22.0	210	43	24	2.6

04077654 SMITH CR BLW TRIB DS SCHMIDT LANE NR GRESHAM, WI (LAT 44 52 32N LONG 088 50 45W)

AUG 1991										
13...	1630	SEDIMENT	0.94	--	--	--	--	--	--	--
13...	1630	WATER	0.94	235	7.3	19.5	130	29	14	1.6

04077672 MILLER CREEK AT COUNTY HWY G NEAR GRESHAM, WI (LAT 44 52 27N LONG 088 47 04W)

AUG 1991										
14...	1100	SEDIMENT	6.0	--	--	--	--	--	--	--
14...	1100	WATER	6.0	280	7.9	21.0	150	34	16	2.0

## MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	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, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED										
04077590 RED RIVER NEAR NEOPIT, WI (LAT 44 56 35N LONG 088 55 42W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	4	0.1	2.2	183	8.2	7.4	0.20	8.8	207	<0.010
040775902 RED RIVER AT RIVER ROAD NEAR NEOPIT, WI (LAT 44 55 15N LONG 088 53 39W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	3	0.1	1.0	184	8.7	7.7	0.20	7.8	205	<0.010
04077622 WEST BRANCH RED RIVER ABOVE SDP NEAR BOWLER, WI (LAT 44 54 36N LONG 088 55 15W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	3	0.1	1.3	202	9.6	8.6	0.20	11	231	<0.010
04077623 WEST BRANCH RED RIVER BELOW SDP NEAR BOWLER, WI (LAT 44 54 28N LONG 088 54 56W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	3	0.1	1.3	201	9.6	8.7	0.20	11	231	<0.010
04077650 RED RIVER NEAR MORGAN, WI (LAT 44 53 49N LONG 088 50 36W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	3	0.1	1.0	187	8.5	7.5	0.20	8.3	209	<0.010
04077654 SMITH CR BLW TRIB DS SCHMIDT LANE NR GRESHAM, WI (LAT 44 52 32N LONG 088 50 45W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--
13...	3	0.1	0.90	117	5.9	3.4	0.30	12	138	0.010
04077672 MILLER CREEK AT COUNTY HWY G NEAR GRESHAM, WI (LAT 44 52 27N LONG 088 47 04W)										
AUG 1991	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	3	0.1	0.90	143	4.7	4.9	0.30	8.6	158	0.010

## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
------	--	---	--	---	--	--	---	--	--	---

## STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04077590 RED RIVER NEAR NEOPIT, WI (LAT 44 56 35N LONG 088 55 42W)										
AUG 1991	12...	--	--	--	--	--	--	--	--	--
12...	<0.010	0.400	0.410	<0.010	0.010	0.01	0.30	0.70	3.1	0.030
040775902 RED RIVER AT RIVER ROAD NEAR NEOPIT, WI (LAT 44 55 15N LONG 088 53 39W)										
AUG 1991	14...	--	--	--	--	--	--	--	--	--
14...	<0.010	0.320	0.320	0.020	0.020	0.03	0.40	0.72	3.2	0.030
04077622 WEST BRANCH RED RIVER ABOVE SDP NEAR BOWLER, WI (LAT 44 54 36N LONG 088 55 15W)										
AUG 1991	13...	--	--	--	--	--	--	--	--	--
13...	<0.010	0.740	0.750	0.010	0.020	0.03	0.30	1.0	4.6	0.030
04077623 WEST BRANCH RED RIVER BELOW SDP NEAR BOWLER, WI (LAT 44 54 28N LONG 088 54 56W)										
AUG 1991	13...	--	--	--	--	--	--	--	--	--
13...	<0.010	0.790	0.760	0.020	0.020	0.03	0.40	1.2	5.3	0.030
04077650 RED RIVER NEAR MORGAN, WI (LAT 44 53 49N LONG 088 50 36W)										
AUG 1991	13...	--	--	--	--	--	--	--	--	--
13...	<0.010	0.390	0.380	0.010	0.010	0.01	0.20	0.59	2.6	0.030
04077654 SMITH CR BLW TRIB DS SCHMIDT LANE NR GRESHAM, WI (LAT 44 52 32N LONG 088 50 45W)										
AUG 1991	13...	--	--	--	--	--	--	--	--	--
13...	<0.010	0.130	0.120	0.060	0.050	0.06	0.60	0.73	3.2	0.020
04077672 MILLER CREEK AT COUNTY HWY G NEAR GRESHAM, WI (LAT 44 52 27N LONG 088 47 04W)										
AUG 1991	14...	--	--	--	--	--	--	--	--	--
14...	<0.010	0.310	0.290	0.030	0.020	0.03	0.70	1.0	4.5	0.030

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39519)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39333)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39351)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39363)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39368)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39373)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39383)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED										
04077590 RED RIVER NEAR NEOPIT, WI (LAT 44 56 35N LONG 088 55 42W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	1.4	2.2	0.2	0.1
12...	--	--	--	--	--	--	--	--	--	--
12...	0.090	<0.010	0.080	--	--	--	--	--	--	--
040775902 RED RIVER AT RIVER ROAD NEAR NEOPIT, WI (LAT 44 55 15N LONG 088 53 39W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	0.2	0.3	0.1	0.1
14...	--	--	--	--	--	--	--	--	--	--
14...	0.010	<0.010	0.020	--	--	--	--	--	--	--
04077622 WEST BRANCH RED RIVER ABOVE SDF NEAR BOWLER, WI (LAT 44 54 36N LONG 088 55 15W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	0.5	0.8	<0.1	0.1
13...	--	--	--	--	--	--	--	--	--	--
13...	0.030	0.010	0.030	--	--	--	--	--	--	--
04077623 WEST BRANCH RED RIVER BELOW SDF NEAR BOWLER, WI (LAT 44 54 28N LONG 088 54 56W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1
13...	--	--	--	--	--	--	--	--	--	--
13...	0.030	0.010	0.020	--	--	--	--	--	--	--
04077650 RED RIVER NEAR MORGAN, WI (LAT 44 53 49N LONG 088 50 36W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	0.2	0.3	<0.1	<0.1
13...	--	--	--	--	--	--	--	--	--	--
13...	0.020	0.020	0.010	--	--	--	--	--	--	--
04077654 SMITH CR BLW TRIB DS SCHMIDT LANE NR GRESHAM, WI (LAT 44 52 32N LONG 088 50 45W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1
13...	--	--	--	--	--	--	--	--	--	--
13...	0.020	0.020	<0.010	--	--	--	--	--	--	--
04077672 MILLER CREEK AT COUNTY HWY G NEAR GRESHAM, WI (LAT 44 52 27N LONG 088 47 04W)										
AUG 1991	--	--	--	<1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1
14...	--	--	--	--	--	--	--	--	--	--
14...	0.010	<0.010	<0.010	--	--	--	--	--	--	--

	ENDO-SULFAN,	ENDRIN,	HEPTA-CHLOR,	HEPTA-CHLOR	LINDANE	METH-OXY-	MIREX,	PCN,	PER-	TOXA-PHENE,
	TOTAL	TOTAL	TOTAL	EPOXIIDE	TOTAL	CHLOR,	TOTAL	TOTAL	THANE	TOTAL
	IN BOT-TOM MAT-	IN BOT-TOM MA-	IN BOT-TOM MA-	TOT. IN BOTTOM	IN BOT-TOM MA-	TOT. IN BOTTOM	IN BOT-TOM MA-	IN BOT-TOM MA-	IN BOT-TOM MA-	IN BOT-TOM MA-
DATE	TIERIAL	TIERIAL	TIERIAL	MATL.	TIERIAL	MATL.	TIERIAL	TIERIAL	TIERIAL	TIERIAL
	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)
	(39389)	(39393)	(39413)	(39423)	(39343)	(39481)	(39758)	(39251)	(81886)	(39403)

	04077590	RED RIVER NEAR NEOPIT, WI (LAT 44 56 35N LONG 088 55 42W)								
AUG 1991 12... 12...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<0.1 --	<1.0 --	<1.00 --	<10 --
	040775902	RED RIVER AT RIVER ROAD NEAR NEOPIT, WI (LAT 44 55 15N LONG 088 53 39W)								
AUG 1991 14... 14...	<0.1 --	<1.0 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<1.0 --	<1.0 --	<1.00 --	<10 --
	04077622	WEST BRANCH RED RIVER ABOVE SDP NEAR BOWLER, WI (LAT 44 54 36N LONG 088 55 15W)								
AUG 1991 13... 13...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<0.1 --	<1.0 --	<1.00 --	<10 --
	04077623	WEST BRANCH RED RIVER BELOW SDP NEAR BOWLER, WI (LAT 44 54 28N LONG 088 54 56W)								
AUG 1991 13... 13...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<1.00 --	<10 --
	04077650	RED RIVER NEAR MORGAN, WI (LAT 44 53 49N LONG 088 50 36W)								
AUG 1991 13... 13...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<1.0 --	<1.0 --	<1.00 --	<10 --
	04077654	SMITH CR BLW TRIB DS SCHMIDT LANE NR GRESHAM, WI (LAT 44 52 32N LONG 088 50 45W)								
AUG 1991 13... 13...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<1.00 --	<10 --
	04077672	MILLER CREEK AT COUNTY HWY G NEAR GRESHAM, WI (LAT 44 52 27N LONG 088 47 04W)								
AUG 1991 14... 14...	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<0.1 --	<1.0 --	<1.00 --	<10 --

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED									
04086600 MILWAUKEE RIVER NEAR CEDARBURG, WI (LAT 43 16 49N LONG 087 56 34W)									
MAY 1991					AUG 1991				
16...	1115	291	690	24.0	28...	1110	100	715	25.5
JUN 27...	1150	252	595	27.0					
04087030 MENOMONEE RIVER AT MENOMONEE FALLS, WI (LAT 43 10 22N LONG 088 06 14W)									
FEB 1991					MAY 1991				
21...	1355	30	870	0.5	16...	1310	12	850	21.0
MAR 25...	1530	53	--	6.5	AUG 28...	1315	3.1	715	27.0
04087088 UNDERWOOD CREEK AT WAUWATOSA, WI (LAT 43 03 17N LONG 088 02 46W)									
OCT 1990					JUL 1991				
25...	1310	4.3	1030	13.5	24...	1220	4.8	1150	29.5
APR 1991									
08...	1215	12	1760	14.5					
04087159 KINNICKINNIC R AT S. 11TH ST AT MILWAUKEE, WI (LAT 42 59 51N LONG 087 55 35W)									
OCT 1990					APR 1991				
25...	1535	6.7	920	12.5	08...	1615	51	870	13.5
DEC 05...	1625	20	5300	5.5	JUL 24...	1900	8.0	752	26.5
04087204 OAK CREEK AT SOUTH MILWAUKEE, WI (LAT 42 55 30N LONG 087 52 12W)									
OCT 1990					JUN 1991				
26...	1455	4.7	1230	10.0	25...	1430	3.3	1100	24.0
DEC 06...	1610	34	1760	2.5	JUL 25...	1450	4.2	1120	22.0
JAN 1991					AUG 12...	1128	4.2	1100	20.5
16...	1540	18	5500	2.0	SEP 19...	1605	4.1	1100	14.5
FEB 28...	1530	7.7	1530	4.0					
MAY 24...	1514	13	914	25.0					
04087220 ROOT RIVER NEAR FRANKLIN, WI (LAT 42 52 25N LONG 087 59 45W)									
OCT 1990					MAY 1991				
26...	1245	9.5	1020	7.5	24...	1100	79	712	21.5
DEC 06...	1308	37	1520	1.5	JUN 25...	1220	4.7	936	22.0
JAN 1991					JUL 25...	1147	6.1	838	21.5
16...	1312	18	1800	0.5	AUG 12...	0012	11	842	19.5
FEB 28...	1253	17	1110	1.5	SEP 19...	1224	17	882	14.0
APR 09...	1115	291	740	9.0					
04087233 ROOT RIVER CANAL NEAR FRANKLIN, WI (LAT 42 48 55N LONG 087 59 40W)									
OCT 1990					MAY 1991				
26...	0925	17	790	7.0	24...	1435	17	883	22.5
DEC 06...	1000	61	790	2.0	JUN 25...	0940	4.9	945	21.0
JAN 1991					JUL 25...	0900	1.8	992	22.0
16...	0930	19	1000	1.0	AUG 12...	0743	1.7	889	19.0
FEB 28...	0900	18	840	0.5	SEP 19...	0940	7.4	985	13.0
APR 09...	0800	182	880	9.0					
04087240 ROOT RIVER AT RACINE, WI (LAT 42 45 05N LONG 087 49 25W)									
NOV 1990					MAY 1991				
30...	0850	764	558	3.5	08...	0840	140	740	11.0
JAN 1991					JUN 04...	0810	80	880	18.5
16...	0830	57	1380	0.5	JUL 24...	0715	25	734	25.5
FEB 27...	1528	82	798	1.0	SEP 18...	0740	73	674	19.5
APR 02...	1040	419	698	6.5					
10...	0730	687	578	8.0					



## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
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## STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04087257 PIKE RIVER NEAR RACINE, WI (LAT 42 38 49N LONG 087 51 38W)

OCT 1990					MAY 1991				
23...	1603	20	788	11.0	08...	1110	31	750	11.0
NOV					JUN				
29...	1415	56	848	5.5	03...	1624	54	760	20.0
JAN 1991					JUL				
15...	1611	13	948	2.0	23...	1530	8.7	404	25.5
FEB					AUG				
27...	1320	17	718	2.0	15...	1152	11	425	24.0
MAR					SEP				
29...	1135	176	457	4.5	17...	1435	11	570	18.5
APR									
09...	1618	95	676	9.5					

## ST. CROIX RIVER BASIN

05333500 ST. CROIX RIVER NEAR DANBURY, WI (LAT 46 04 28N LONG 092 14 50W)

OCT 1990					APR 1991				
10...	1305	1070	128	9.5	18...	1030	2180	130	7.0
NOV					JUN				
28...	1215	1030	146	0.5	05...	1200	1900	70	19.0
JAN 1991					AUG				
11...	1200	644	190	0.0	07...	1130	1330	110	21.0
FEB					SEP				
20...	1150	767	148	0.0	10...	1500	3360	126	18.5
MAR									
19...	1215	1000	148	1.0					

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI (LAT 45 24 25N LONG 092 38 49W)

OCT 1990					APR 1991				
03...	1035	5570	--	13.5	26...	0815	7410	130	12.5
DEC					JUN				
04...	0930	950	230	0.5	24...	1215	11600	113	19.5
JAN 1991					JUL				
11...	1403	912	190	0.0	25...	1700	5570	140	24.0
FEB					AUG				
06...	1340	887	212	1.0	29...	1525	4020	200	26.0
MAR									
20...	0920	5780	180	0.0					

## CHIPPEWA RIVER BASIN

05356000 CHIPPEWA RIVER AT BISHOPS BRIDGE NEAR WINTER, WI (LAT 45 50 57N LONG 091 04 44W)

OCT 1990					APR 1991				
17...	1230	1290	80	9.5	15...	1130	2220	56	4.0
NOV					MAY				
29...	1500	528	90	2.0	30...	1130	1160	70	18.5
JAN 1991					AUG				
08...	1000	540	100	1.0	08...	1115	1080	70	21.0
FEB									
18...	1040	510	90	2.0					

454657091300600 BIG SISSABAGAMA TRIBUTARY NEAR STONE LAKE, WI (LAT 45 46 57N LONG 091 30 06W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1991						
23...	1140	E3.0	7.4	6.0	8.8	--
JUN						
10...	1245	0.0	8.2	23.0	9.3	<0.020
JUL						
15...	1200	E3.0	8.4	25.0	8.8	0.020
AUG						
20...	1145	0.0	9.0	23.5	8.6	0.050

E ESTIMATED.

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
CHIPPEWA RIVR BASIN--CONTINUED									
05356500 CHIPPEWA RIVER NEAR BRUCE, WI (LAT 45 27 08N LONG 091 15 39W)									
OCT 1990					APR 1991				
19...	0950	4140	72	5.0	25...	1350	2190	73	11.5
DEC					MAY				
10...	1945	840	120	0.5	24...	0955	1680	105	19.5
JAN 1991					JUL				
17...	1015	730	120	0.0	09...	1415	1500	73	21.5
FEB					AUG				
21...	1400	753	140	0.0	30...	1155	731	101	25.0
MAR									
18...	1010	960	140	1.0					
05360500 FLAMBEAU RIVER NEAR BRUCE, WI (LAT 45 22 21N LONG 091 12 34W)									
OCT 1990					APR 1991				
19...	1245	4920	80	5.5	25...	1400	3440	69	9.5
DEC					JUN				
10...	1030	894	110	0.5	27...	1605	1530	110	27.5
JAN 1991					JUL				
17...	1155	832	150	0.0	09...	1155	879	105	23.5
FEB					AUG				
21...	1040	650	170	0.0	30...	0910	723	113	23.0
MAR									
18...	1300	507	140	0.5					
05362000 JUMP RIVER AT SHELDON, WI (LAT 45 18 29N LONG 090 57 23W)									
OCT 1990					FEB 1991				
04...	1402	1200	86	12.0	28...	1115	81	222	0.0
NOV					APR				
07...	1430	304	108	4.5	03...	1335	1240	68	6.5
DEC					AUG				
18...	1330	140	150	0.0	02...	1100	273	105	21.0
JAN 1991									
17...	1400	91	215	0.0					
05365500 CHIPPEWA RIVER AT CHIPPEWA FALLS, WI (LAT 44 55 37N LONG 091 24 33W)									
OCT 1990					MAY 1991				
24...	1100	10400	112	9.0	23...	1100	9170	118	16.5
JAN 1991					JUL				
16...	0900	6580	150	0.5	24...	0730	354	150	22.0
APR					AUG				
30...	0900	967	158	9.5	28...	1208	2190	202	26.0
05365707 NORTH FORK EAU CLAIRE RIVER NEAR THORP, WI (LAT 44 58 25N LONG 090 50 57W)									
OCT 1990					MAR 1991				
04...	1220	73	207	12.0	21...	1028	560	164	0.5
NOV					APR				
07...	1155	8.9	191	2.5	03...	1040	48	166	0.5
DEC					MAY				
18...	1200	6.7	302	0.5	22...	1240	20	163	22.0
JAN 1991					JUL				
30...	1320	1.5	274	0.0	24...	1250	6.9	188	21.5
MAR					AUG				
11...	1340	6.9	277	0.5	23...	1315	1.8	220	21.0
05368000 HAY RIVER AT WHEELER, WI (LAT 45 02 52N LONG 091 54 39W)									
OCT 1990					MAR 1991				
04...	1450	415	345	13.5	19...	1350	440	382	3.0
DEC					21...	1412	1610	194	1.0
03...	1245	180	370	0.5	MAY				
11...	1435	195	402	2.0	02...	1200	585	246	8.0
JAN 1991					JUN				
16...	1130	190	400	0.0	03...	1245	1820	197	21.5
31...	1100	177	400	0.0	27...	1000	368	335	21.5
MAR					AUG				
14...	1600	190	383	4.5	29...	0940	214	383	20.0
05369000 RED CEDAR RIVER AT MENOMONIE, WI (LAT 44 53 02N LONG 091 55 57W)									
OCT 1990					APR 1991				
02...	1445	569	215	16.5	30...	1900	3680	192	12.0
23...	0930	2540	230	9.0	AUG				
DEC					27...	1500	1220	277	23.0
03...	1110	2170	278	1.0	28...	0825	614	222	23.0
JAN 1991									
15...	1445	1250	310	1.0					

## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
TREMPEALEAU RIVER BASIN									
05379500 TREMPEALEAU RIVER AT DODGE, WI (LAT 44 07 55N LONG 091 33 14W)									
OCT 1990					APR 1991				
03...	1035	292	310	15.0	09...	1045	628	265	11.0
NOV					MAY				
14...	1215	302	320	4.0	17...	1528	1060	260	17.0
JAN 1991					JUL				
09...	1055	240	356	0.0	02...	1410	374	292	25.5
FEB									
20...	1038	300	340	0.0					
BLACK RIVER BASIN									
05381000 BLACK RIVER AT NEILLSVILLE, WI (LAT 44 33 34N LONG 090 36 52W)									
OCT 1990					APR 1991				
02...	1415	200	138	14.0	17...	1800	1570	117	10.0
NOV					JUN				
28...	1255	290	--	1.0	14...	1145	249	130	24.5
JAN 1991					AUG				
15...	1455	70	228	0.0	08...	1310	311	127	19.5
FEB									
18...	1525	78	268	0.0					
WISCONSIN RIVER BASIN									
05391000 WISCONSIN R AT RAINBOW LK NEAR LAKE TOMAHAWK, WI (LAT 45 49 50N LONG 089 33 08W)									
OCT 1990					JUN				
03...	1545	523	85	13.5	18...	1230	613	80	23.0
JAN 1991					SEP				
09...	1645	728	93	0.5	18...	1025	613	84	13.0
APR									
16...	1310	288	83	4.5					
05393500 SPIRIT RIVER AT SPIRIT FALLS, WI (LAT 45 26 58N LONG 089 58 47W)									
OCT 1990					MAR 1991				
02...	1455	73	83	11.5	25...	1540	901	50	1.0
NOV					JUN				
14...	1320	41	86	2.5	13...	1200	42	79	21.5
JAN 1991					AUG				
09...	1305	16	115	0.0	06...	1315	53	90	18.5
FEB									
18...	1650	18	150	0.0					
05394500 PRAIRIE RIVER NEAR MERRILL, WI (LAT 45 14 09N LONG 089 38 59W)									
OCT 1990					MAR 1991				
02...	1030	145	155	9.5	25...	1200	658	72	2.5
NOV					APR				
14...	1140	123	145	2.5	22...	1535	259	105	11.5
JAN 1991					MAY				
16...	1535	91	185	0.0	22...	1530	171	122	21.0
FEB					AUG				
18...	1315	86	195	0.0	01...	1410	125	149	22.5
05395000 WISCONSIN RIVER AT MERRILL, WI (LAT 45 10 41N LONG 089 40 52W)									
MAR 1991					MAY 1991				
27...	1150	10600	50	0.5	23...	1120	2920	71	20.0
05397500 EAU CLAIRE RIVER AT KELLY, WI (LAT 44 55 06N LONG 089 33 00W)									
OCT 1990					MAR 1991				
01...	1255	181	208	13.5	26...	1300	2580	105	4.0
NOV					MAY				
15...	1510	149	270	2.5	24...	1510	250	83	23.0
JAN 1991					AUG				
07...	1300	106	260	0.0	01...	1620	141	248	24.5
FEB									
19...	1205	84	285	0.0					

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
WISCONSIN RIVER BASIN--CONTINUED									
05398000 WISCONSIN RIVER AT ROTHSCILD, WI (LAT 44 53 09N LONG 089 38 05W)									
APR 1991									
11...	1630	12800	75	6.0					
05399500 BIG EAU PLEINE RIVER NEAR STRATFORD, WI (LAT 44 49 19N LONG 090 04 46W)									
OCT 1990					MAR 1991				
01...	1605	22	215	15.5	22...	1515	2800	130	0.5
NOV					26...	1610	1300	145	7.0
15...	1210	23	275	4.0	JUN				
JAN 1991					07...	1250	88	178	20.5
08...	1435	13	320	0.0	AUG				
FEB					08...	1455	106	215	19.5
25...	1800	13	345	0.0					
05400760 WISCONSIN RIVER AT WISCONSIN RAPIDS, WI (LAT 44 23 41N LONG 089 49 31W)									
MAR 1991					JUL 1991				
26...	1600	27800	153	3.0	31...	1850	4250	204	24.0
05402000 YELLOW RIVER AT BABCOCK, WI (LAT 44 18 05N LONG 090 07 15W)									
OCT 1990					FEB 1991				
04...	1335	26	143	12.5	19...	1040	34	192	0.0
NOV					JUN				
29...	1620	71	173	0.5	13...	1050	40	125	20.0
JAN 1991					AUG				
16...	1140	24	168	0.0	07...	1505	28	143	19.5
05404000 WISCONSIN RIVER NEAR WISCONSIN DELLS, WI (LAT 43 36 22N LONG 089 45 25W)									
OCT 1990					MAY 1991				
29...	1335	7380	175	9.5	30...	1530	24800	160	21.5
APR 1991					JUL				
02...	1450	16400	195	4.0	25...	1330	4270	160	26.0
04...	1220	9860	150	8.5	SEP				
					17...	1415	6540	180	20.5
05404116 SOUTH BRANCH BARABOO RIVER AT HILLSBORO, WI (LAT 43 39 10N LONG 090 20 09W)									
OCT 1990					MAY 1991				
02...	1145	5.7	480	11.0	01...	1230	21	435	9.5
31...	1015	6.8	480	8.0	31...	1203	28	435	19.5
DEC					JUN				
06...	1125	10	490	0.0	27...	1040	9.5	520	22.0
28...	1140	9.4	580	0.0	JUL				
FEB 1991					31...	1015	9.4	475	20.5
04...	1300	11	580	3.0	AUG				
28...	1425	7.2	495	0.5	30...	1000	7.3	470	23.0
APR					SEP				
02...	1110	12	450	6.5	12...	1145	73	370	16.5
15...	1130	72	285	8.0					
05405000 BARABOO RIVER NEAR BARABOO, WI (LAT 43 28 51N LONG 089 38 09W)									
OCT 1990					APR 1991				
30...	1020	191	400	8.0	16...	1300	1860	250	8.0
DEC					22...	1100	651	320	10.5
06...	1420	202	435	0.5	JUN				
JAN 1991					05...	0945	307	350	20.0
09...	1450	203	420	0.5	JUL				
FEB					24...	1430	221	365	24.5
20...	1250	225	440	1.0	SEP				
APR					16...	1405	571	305	19.5
04...	1440	330	350	9.0					
05408000 KICKAPOO RIVER AT LA FARGE, WI (LAT 43 34 27N LONG 090 38 35W)									
OCT 1990					APR				
31...	1140	115	470	8.5	05...	1045	159	480	10.5
DEC					15...	1310	641	340	7.5
07...	1120	116	500	0.0	JUN				
JAN 1991					04...	1140	176	475	19.0
09...	1110	116	480	0.5	JUL				
FEB					24...	1110	121	445	20.5
20...	1015	133	450	0.0	SEP				
					18...	1200	153	455	13.5

## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
WISCONSIN RIVER BASIN--CONTINUED									
05410490 KICKAPOO RIVER AT STEUBEN, WI (LAT 43 10 58N LONG 090 51 30W)									
OCT 1990					APR 1991				
05...	0918	382	465	13.0	15...	1730	1180	520	8.0
NOV					MAY				
14...	0930	332	460	4.5	16...	0955	497	490	20.0
DEC					JUL				
26...	1030	336	530	0.0	08...	0920	324	515	21.5
FEB 1991					SEP				
04...	0956	276	470	0.0	04...	1420	286	488	22.0
MAR									
18...	1000	483	490	4.5					
PLATTE RIVER BASIN									
05414000 PLATTE RIVER NEAR ROCKVILLE, WI (LAT 42 43 52N LONG 090 38 25W)									
OCT 1990					MAY				
05...	1450	41	580	16.5	16...	1512	103	615	21.0
NOV					JUN				
14...	1515	36	570	7.0	15...	1830	856	363	21.5
DEC					JUL				
28...	1120	34	640	0.0	10...	0820	86	636	21.0
FEB 1991					SEP				
04...	1555	36	580	0.0	05...	1040	66	616	18.5
MAR									
18...	1630	163	590	6.5					
GALENA RIVER BASIN									
05415000 GALENA RIVER AT BUNCOMBE, WI (LAT 42 30 49N LONG 090 22 40W)									
OCT 1990					MAY 1991				
05...	1745	32	810	19.0	17...	1140	100	866	19.5
NOV					JUL				
15...	0935	26	860	8.0	10...	1205	64	858	25.0
DEC					AUG				
28...	1435	28	970	0.0	08...	1150	552	380	20.0
FEB 1991					SEP				
05...	0935	33	840	0.0	05...	1405	41	851	21.0
MAR									
19...	1300	220	580	7.0					
ROCK RIVER BASIN									
05423500 SOUTH BRANCH ROCK RIVER AT WAUPUN, WI (LAT 43 38 30N LONG 088 44 15W)									
NOV 1990					MAY 1991				
05...	1605	26	930	6.0	01...	1515	48	905	12.0
29...	1545	27	930	3.0	31...	1000	15	820	25.5
JAN 1991					JUN				
02...	0935	13	905	0.0	28...	0925	14	800	25.0
31...	1500	13	1050	0.0	JUL				
FEB					31...	1000	33	780	20.5
28...	1035	15	890	1.0	AUG				
MAR					21...	0920	8.9	920	20.0
28...	1634	117	595	6.5					
05425500 ROCK RIVER AT WATERTOWN, WI (LAT 43 11 17N LONG 088 43 34W)									
MAY 1991					AUG 1991				
13...	1110	577	630	21.5	29...	1425	69	620	27.5
05425912 BEAVERDAM RIVER AT BEAVER DAM, WI (LAT 43 26 57N LONG 088 50 21W)									
NOV 1990					MAY 1991				
05...	1002	143	520	7.0	01...	1005	96	470	13.0
30...	1140	97	560	2.5	JUN				
JAN 1991					28...	1325	15	460	27.5
02...	1206	26	410	1.5	JUL				
31...	1652	21	700	1.0	31...	0825	21	460	22.0
FEB					AUG				
28...	1200	32	730	4.0	21...	0830	14	515	21.0
MAR									
28...	1453	152	565	6.0					

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
ROCK RIVER BASIN--CONTINUED									
05426000 CRAWFISH RIVER AT MILFORD, WI (LAT 43 06 00N LONG 088 50 58W)									
OCT 1990					MAY 1991				
26...	1025	177	810	8.5	13...	1320	323	640	26.0
FEB 1991					JUL				
25...	1350	397	630	0.0	08...	1430	194	500	28.0
MAR					AUG				
22...	1350	1240	540	6.5	19...	1215	117	570	20.5
05426250 BARK RIVER NEAR ROME, WI (LAT 42 57 39N LONG 088 40 09W)									
OCT 1990					JUN 1991				
24...	1218	58	668	8.5	04...	1400	67	660	24.0
NOV					JUL				
30...	1405	76	713	3.0	24...	1312	34	657	26.0
JAN 1991					AUG				
16...	1330	64	818	0.5	16...	0758	31	790	24.5
FEB					SEP				
28...	1105	72	638	1.0	18...	1325	79	620	19.5
APR									
10...	1427	175	588	12.0					
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)	
05426484 WHITEWATER LAKE TRIBUTARY #1 NEAR WHITEWATER, WI (LAT 42 44 24 LONG 088 43 15 W)									
FEB 1991					MAR 1991				
09...	1400	--	1.00		01...	1500	--	0.970	
09...	1401	--	0.920		02...	1020	0.02	0.590	
21...	1420	1.5	0.710		22...	0002	--	0.840	
05426486 WHITEWATER LAKE TRIBUTARY #2 NEAR WHITEWATER, WI (LAT 42 44 07 LONG 088 43 14W)									
FEB 1991					MAR 1991				
09...	1440	--	0.310		01...	0001	--	0.810	
21...	0001	--	0.410		02...	0001	--	0.540	
21...	0002	--	0.370		02...	0002	--	0.870	
21...	0003	--	0.410		02...	0003	--	0.820	
21...	1420	0.01	0.390		02...	1040	0.02	0.600	
05426488 WHITEWATER LAKE TRIBUTARY #3 NEAR WHITEWATER, WI (LAT 42 44 36 LONG 088 42 25W)									
FEB 1991					MAR 1991				
09...	1415	--	0.550		02...	0003	--	0.650	
21...	1215	0.20	0.610		02...	1110	0.20	0.200	
MAR					22...	0001	--	0.660	
01...	1515	--	0.270		22...	0003	--	0.400	
05426490 WHITEWATER LAKE TRIBUTARY #4 NEAR WHITEWATER, WI (LAT 42 46 03 LONG 088 40 58W)									
FEB 1991					MAR 1991				
09...	1440	--	0.620		01...	1545	--	0.930	
21...	1305	0.30	0.690						
05426492 WHITEWATER LAKE TRIBUTARY #5 NEAR WHITEWATER, WI (LAT 44 45 54 LONG 088 41 14W)									
FEB 1991					MAR 1991				
09...	1420	--	0.730		22...	0001	--	0.500	
21...	1240	0.50	0.670		22...	0002	--	0.450	
MAR					22...	0003	--	0.680	
01...	1530	--	0.540		APR				
02...	1135	0.01	0.600		16...	0001	--	0.200	

## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)				PHOS-PHORUS TOTAL (MG/L AS P) (00665)		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)				PHOS-PHORUS TOTAL (MG/L AS P) (00665)	
DATE	TIME					DATE	TIME				
ROCK RIVER BASIN--CONTINUED											
05426496		WHITEWATER LAKE TRIBUTARY #6 NEAR WHITEWATER, WI				(LAT 45 45 30		LONG 088 42 28W)			
FEB 1991						MAR 1991					
09...	1331	--	0.720			01...	0001	--	0.680		
09...	1330	--	0.560			01...	0002	--	0.560		
21...	1410	0.20	0.660			02...	0001	--	0.500		
						02...	0003	--	0.460		
						22...	0001	--	0.840		
054264995		RICE LAKE TRIBUTARY #1 NEAR WHITEWATER, WI				(LAT 42 46 14		LONG 088 42 17W)			
FEB 1991						MAR 1991					
21...	1440	0.05	0.690			01...	1440	--	0.610		
						02...	1000	0.01	0.600		
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)		DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	
05427570		ROCK RIVER AT INDIANFORD, WI (LAT 42 48 15N LONG 089 05 25W)									
OCT 1990		JUN 1991									
29...	1032	979	628	7.5		06...	1300	773	650	22.5	
JAN 1991						JUL					
14...	1235	519	1080	1.0		03...	1010	1040	536	27.0	
FEB						25...	1100	726	569	25.5	
26...	1530	1210	778	3.0		AUG					
						22...	0812	210	668	22.5	
05429500		YAHARA RIVER NEAR MC FARLAND, WI (LAT 43 00 32N LONG 089 18 18W)									
OCT 1990		APR 1991									
02...	0825	26	476	12.5		08...	0750	268	513	11.5	
25...	1210	78	498	10.5		MAY					
NOV						02...	0855	330	508	12.0	
16...	1000	157	513	8.0		21...	1105	92	513	18.0	
DEC						JUN					
07...	1050	191	608	1.5		07...	1402	18	530	26.0	
20...	0850	144	568	2.0		JUL					
JAN 1991						01...	0947	42	519	25.5	
14...	1448	90	638	3.0		22...	1106	164	468	27.5	
FEB						AUG					
05...	1310	21	583	5.5		16...	0950	134	527	25.0	
25...	1350	40	558	5.5		30...	0753	28	454	26.0	
MAR						SEP					
19...	1022	116	472	8.0		16...	1235	67	460	22.5	
05430150		BADFISH CREEK NEAR COOKSVILLE, WI (LAT 42 50 00N LONG 089 11 48W)									
OCT 1990		MAY 1991									
25...	0840	71	1390	9.5		02...	1156	86	1340	13.5	
DEC						JUN					
07...	0845	73	1900	4.0		07...	0912	76	1410	18.0	
JAN 1991						JUL					
18...	1217	68	1660	3.5		22...	0845	87	1460	23.0	
FEB						AUG					
25...	1210	78	1190	4.0		16...	1313	72	1800	23.5	
APR						SEP					
08...	1135	91	1260	16.5		16...	0830	147	1080	21.0	
15...	0900	144	1060	9.5							
05430175		YAHARA RIVER NEAR FULTON, WI (LAT 42 49 50N LONG 089 10 09W)									
OCT 1990		APR 1991									
25...	1011	146	1190	9.5		11...	1545	678	776	9.0	
DEC						JUN					
06...	1450	416	1090	3.0		07...	1100	149	1310	20.5	
JAN 1991						JUL					
18...	1041	143	3000	2.5		25...	1605	140	1500	24.0	
FEB						SEP					
25...	1050	153	1150	3.0		16...	1005	199	1080	21.0	

## WATER-QUALITY PARTIAL-RECORD STATIONS

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
ROCK RIVER BASIN--CONTINUED									
05430500 ROCK RIVER AT AFTON, WI (LAT 42 36 33N LONG 089 04 14W)									
OCT 1990					APR 1991				
29...	1220	1290	688	9.0	11...	1013	4570	538	11.5
DEC					JUN				
06...	1145	1440	818	2.0	06...	1018	1150	760	21.5
JAN 1991					JUL				
25...	1005	1030	470	0.5	25...	1348	1060	668	25.0
FEB					SEP				
26...	1018	1500	788	2.0	10...	0945	388	730	22.5
05431486 TURTLE CREEK AT CARVERS ROCK ROAD NR CLINTON, WI (LAT 42 35 50N LONG 088 49 45W)									
OCT 1990					APR 1991				
23...	0830	57	803	6.0	09...	0905	178	721	13.0
NOV					JUN				
29...	0805	152	743	2.0	03...	0857	116	700	21.0
JAN 1991					JUL				
15...	1124	74	798	0.0	23...	0902	45	745	23.5
FEB					SEP				
27...	0830	89	648	0.5	17...	0912	59	760	16.0
05432500 PECATONICA RIVER AT DARLINGTON, WI (LAT 42 40 40N LONG 090 07 07W)									
OCT 1990					FEB 1991				
09...	0815	83	620	11.0	27...	1425	80	700	0.5
NOV					MAR				
15...	1245	76	700	7.5	19...	0955	498	560	5.0
DEC					MAY				
31...	1000	79	730	0.0	17...	0915	235	698	19.5
JAN 1991					JUL				
17...	1425	73	660	1.0	11...	0830	152	694	22.5
FEB					SEP				
05...	1304	73	680	1.0	09...	0950	111	684	21.0
05433000 EAST BR PECATONICA R NR BLANCHARDVILLE, WI (LAT 42 47 10N LONG 089 51 40W)									
OCT 1990					APR 1991				
09...	1040	84	550	9.5	15...	1045	580	550	9.5
NOV					MAY				
13...	1412	84	540	5.0	17...	1612	187	603	16.5
DEC					JUL				
31...	1408	73	580	0.0	11...	1150	117	596	22.5
FEB 1991					SEP				
05...	1620	83	550	0.0	09...	1225	93	585	21.5
MAR									
19...	1700	224	520	7.5					
05434500 PECATONICA RIVER AT MARTINTOWN, WI (LAT 42 30 34N LONG 089 47 58W)									
OCT 1990					MAR				
04...	1535	405	610	15.5	20...	1205	1560	710	7.0
NOV					MAY				
13...	1145	391	590	4.5	15...	1200	969	640	21.0
DEC					JUL				
27...	1410	300	710	0.0	12...	1330	509	653	24.5
FEB 1991					SEP				
06...	1328	320	610	0.0	06...	1245	394	630	20.5
05436500 SUGAR RIVER NEAR BRODHEAD, WI (LAT 42 36 42N LONG 089 23 53W)									
OCT 1990					APR 1991				
04...	1250	156	560	16.5	15...	1154	685	478	9.5
NOV					MAY				
13...	0755	192	550	4.0	15...	1424	318	604	24.0
DEC					JUL				
27...	1002	152	720	0.0	12...	1025	195	477	26.0
FEB 1991					SEP				
06...	0940	195	550	0.5	06...	0910	153	583	19.5
MAR									
20...	0835	436	740	6.5					

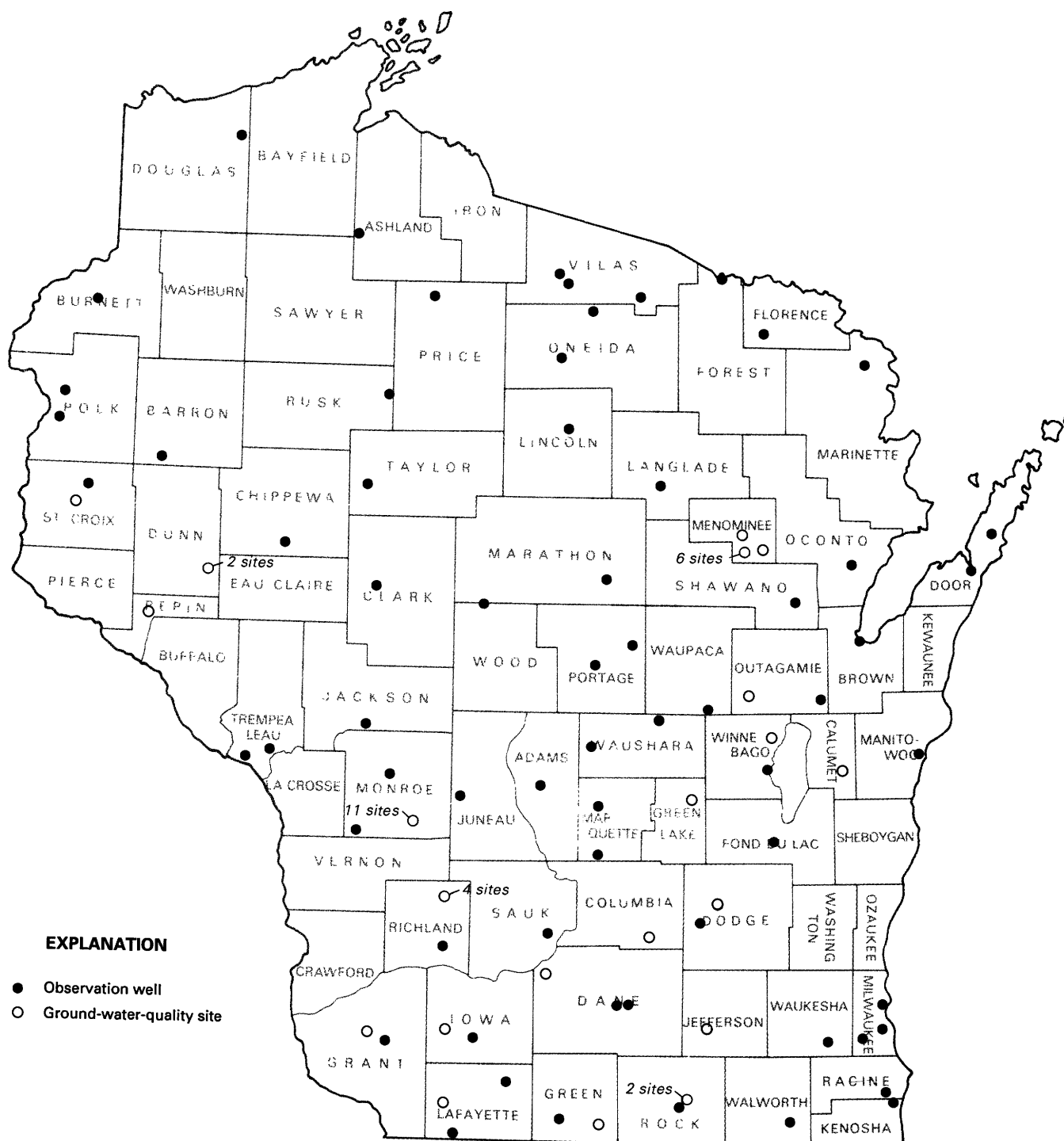


## WATER-QUALITY PARTIAL-RECORD STATIONS

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)
ILLINOIS RIVER BASIN									
05543830 FOX RIVER AT WAUKESHA, WI (LAT 43 00 17N LONG 088 14 37W)									
OCT 1990					MAY 1991				
25...	0845	65	970	8.5	23...	0751	122	1140	21.5
DEC					JUN				
05...	0910	96	790	1.0	25...	1750	44	1200	24.0
JAN 1991					JUL				
15...	0855	64	1730	2.0	24...	0849	46	1110	24.5
FEB					AUG				
27...	0900	72	1090	0.5	12...	1732	45	1060	25.5
APR					SEP				
08...	0925	151	1300	17.0	18...	0820	67	970	18.0
05544200 MUKWONAGO RIVER AT MUKWONAGO, WI (LAT 42 51 24N LONG 088 19 40W)									
OCT 1990					JUN 1991				
24...	1027	35	528	9.5	04...	1142	33	510	24.5
NOV					JUL				
30...	1135	91	558	3.5	24...	1045	59	484	26.5
JAN 1991					AUG				
16...	1112	40	898	1.5	15...	1455	26	505	27.0
FEB					SEP				
28...	0908	43	518	4.0	18...	1050	65	528	19.5
APR									
10...	1150	136	503	12.5					
05546500 FOX RIVER AT WILMOT, WI (LAT 42 30 40N LONG 088 10 45W)									
APR 1991									
09...	1340	1170	710	14.5					

## GROUND-WATER RECORDS



**Figure 6. Location of observation wells and ground-water-quality sites in Wisconsin.**

## ADAMS COUNTY

435759089490001. Local number, AD-17/06E/08-0076.

LOCATION.--Lat 43°57'59", long 89°49'00", Hydrologic Unit 07070003. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water table well, diameter 1 1/4 in, depth 21 ft, cased to 19 ft, well point 19-21 ft.

DATUM.--Altitude of land-surface is 955 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--September 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.61 ft below land-surface datum. May 29, 1973; lowest water level measured, 18.14 ft below land-surface datum, Mar. 7, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	13.60	DEC 5	14.60	FEB 25	15.50	APR 22	12.99	JUN 17	12.93	AUG 12	14.70
8	13.90	10	14.69	MAR 4	15.06	29	13.00	24	13.90	19	15.10
16	13.78	17	14.65	11	15.49	MAY 6	12.60	JUL 2	14.50	26	15.30
22	13.84	JAN 14	15.00	18	15.09	13	12.69	8	14.70	SEP 3	15.48
31	13.98	22	15.30	25	14.65	20	12.60	15	14.48	9	15.42
NOV 6	13.99	28	15.20	APR 2	14.27	28	12.88	22	14.55	16	15.37
15	14.12	FEB 4	15.46	8	14.20	JUN 3	12.83	29	14.72	23	15.40
19	14.23	11	15.48	15	13.51	10	13.30	AUG 5	14.99	30	15.50
27	14.38	18	15.41								

## ASHLAND COUNTY

460936090531701. Local number, AS-43/04W/32-0006.

LOCATION.--Lat 46°09'36", long 90°53'17", Hydrologic Unit 07050001. Owner: U.S. Forest Service.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in, depth 89 ft.

DATUM.--Altitude of land-surface datum is 1,470 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of hole in pump base, at land-surface datum.

PERIOD OF RECORD.--August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.4 ft below land-surface datum, Mar. 24, 1985; lowest water level measured, 32.4 ft below land-surface datum, Apr. 1, 1964.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	31.40	FEB 25	30.20	JUN 10	30.30	JUL 2	29.80	JUL 26	29.50	AUG 29	29.00
NOV 30	31.05	APR 29	30.90								

## BARRON COUNTY

451514091582101. Local number, BR-33/13W/21-0046.

LOCATION.--Lat 45°15'14", long 91°58'21", Hydrologic Unit 07050007. Owner: Edward Thuftin.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in, depth 65 ft.

DATUM.--Altitude of land-surface is 1,115 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1956 to current year.

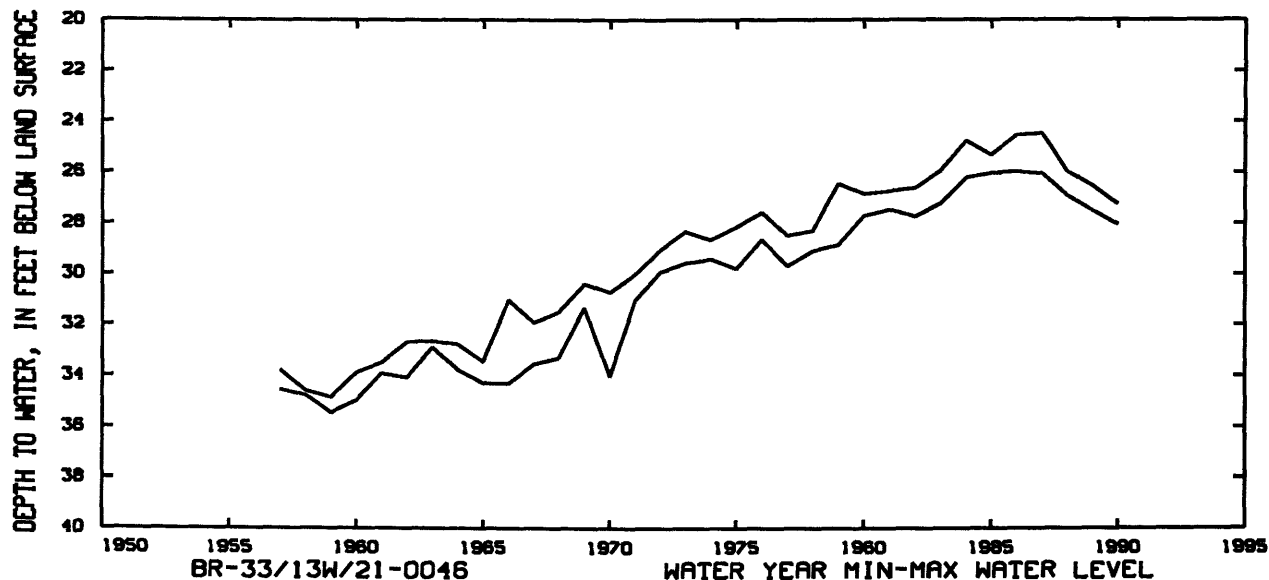
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.47 ft below land-surface datum, Nov. 5, 1986; lowest water level measured, 35.45 ft below land-surface datum, May 13, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	27.48	DEC 3	27.37	JAN 27	27.48	MAR 24	27.84	MAY 7	27.68	JUN 24	27.56
14	27.24	9	27.38	FEB 3	27.63	31	27.87	12	27.32	JUL 12	26.31
21	27.40	16	27.44	10	27.76	APR 7	27.66	19	27.22	17	26.31
28	27.42	25	27.57	17	27.76	14	27.65	26	26.97	24	26.39
NOV 4	27.38	31	27.50	24	27.90	21	27.68	JUN 2	26.91	AUG 20	26.51
10	27.38	JAN 6	27.68	MAR 2	27.96	28	27.63	10	26.61	29	26.59
17	27.28	13	27.38	10	27.91	MAY 5	27.44	12	26.53	SEP 13	26.57
25	27.18	20	27.62	17	27.88						

## GROUND-WATER LEVELS

## BARRON COUNTY



## 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.

DATUM.--Altitude of land-surface is 590 ft above National Geodetic Vertical Datum of 1929. 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	98.99	NOV 28	92.66	FEB 5	88.60	APR 24	90.32	JUN 19	97.27	AUG 7	107.55
9	97.38	DEC 5	91.61	12	87.69	MAY 1	90.39	26	95.39	14	106.39
17	97.43	12	90.65	20	94.71	8	91.18	JUL 5	104.56	28	105.32
23	96.96	JAN 7	89.00	27	95.48	16	91.30	10	107.76	SEP 4	108.73
31	96.60	14	88.20	MAR 20	90.40	29	92.21	18	108.12	11	108.62
NOV 14	94.86	22	89.10	APR 10	90.69	JUN 5	93.26	24	108.60	18	107.70
21	93.31	29	90.20	17	90.63	12	94.47	31	108.07		

## GROUND-WATER LEVELS

563

## 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.

DATUM.--Altitude of land-surface is 981 ft above National Geodetic Vertical Datum of 1929. 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, 37.32 ft below land-surface datum, Mar. 3, 1938.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	34.11	DEC 7	34.08	FEB 15	34.20	APR 12	34.09	JUN 7	33.91	AUG 9	33.71
12	34.09	14	34.05	22	34.21	19	34.03	14	33.75	16	33.61
19	34.08	21	34.08	MAR 1	34.14	26	33.95	21	33.76	23	33.61
26	34.08	27	34.10	8	34.19	MAY 3	33.98	28	33.72	30	33.62
NOV 2	34.02	JAN 11	34.09	15	34.24	10	34.01	JUL 5	33.77	SEP 6	33.61
9	34.06	18	34.09	22	34.13	17	33.98	12	33.79	13	33.58
16	33.95	25	34.14	29	34.17	24	33.87	19	33.79	20	33.67
23	33.97	FEB 1	34.19	APR 5	34.15	31	33.82	26	33.80	27	33.54
30	33.99	8	34.19								

## 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.

DATUM.--Altitude of land-surface is 965 ft above National Geodetic Vertical Datum of 1929. Measuring point: 1/4-in hole in pump base, 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	29.92	DEC 3	30.10	FEB 18	30.47	APR 15	30.35	JUN 10	29.73	AUG 5	30.03
8	30.60	10	30.47	25	30.80	22	30.18	16	29.81	19	30.13
15	30.31	17	30.03	MAR 4	29.96	28	30.36	24	29.97	26	29.95
22	30.16	24	30.32	11	30.73	MAY 5	30.16	JUL 1	29.66	SEP 2	29.87
29	30.16	JAN 14	30.05	18	30.60	13	30.27	8	30.05	9	29.78
NOV 5	30.01	21	30.64	25	30.87	20	30.36	15	30.10	16	29.95
12	30.54	28	30.49	APR 1	31.13	27	30.02	22	29.86	22	29.77
19	30.19	FEB 4	30.41	8	30.58	JUN 2	29.82	29	29.93	30	30.01
26	29.92	11	30.66								

## CLARK COUNTY

444525090443201. Local number, CK-26/03W/04-0001.

LOCATION.--Lat 44°45'25", long 90°44'32", Hydrologic Unit 07050006. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in, depth 150 ft cased to 53 ft, open end.

DATUM.--Altitude of land-surface is 1,210 ft above National Geodetic Vertical Datum of 1929. Measuring point: hole in pump base, at land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.93 ft below land-surface datum Dec. 18, 1986; lowest water level measured, 70.64 ft below land-surface datum, Sept. 17, 1965.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	59.73	DEC 12	59.85	FEB 5	60.74	MAY 8	59.70	JUL 10	58.02	SEP 19	58.72
NOV 15	59.69	JAN 8	60.19	APR 4	60.23	JUN 5	58.53	AUG 8	58.43		

## GROUND-WATER LEVELS

## DANE COUNTY

430429089230301. Local number, DN-07/09E/23-0005.

LOCATION.--Lat 43°04'29", long 89°23'03", Hydrologic Unit 07090001. Owner: State of Wisconsin.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in, depth 346 ft, cased to 265 ft, open end.

DATUM.--Altitude of land-surface is 930 ft above National Geodetic Vertical Datum of 1929. Measuring point: hole in pump base, 3.50 ft below land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 83.37 ft below land-surface datum, Jan. 2, 1961; lowest water level measured, 120.50 ft below land-surface datum, Nov. 6, 1985.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	98.32	DEC 3	100.69	JAN 29	94.42	APR 1	92.61	MAY 28	101.84	AUG 12	105.98
8	98.63	10	99.58	FEB 4	93.44	8	95.42	JUN 3	104.73	19	106.34
15	102.14	17	102.55	11	92.67	15	95.35	10	107.23	28	117.25
22	95.56	26	96.48	18	92.33	22	97.28	JUL 1	108.14	SEP 3	119.05
29	97.12	JAN 2	102.75	25	93.61	29	96.00	8	106.25	9	115.39
NOV 5	98.01	7	105.06	MAR 4	92.79	MAY 6	106.07	15	107.40	16	116.97
12	98.61	14	106.84	11	91.96	13	99.74	22	114.90	24	117.91
26	97.80	22	91.92	25	94.98	20	98.25	29	106.10	30	114.70

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.

DATUM.--Altitude of land-surface is 870 ft above National Geodetic Vertical Datum of 1929. 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, 19.63 ft below land-surface datum, Mar. 23, 1986; lowest water level measured, 32.76 ft below land-surface datum, June 30, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	26.96	26.84	26.85	26.49	27.42	26.45	25.63	27.52	27.88	27.91	28.88	29.54
10	27.61	26.82	26.97	27.16	27.12	26.23	25.56	26.34	28.06	28.13	27.64	29.59
15	26.90	27.00	26.96	27.12	27.32	26.40	25.37	26.93	27.19	28.82	28.44	28.26
20	26.81	26.88	27.06	27.06	27.40	26.11	25.01	26.55	28.32	29.25	28.33	27.85
25	26.93	26.65	26.49	27.40	27.17	25.85	24.78	26.64	28.35	28.99	29.11	27.33
EOM	26.93	26.94	26.49	27.37	27.15	25.31	25.03	27.51	28.27	28.29	29.40	28.03

WTR YEAR 1991 MAX 30.04 AUG 29 MIN 23.53 APR 22

## 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 domestic artesian well, diameter 6 in, depth 125 ft, cased to 57 ft, open end.

DATUM.--Altitude of land-surface is 880 ft above National Geodetic Vertical Datum of 1929. 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, 15.94 ft below land-surface datum, Sept. 30, 1986; 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	21.68	DEC 5	21.01	MAR 5	19.98	MAY 1	18.82	JUL 2	20.58	AUG 15	21.33
NOV 1	21.29	JAN 2	21.02	APR 2	18.53	JUN 4	19.60	AUG 2	21.00	SEP 4	22.77
30	21.17	FEB 4	21.24								

455757087151701. Local number. DR-29/27E/30-0007.

AQUIFER.--Silurian dolomite.

DATUM.--Altitude of land-surface is 725 ft above National Geodetic Vertical Datum of 1929. Measuring point:  
hole in pump base. 1.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.00 ft below land-surface datum, Mar. 22, 1979;  
lowest water level measured, 56.12 ft below land-surface datum, Feb. 21, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	31.97	DEC 19	32.23	FEB 19	45.88	MAY 14	37.59	JUL 22	46.66	SEP 10	46.09
NOV 28	30.21	JAN 22	45.38	APR 16	12.56	JUN 18	46.41	AUG 20	46.29		

445055087213801. Local number. DR-27/26E/05-0265

AQUIFER.--Silurian dolomite.

DATUM.--Altitude of land-surface is 616 ft above National Geodetic Vertical Datum of 1929. 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, 1.57 ft above land-surface datum, June 18, 1974;  
lowest water level, 35.33 ft below land-surface datum, Feb. 1, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5		15.14	15.80	14.74	19.81	16.56	9.28	8.34	14.76	20.83	20.83	22.24
10		13.18	16.70	16.25	16.88	15.75	9.70	10.56	17.10	23.70	22.10	21.69
15		12.71	15.10	17.01	19.01	15.06	3.98	12.83	17.27	25.59	24.16	21.94
20	16.96	13.15		17.98	20.13	14.26	4.16	13.04	19.51	25.01	24.50	23.58
25	14.89	14.76		19.64	20.84	9.96	6.16	13.42	21.54	23.54	24.52	25.10
EOM	16.22	15.84		20.85	20.96	8.48	7.75	13.86	21.71	22.14	22.19	27.01

WTR YEAR 1991 MAX 27.01 SEP 30 MIN 1.24 APR 18

## DOUGLAS COUNTY

463217091342801. Local number. DS-47/10W/23-0001.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 8 in, depth 40 ft, cased to 40 ft, perforated 37-40 ft.

DATUM.--Altitude of land-surface is 980 ft above National Geodetic Vertical Datum of 1929. Measuring point: pointer on float gage, 4.33 ft above land-surface datum.

PERIOD OF RECORD.--June 1937 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.81 ft above land-surface datum, Apr. 28, 1978; lowest water level measured, 29.59 ft below land-surface datum, July 29, 1939.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]



## 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 National Geodetic Vertical Datum of 1929.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum observed water level, 64.47 ft, July 29, 1991; minimum observed water level, 62.04 ft, Mar. 10-11, 1990.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62.82	63.01	63.02	62.92	62.80	62.71	63.20	63.54	64.39	64.32	64.35	63.94
2	62.82	63.00	63.01	62.91	62.80	62.71	63.19	63.54	64.33	64.32	64.32	63.93
3	62.82	62.99	63.01	62.91	62.80	62.71	63.25	63.54	64.29	64.35	64.33	63.93
4	62.82	62.99	63.00	62.91	62.79	62.71	63.36	63.54	64.24	64.38	64.31	63.93
5	62.82	63.00	63.00	62.90	62.78	62.71	63.38	63.55	64.21	64.39	64.29	63.93
6	62.82	62.99	63.00	62.89	62.78	62.71	63.37	63.56	64.18	64.38	64.27	63.93
7	62.82	62.99	63.00	62.88	62.78	62.71	63.36	63.57	64.16	64.36	64.26	63.93
8	62.82	62.98	62.99	62.88	62.78	62.71	63.42	63.58	64.15	64.36	64.26	63.93
9	62.82	62.98	62.98	62.88	62.78	62.71	63.54	63.58	64.14	64.35	64.24	63.97
10	62.82	62.98	62.97	62.87	62.78	62.70	63.53	63.59	64.14	64.34	64.21	64.02
11	62.82	62.97	62.97	62.87	62.77	62.70	63.49	63.59	64.13	64.33	64.18	64.01
12	62.82	62.96	62.97	62.87	62.77	62.70	63.47	63.59	64.13	64.32	64.17	64.00
13	62.82	62.96	62.96	62.87	62.77	62.70	63.46	63.59	64.12	64.31	64.16	63.99
14	62.82	62.96	62.96	62.87	62.77	62.70	63.48	63.59	64.15	64.29	64.15	63.97
15	62.82	62.96	62.96	62.87	62.75	62.69	63.57	63.59	64.19	64.28	64.14	63.97
16	62.83	62.95	62.96	62.87	62.75	62.69	63.57	63.59	64.17	64.27	64.13	63.97
17	62.87	62.95	62.96	62.86	62.74	62.69	63.56	63.59	64.15	64.27	64.13	63.97
18	62.97	62.95	62.96	62.86	62.73	62.70	63.55	63.59	64.15	64.27	64.13	63.96
19	63.00	62.94	62.95	62.86	62.73	62.71	63.54	63.59	64.14	64.26	64.11	63.94
20	63.01	62.94	62.95	62.86	62.73	62.73	63.53	63.59	64.16	64.26	64.10	63.93
21	63.02	62.95	62.95	62.85	62.73	62.85	63.52	63.59	64.39	64.27	64.09	63.93
22	63.02	62.96	62.96	62.85	62.72	62.89	63.51	63.59	64.38	64.28	64.07	63.92
23	63.03	62.97	62.95	62.85	62.72	63.07	63.50	63.59	64.33	64.28	64.05	63.90
24	63.03	62.97	62.95	62.84	62.72	63.11	63.48	63.59	64.31	64.26	64.05	63.89
25	63.03	62.97	62.95	62.83	62.71	63.08	63.48	63.58	64.29	64.28	64.05	63.89
26	63.03	62.96	62.94	62.83	62.71	63.21	63.47	63.61	64.29	64.27	64.04	63.89
27	63.03	62.98	62.94	62.83	62.71	63.41	63.47	63.63	64.27	64.26	64.02	63.89
28	63.02	62.99	62.94	62.82	62.71	63.41	63.47	63.73	64.29	64.27	64.00	63.88
29	63.02	63.00	62.94	62.81	---	63.31	63.47	63.96	64.30	64.47	63.99	63.87
30	63.01	63.02	62.93	62.81	---	63.26	63.52	64.27	64.31	64.46	63.96	63.86
31	63.01	---	62.92	62.80	---	63.23	---	64.43	---	64.40	63.95	---
MEAN	62.91	62.97	62.97	62.86	62.75	62.87	63.46	63.65	64.23	64.32	64.15	63.94
MAX	63.03	63.02	63.02	62.92	62.80	63.41	63.57	64.43	64.39	64.47	64.35	64.02
MIN	62.82	62.94	62.92	62.80	62.71	62.69	63.19	63.54	64.12	64.26	63.95	63.86

## FOND DU LAC COUNTY

434358088301001. Local number. FL-15/17E/30-0374.

LOCATION.--Lat 43°43'58", long 88°30'46", Hydrologic Unit 04030203. Owner: Wis. Dept. of Transportation.

AQUIFER.--Galena-Platteville.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in, depth 120 ft, cased to 63 ft, open end.

DATUM.--Altitude of land-surface is 835 ft above National Geodetic Vertical Datum of 1928. Measuring point: hole in pump base, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--October 16, 1967, to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.05 ft below land-surface datum, Apr. 11, 1986; lowest water level measured, 34.99 ft below land-surface datum, Mar. 21, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	17.61	DEC 19	17.13	FEB 22	17.32	MAY 3	13.24	JUN 21	14.74	AUG 23	18.74
NOV 30	17.22	JAN 25	17.29	APR 19	14.72	14	13.67	JUL 25	17.99	SEP 13	21.14

## FOREST COUNTY

460156088474901. Local number, FR-41/14E/18-0002.

LOCATION.--Lat 46°01'56", long 88°47'49", Hydrologic Unit 04030106. Owner: Wis. Dept. of Transportation.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in, depth 18 ft, cased to 15 ft, well point 15-18 ft.

DATUM.--Land-surface datum is 1,552 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.70 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.96 ft below land-surface datum, Apr. 29, 1954; lowest water level measured, 11.89 ft below land-surface datum, Aug. 13, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL
NOV 20	11.21

## GRANT COUNTY

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.

DATUM.--Altitude of land-surface is 980 ft above National Geodetic Vertical Datum of 1929. 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, 8.60 ft below land-surface datum, May 22, 1973; 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	15.50	JAN 5	16.38	FEB 27	16.46	APR 15	11.28	JUN 28	11.65	AUG 22	12.65
NOV 15	16.73	FEB 8	16.33	MAR 19	13.92	MAY 30	12.44	JUL 17	11.89		

DEPTH TO WATER, IN FEET BELOW LAND SURFACE

GR-05/02W/06-0005

WATER YEAR MIN-MAX WATER LEVEL

1950 1955 1960 1965 1970 1975 1980 1985 1990 1995

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL
OCT 4	57.38	DEC 13	60.39	FEB 12	58.74	MAY 7	53.19	JUL 3	56.72	SEP 17	59.47
NOV 7	59.36	JAN 10	60.76	APR 3	52.57	JUN 11	56.21	AUG 15	58.98		

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	59.89	JAN 9	62.41	FEB 16	62.41	APR 9	52.37	JUN 19	55.08	AUG 8	56.05
NOV 15	61.59	17	62.41	MAR 19	58.09	MAY 16	52.88	JUL 8	55.32	SEP 9	56.83
DEC 26	62.47	FEB 4	62.71								

## JACKSON COUNTY

441051090470901. Local number, JA-20/03W/30-0005.

LOCATION.--Lat 44°10'51", long 90°47'09", Hydrologic Unit 07040007. Owner: Robert Foulker.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 190 ft, cased to 54 ft, open end.

DATUM.--Altitude of land-surface is 845 ft above National Geodetic Vertical Datum of 1929. Measuring point: hole in pump base, at land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.53 ft below land-surface datum, May 22, 1973; lowest water level measured, 22.60 ft below land-surface datum, Dec. 19, 1958.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	18.61	DEC 12	19.59	FEB 6	20.29	MAY 9	19.98	JUL 10	20.19	SEP 18	20.44
NOV 16	19.21	JAN 9	19.98	APR 5	20.20	JUN 6	19.70	AUG 7	20.11		

## JUNEAU COUNTY

435515090152901. Local number, JU-17/02E/28-0098.

LOCATION.--Lat 43°55'15", long 90°15'29", Hydrologic Unit 07070003. Owner: Wis. Dept. of Transportation.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in, depth 71 ft, cased to 42 ft, open end.

DATUM.--Altitude of land-surface is 930 ft above National Geodetic Vertical Datum of 1929. Measuring point: 1/4-in hole in pump base, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.86 ft below land-surface datum, May 24, 1973; lowest water level measured, 13.90 ft below land-surface datum, Jan. 10, 1979.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	11.48	DEC 12	11.76	FEB 6	12.18	MAY 9	11.58	JUL 10	12.49	SEP 5	12.86
NOV 16	11.69	JAN 9	12.05	APR 5	11.91	JUN 6	11.44	AUG 7	12.63		

## KENOSHA COUNTY

423907087521701. Local number, KE-02/22E/11-0006.

LOCATION.--Lat 42°39'07", long 87°52'17", Hydrologic Unit 04040002. Owner: Kenosha County.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 1,751 ft, cased to 492 ft, open end.

DATUM.--Altitude of land-surface is 639 ft above National Geodetic Vertical Datum of 1929. Measuring point: end of 3/4-in. plastic pipe, 1.35 ft above land-surface datum.

REMARKS.--Water level affected by regional pumping of wells.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.10 ft below land-surface datum, Dec. 3, 1947; lowest water level measured, 212.19 ft below land-surface datum, July 23, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 15	210.48	MAR 22	209.63	MAY 8	210.51	JUL 23	212.19

## GROUND-WATER LEVELS

## LAFAYETTE COUNTY

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.

DATUM.--Altitude of land-surface is 1,000 ft above National Geodetic Vertical Datum of 1929. 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, 22.74 ft below land-surface datum, Nov. 8, 1986; lowest water level, 130.99 ft below land-surface datum, Nov. 6, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.26	45.79	46.07		46.51	44.96	43.11	42.35	42.21	40.79	40.97	40.93
10	45.69	45.88	46.13	46.03	46.35	45.32	43.19	42.49	41.95	40.86	40.93	41.05
15	45.72	45.79		45.99	46.25	45.30	42.70	42.13	41.80	41.07	40.74	40.80
20	45.55	45.91		46.03	46.13	44.39	42.79	42.36	41.47	40.78	40.85	41.32
25	45.89	45.75		46.22	46.15	43.85	42.50	41.93	41.25	40.95	41.00	40.80
EOM	45.76	46.07	46.05	46.43	45.65	43.39	42.21	41.83	40.91	40.80	41.04	40.95

WTR YEAR 1991 MAX 46.61 FEB 7 MIN 40.40 SEP 25

424620089590001. Local number, LF-04/04E/35-0078.

LOCATION.--Lat 42°46'20", long 89°58'57", Hydrologic Unit 07090003. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 3/4 in, depth 29 ft, cased to 16 ft, open end.

DATUM.--Altitude of land-surface is 850 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 0.20 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.89 ft below land-surface datum, May 23, 1974; lowest water level measured, 19.81 ft below land-surface datum, Mar. 3, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	16.13	DEC 31	16.68	FEB 5	16.93	APR 19	5.35	JUN 19	13.95	AUG 9	15.40
NOV 15	16.67	JAN 17	16.73	MAR 19	11.75	MAY 17	9.58	JUL 11	15.07	SEP 9	15.77

## 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.

DATUM.--Land-surface datum is 1,508 ft above National Geodetic Vertical Datum of 1929. 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, 10.16 ft below land-surface datum, June 4, 1973; 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	12.37	NOV 12	12.76	FEB 11	14.01	APR 15	12.07	JUN 10	11.72	AUG 5	12.43
8	12.56	19	12.86	25	14.18	22	11.89	17	11.85	12	12.55
15	12.58	26	12.90	MAR 4	14.13	29	11.90	24	11.71	19	12.62
22	12.54	DEC 3	12.96	18	14.35	MAY 6	11.81	JUL 1	11.80	SEP 9	12.98
29	12.49	JAN 7	13.52	APR 1	12.72	13	11.82	8	11.93	16	13.00
NOV 5	12.59	28	13.72	8	12.51	20	11.86	29	12.33	30	13.18

## 571

452318089402501. Local number. LN-34/06E/36-0060.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in, depth 22 ft, cased to 20 ft, well point 20-22 ft.

DATUM.--Altitude of land-surface is 1,435 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of pipe, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.79 ft below land-surface datum, Oct. 9, 1985;  
lowest water level measured, 10.38 ft below land-surface datum, Jan. 17, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL						
DEC	3	7.58	JAN	16	8.71	MAR	13	8.80	APR	22	7.41	JUN	11	7.10	AUG	13	8.22
	10	7.51		22	8.62		14	8.90		30	7.38		20	7.05		21	8.22
	18	7.49	FEB	5	8.82	APR	18	8.80	MAY	6	7.22	JUL	9	7.83	SEP	28	8.34
	26	7.90		18	8.88		14	7.06		16	7.76		2	8.44			
	31	8.03	21	8.75	9	7.88	22	7.10	23	7.90	11	8.48					
JAN	6	8.22		26	8.82		15	7.51		30	7.06		30	8.01		18	8.48
	9	8.67	MAR	6	8.84		16	7.51		4	7.03	AUG	6	7.96		25	8.51
	14	8.54		12	8.82												

440430087420401. Local number, MN-19/23E/35-0028.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in, depth 147 ft, cased to 133 ft, open end.

DATUM.--Altitude of land-surface is 670 ft above National Geodetic Vertical Datum of 1929. 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, 26.66 ft below land-surface datum, June 11, 1979;  
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 1990 TO SEPTEMBER 1991

[illegible]

## GROUND-WATER LEVELS

## MARATHON COUNTY

444709089265301. Local number, MR-27/09E/31-0028.

LOCATION.--Lat 44°47'09", long 89°26'53", Hydrologic Unit 07070002. Owner: U.S. Geol. Survey.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in, depth 27 ft, cased to 25 ft, well point 25-27 ft.

DATUM.--Altitude of land-surface is 1,229 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of pipe, 0.80 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.77 ft below land-surface datum, July 21, 1973; lowest water level measured, 26.09 ft below land-surface datum, Mar. 30, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	22.06	DEC 9	21.96	FEB 10	22.22	APR 14	21.51	JUN 16	20.81	AUG 11	20.45
15	22.06	15	21.96	17	22.25	21	21.49	24	20.81	18	20.41
21	22.02	23	21.96	24	22.22	28	21.48	29	20.72	25	20.35
28	22.00	30	21.97	MAR 3	22.22	MAY 5	21.29	JUL 7	20.62	SEP 1	20.34
NOV 4	21.98	JAN 6	22.09	10	22.42	12	21.20	14	20.56	8	20.34
11	21.98	13	22.09	17	22.41	19	21.22	21	20.52	15	20.32
22	21.98	21	22.09	24	21.57	26	21.07	28	20.51	22	20.32
25	21.96	27	22.09	31	21.55	JUN 2	20.98	AUG 4	20.45	29	20.36
DEC 2	21.96	FEB 3	22.11	APR 7	21.55						

## MARINETTE COUNTY

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.

DATUM.--Altitude of land-surface is 980 ft above National Geodetic Vertical Datum of 1929. 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	21.67	DEC 4	22.01	FEB 5	22.30	APR 9	21.45	JUN 4	19.68	AUG 6	20.28
9	21.98	11	22.04	12	22.31	16	21.22	11	19.38	13	20.39
16	21.98	18	22.08	19	22.31	23	20.92	18	19.49	20	20.54
23	21.84	25	22.12	26	22.34	30	20.82	25	19.63	27	20.24
30	21.84	JAN 1	22.17	MAR 5	22.36	MAY 7	20.81	JUL 2	19.68	SEP 3	20.75
NOV 6	21.91	8	22.20	12	22.36	14	20.81	9	19.90	12	20.88
13	21.98	15	22.25	19	22.33	21	20.76	23	20.17	17	20.89
20	22.00	22	22.26	26	21.94	29	20.66	30	20.26	24	20.95
27	22.01	29	22.27	APR 2	21.54						

DEPTH TO WATER, IN FEET BELOW LAND SURFACE

MT-37/20E/34-0007

WATER YEAR MIN-MAX WATER LEVEL

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL
OCT 11	18.31	DEC 11	18.21	FEB 27	18.02	APR 29	15.66	JUN 5	16.38	AUG 8	16.87
NOV 6	18.30	JAN 8	18.34	APR 4	16.58	MAY 9	15.62	JUL 11	17.37	SEP 19	17.29
15	18.26	FEB 6	18.47								



## GROUND-WATER LEVELS

## MILWAUKEE COUNTY

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.

DATUM.--Altitude of land-surface is 705 ft above National Geodetic Vertical Datum of 1929. 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, 1938; lowest water level, 323.52 ft below land-surface datum, Sept. 29, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	316.69	317.02	318.58	319.20	318.07			317.89	319.50	321.20	322.96	322.40
10	317.11	318.02	318.53	319.38	317.77	316.88		318.35	319.81	321.88	322.58	322.94
15	317.34	318.12	318.46	318.76	317.51			318.45	320.06	322.37	322.20	322.88
20	317.36	318.31	318.79	318.47	317.30			318.87	320.30	322.55	322.16	323.41
25	317.66	318.22	319.04	318.55	317.40		317.28	318.98	320.54	323.06	322.19	323.04
EOM	317.86	318.57	319.20	318.27	317.06		317.35	319.16	320.87	322.85	322.07	323.39

WTR YEAR 1991 MAX 323.52 SEP 29 MIN 316.28 OCT 3

430412087545801. Local number, ML-07/22E/17-0120.

LOCATION.--Lat 43°04'12", long 87°54'58", Hydrologic Unit 04040003. Owner: Nunn-Bush Shoe Co.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 400 ft, cased to 215 ft, open end.

DATUM.--Altitude of land-surface is 685 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of concrete, 8.75 ft below land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--April 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 54.67 ft below land-surface datum, Mar. 19, 1986; lowest water level, 144.20 ft below land-surface datum, Aug. 29, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	135.60	NOV 8	136.66	FEB 13	139.39	MAY 29	140.73	JUL 31	140.73	SEP 26	141.84
30	136.33	JAN 30	138.64	APR 25	141.21	JUN 27	142.03	AUG 29	144.20		

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.

DATUM.--Altitude of land-surface is 774 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of 1/4-inch pipe, at land-surface datum.

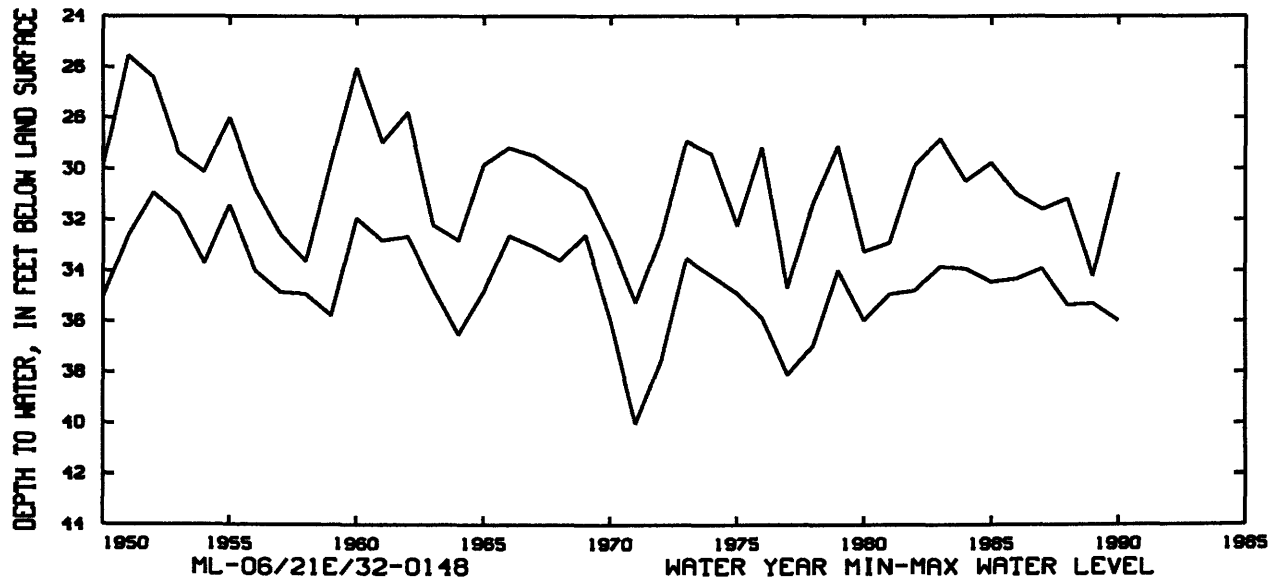
PERIOD OF RECORD.--September 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.44 ft below land-surface datum, May 3, 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	32.93	DEC 27	32.58	FEB 13	32.23	APR 25	29.79	JUN 27	31.81	AUG 29	33.12
NOV 27	32.96	JAN 30	32.44	MAR 20	32.42	MAY 29	30.70	JUL 31	32.32	SEP 26	32.92

## MILWAUKEE COUNTY



## 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.

DATUM.--Altitude of land-surface is 1,100 ft above National Geodetic Vertical Datum of 1929. 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, 4.66 ft below land-surface datum, Mar. 19, 1986; lowest water level measured, 18.23 ft below land-surface datum, Mar. 27, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	LOWEST VALUE											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.74	8.35	9.01	9.70	10.10	10.41	8.05	7.53	7.27	7.73	6.97	7.08
10	7.88	8.49	9.11	9.84	10.13	10.42	8.10	7.28	7.28	7.82	6.76	7.11
15	7.98	8.60	9.22	9.88	10.24	10.35	7.27	7.30	7.36	6.90	6.77	6.79
20	8.04	8.72	9.30	9.92	10.30	9.48	7.37	7.38	7.43	6.86	6.82	6.63
25	8.13	8.80	9.38	10.00	10.38	7.88	7.47	7.38	7.54	6.89	6.92	6.69
EOM	8.27	8.91	9.52	10.05	10.40	7.98	7.53	7.27	7.59	6.91	7.04	6.78
WTR YEAR 1991	MAX		10.42	MAR 10	MIN	6.62	SEP 17					

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.

DATUM.--Altitude of land-surface is 909 ft above National Geodetic Vertical Datum of 1929. 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, 0.43 ft below land-surface datum, May 8, 1973; lowest water level, 8.30 ft below land-surface datum, Mar. 5, 1990.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.86	5.62	6.15	6.51	6.90	6.93	6.19	5.61	5.70	6.47	6.41	6.84
10	5.00	5.72	6.22	6.58	6.93	6.98	6.18	5.56	5.83	6.60	6.37	6.93
15	5.15	5.81	6.30	6.66	6.95	7.01	6.14	5.40	5.96	6.71	6.28	6.95
20	5.26	5.89	6.36	6.74	6.97	6.98	5.81	5.41	6.09	6.78	6.39	6.99
25	5.39	5.99	6.41	6.80	7.00	6.62	5.67	5.53	6.20	6.20	6.57	7.04
EOM	5.51	6.07	6.49	6.88	7.01	6.30	5.60	5.60	6.34	6.22	6.74	7.09

WTR YEAR 1991 MAX 7.09 SEP 30 MIN 4.71 OCT 1

OCONTO COUNTY

445054088025201. Local number, OC-27/20E/03-0020.

LOCATION.--Lat 44°50'54", long 88°02'52". Hydrologic Unit 04030104. Owner: Wis. Dept. of Transportation.

AQUIFER.--Prairie du Chien.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in, depth 100 ft, cased to 88 ft, open end.

DATUM.--Altitude of land-surface is 640 ft above National Geodetic Vertical Datum of 1929. Measuring point:  
1/4-in hole in pump base, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.07 ft below land-surface datum, June 20, 1969;  
lowest water level measured, 13.52 ft below land-surface datum, Aug. 27, 1981.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	10.63	DEC 21	10.48	FEB 0	10.53	MAY 15	10.41	JUL 23	10.64	SEP 12	10.63
NOV 29	10.61	JAN 23	10.61	APR 18	10.30	JUN 20	10.46	AUG 21	10.51		

## 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.

DATUM.--Altitude of land-surface is 1,607 ft above National Geodetic Vertical Datum of 1929. 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, 12.29 ft below land-surface datum, May 28, 1973; lowest water level, 19.29 ft below land-surface datum, Apr. 9, 1949.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
5	16.86	16.30	15.95	16.06	16.43	16.69	16.88	15.47	14.53	14.10	14.46	14.93	
10	16.80	16.15	15.96	16.13	16.46	16.77	16.76	15.31	14.37	14.16	14.55		
15	16.77	16.12	15.95	16.17	16.54	16.84	16.43	15.18	14.23	14.26	14.63		
20	16.63	16.06	15.97	16.23	16.58	16.91	16.16	15.04	14.19	14.31	14.70		15.02
25	16.55	16.01	15.99	16.29	16.64	16.93	15.89	14.94	14.14	14.38	14.80		15.04
EOM	16.42	16.02	16.03	16.36	16.65	16.91	15.61	14.73	14.14	14.38	14.90	15.14	

WTR YEAR 1991 MAX 16.96 MAR 24 MIN 14.10 JUL 5

## 577

454026089425301. Local number, ON-37/06E/27-0023.

LOCATION.--Lat 45°40'26". long 89°42'53". 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 37 ft, cased to 35 ft, well point 35-37 ft.

DATUM.--Altitude of land-surface is 1,529 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing. 1.00 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.35 ft below land-surface datum, July 22, 1973;  
lowest water level measured, 34.29 ft below land-surface datum, June 6, 1990.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL			
OCT	3	33.61	DEC	3	32.45	FEB	6	33.13	APR	2	32.60	JUN	12	31.62	AUG	1	30.95
	11	33.58		12	33.13		13	32.70		10	32.79		20	31.58		8	30.94
	16	33.42		26	33.15		20	32.89		18	32.61		26	31.28		22	30.82
	25	33.41		30	33.15		27	32.85		2	32.34		JUL 10	31.18		SEP 6	30.79
	29	33.25	JAN	8	33.17	MAR	6	32.84		24	32.01		18	30.88		12	30.90
NOV	11	33.11		22	33.14		14	32.82		28	31.94		24	30.97		25	30.94
	20	33.03		29	33.15		20	32.80		JUN 6	31.82						

## OUTAGAMIE COUNTY

441840088115001. Local number. OU-21/19E/04-0326.

LOCATION.--Lat 44°18'40", long 88°11'50", Hydrologic Unit 04030204. Owner: Outagamie County, Rapid Croche.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in, depth 280 ft, cased to 82 ft.

DATUM.--Altitude of land-surface is 660 ft above National Geodetic Vertical Datum of 1929. Measuring point:  
1/4-in. hole in pump base, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--October 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.10 ft below land-surface datum, Apr. 20, 1970;  
lowest water level measured, 90.19 ft below land-surface datum, Aug. 22, 1991.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	83.86	DEC 20	81.73	FEB 21	80.16	MAY 15	78.55	JUL 24	86.77	SEP 12	88.86
NOV 29	82.44	JAN 16	80.74	APR 18	78.59	JUN 20	80.87	AUG 22	90.19		

## POLK COUNTY

453013092314601. Local number. PK-35/17W/08-0040.

LOCATION.--Lat 45°30'13", long 92°31'46", Hydrologic Unit 07030005. Owner: Village of Milltown.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 52 ft.

DATUM.--Altitude of land-surface is 1,250 ft above National Geodetic Vertical Datum of 1929. Measuring point:  
hole in pump base, at land-surface datum.

PERIOD OF RECORD.--September 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.55 ft below land-surface datum, Jul 23, 1986;  
lowest water level measured, 41.38 ft below land-surface datum, July 22, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL	DATE		WATER LEVEL
OCT 3	36.10	JAN 10	36.27	APR 8	36.80	MAY 21	36.37	JUN 24	35.18	AUG 29	34.15
NOV 10	36.29	FEB 6	36.59	26	37.38	JUN 4	35.95	JUL 25	34.51	SEP 25	33.08
DEC 4	35.93	MAR 19	36.80								

## GROUND-WATER LEVELS

## POLK COUNTY

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.

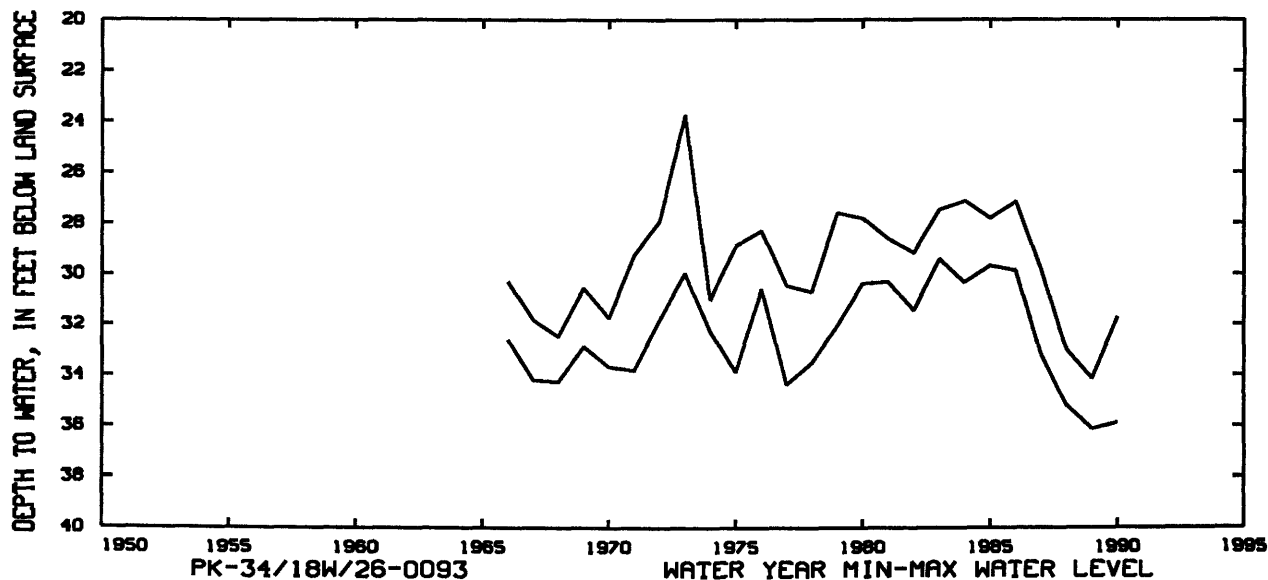
DATUM.--Altitude of land-surface is 1,140 ft above National Geodetic Vertical Datum of 1929. Measuring point: hole in pump base, 2.00 ft above land-surface datum.

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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	31.74	DEC 4	32.29	FEB 6	33.02	APR 10	32.60	JUN 10	30.90	AUG 6	28.67
9	31.72	12	32.35	13	33.04	16	32.48	17	30.58	15	28.50
15	31.84	19	32.45	20	33.14	22	32.37	25	30.35	21	28.33
24	31.88	27	32.54	27	33.20	MAY 1	32.32	JUL 3	30.10	27	28.50
31	31.95	JAN 2	32.60	MAR 5	33.22	7	32.20	12	30.10	SEP 4	28.45
NOV 8	32.00	9	32.68	12	33.35	13	31.98	17	30.09	10	28.25
14	32.05	16	32.76	19	33.36	20	31.79	23	28.96	17	27.80
20	32.13	22	32.77	26	32.90	28	31.67	31	28.75	24	27.55
27	32.20	30	32.90	APR 3	32.70	JUN 3	31.35				



## 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.

DATUM.--Altitude of land-surface is 1,133 ft above National Geodetic Vertical Datum of 1929. 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, 38.81 ft below land-surface datum, Nov. 12, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	34.27	DEC 1	34.36	FEB 9	34.54	APR 6	34.67	JUN 1	34.68	JUL 27	34.54
20	34.29	15	34.37	23	34.58	20	34.68	15	34.65	AUG 10	34.50
NOV 3	34.31	29	34.41	MAR 9	34.60	MAY 4	34.69	29	34.62	24	34.46
17	34.33	JAN 12	34.46	23	34.66	18	34.68	JUL 13	34.59	SEP 7	34.43
20	34.33	26	34.48								

## 579

442623089302701. Local number, PT-23/08E/25-0376.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water table well, diameter 1 1/4 in, depth 36 ft, cased to 34 ft, well point 34-36 ft.

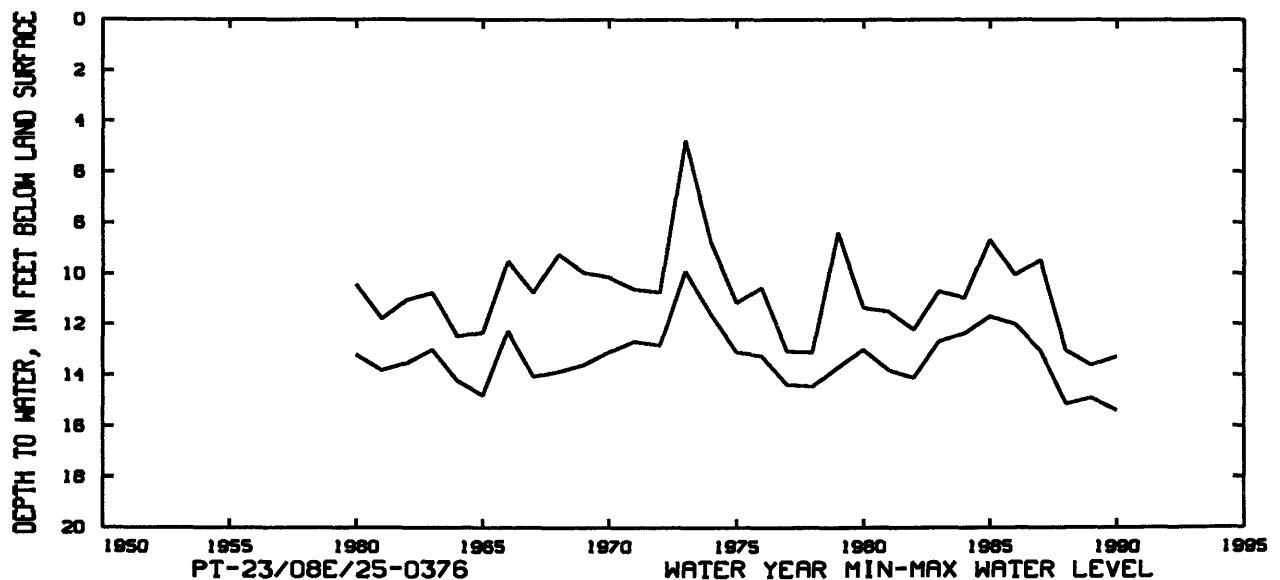
DATUM.--Altitude of land-surface is 1,099 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 4.20 ft above land-surface datum.

PERIOD OF RECORD.--December 1, 1959, to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.77 ft below land-surface datum, June 5, 1973;  
lowest water level measured, 15.37 ft below land-surface datum, Feb. 15, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	13.24	DEC 21	14.20	MAR 19	14.00	MAY 8	12.89	JUL 11	13.77	AUG 8	12.22
NOV 15	13.62	JAN 8	14.17	APR 4	13.61	JUN 5	12.78	17	14.00	SEP 19	14.78
DEC 11	13.88	FEB 5	14.46	23	13.50						



455448090263401. Local number, PR-40/01W/24-0006.

LOCATION.--Lat 45°54'48", long 90°26'34", Hydrologic Unit 07050002. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Jetted unused water-table well, diameter 8 in, depth 13 ft, cased to 13 ft.

DATUM.--Altitude of land-surface is 1,510 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 5.00 ft above land-surface datum.

PERIOD OF RECORD.--March 1937 to current year.

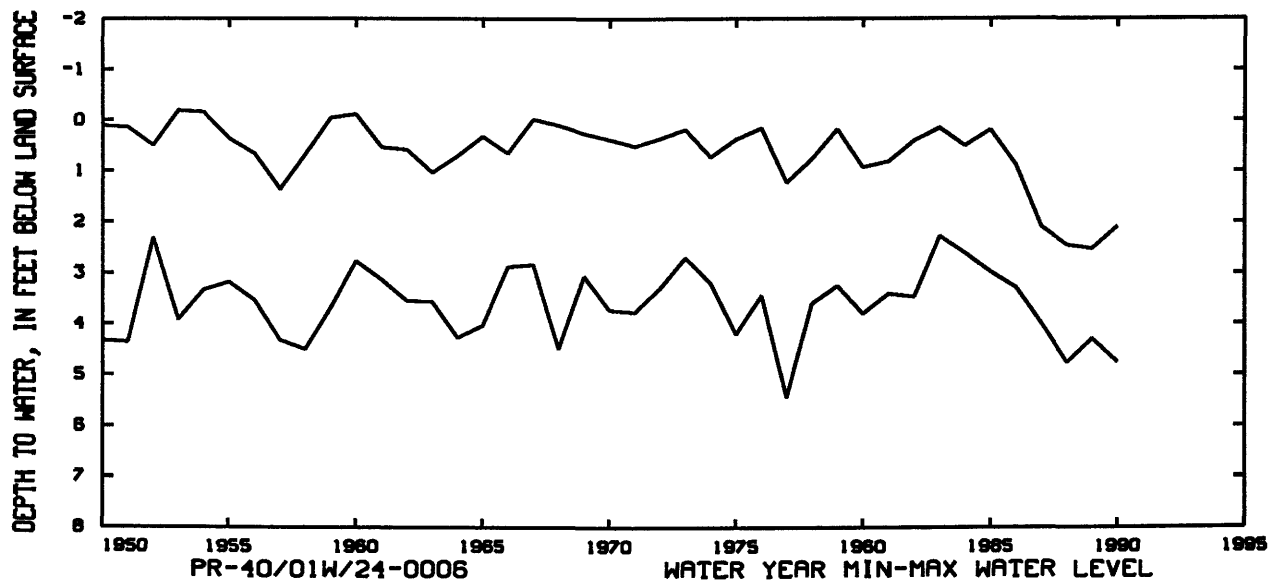
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.41 ft above land-surface datum, June 29, 1946;  
lowest water level measured, 5.67 ft below land-surface datum, Oct. 31, 1948.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

[illegible]

## GROUND-WATER LEVELS

## PRICE COUNTY



## RACINE COUNTY

424202087542301. Local number, RA-03/22E/21-0005.

LOCATION.--Lat 42°42'02", long 87°54'23", Hydrologic Unit 04040002. Owner: Chicago, Milwaukee, St. Paul and Pacific Railroad Co.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in, depth 1,176 ft, cased to 586 ft, 10 in liner 976-1,083 ft.

DATUM.--Altitude of land-surface is 730 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.00 ft above land-surface datum.

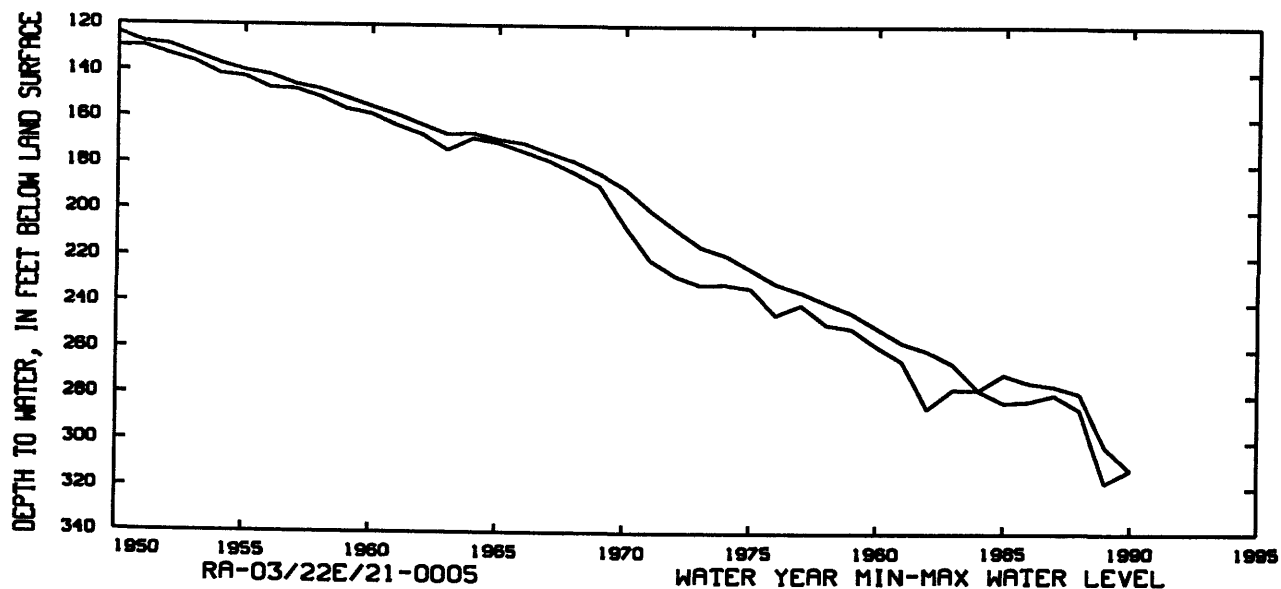
REMARKS.--Water level affected by regional pumping of wells.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.00 ft below land-surface datum, July 29, 1946; lowest water level measured, 317.52 ft below land-surface datum, July 29, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 28	307.05	FEB 27	298.61	APR 10	293.20	MAY 29	293.47	JUL 23	296.97	SEP 17	299.95
JAN 31	305.91	MAR 22	292.91	MAY 8	293.90	JUN 3	293.54				



## GROUND-WATER LEVELS

581

## 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.

DATUM.--Altitude of land-surface is 725 ft above National Geodetic Vertical Datum of 1929. 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	15.93	JAN 8	14.94	MAR 14	16.45	MAY 15	16.22	AUG 19	14.29	SEP 12	14.54
NOV 15	14.79	FEB 16	15.14	APR 18	16.01	JUL 10	14.02				

## ROCK COUNTY

423956089022301. Local number, RO-02/12E/02-0003.

LOCATION.--Lat 42°39'56", long 89°02'23", Hydrologic Unit 07090001. Owner: School for the Blind, Janesville.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in, depth 470 ft, cased to 113 ft, open end.

DATUM.--Altitude of land-surface is 824 ft above National Geodetic Vertical Datum of 1929. Measuring point: 1/4-in hole cap of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.27 ft below land-surface datum, Apr. 2 and 16, 1986; lowest water level measured, 62.18 ft below land-surface datum, Jan. 3, 1991.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 6	61.40	JAN 31	58.54	MAR 21	60.05	MAY 16	59.50	JUL 4	57.96	AUG 15	60.12
13	61.04	FEB 8	56.96	APR 4	57.89	23	59.75	11	59.55	22	61.26
20	60.12	14	58.84	11	61.62	30	61.61	18	59.82	29	61.96
JAN 3	62.18	21	58.03	18	59.30	JUN 6	58.07	25	60.67	SEP 5	59.15
10	61.74	28	59.58	25	59.79	13	57.48	AUG 1	60.79	12	59.45
17	61.31	MAR 7	61.48	MAY 2	59.76	20	57.66	8	60.35	26	58.51
24	59.22	14	60.34								

## RUSK COUNTY

453107090420101. Local number, RU-35/03W/14-0089.

LOCATION.--Lat 45°31'07", long 90°42'01", Hydrologic Unit 07050004. Owner: Hawkins Cemetery.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 6 in, depth 25 ft.

DATUM.--Altitude of land-surface is 1,380 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.25 ft below land-surface datum, June 12, 1991; lowest water level measured, 23.50 ft below land-surface datum, Mar. 2, 1977.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	11.10	JAN 2	13.98	APR 10	12.55	JUN 12	7.25	JUL 1	10.26	AUG 21	12.19
NOV 14	11.89	FEB 6	14.45	MAY 8	9.99						



## GROUND-WATER LEVELS

## ST. CROIX COUNTY

450812092223601. Local number, SC-31/16W/29-0094.

LOCATION.--Lat 45°08'12", long 92°22'36", Hydrologic Unit 07030005. Owner: Cylon Methodist Church.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 4 in, depth 73 ft, cased to 63 ft, open end.

DATUM.--Altitude of land-surface is 1,059 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 2.90 ft above land-surface datum.

PERIOD OF RECORD.--October 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.29 ft below land-surface datum, Sept. 24, 1973; lowest water level measured, 36.04 ft below land-surface datum, Sept. 13, 1961.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	31.31	DEC 1	31.64	FEB 6	31.98	APR 1	31.75	JUN 10	30.80	AUG 14	30.25
NOV 8	31.40	JAN 8	31.85	MAR 7	32.08	MAY 3	31.68	JUL 12	30.43	SEP 4	30.37

## 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.

DATUM.--Altitude of land-surface is 884 ft above National Geodetic Vertical Datum of 1929. Measuring point: hole in platform, at land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--March to September 1989.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 78.89 ft below land-surface datum, May 24, 1989; lowest water level, 83.29 ft below land-surface datum, Mar. 6, 1990.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	80.20	80.61	81.20	81.69	82.22	82.36	82.38	80.59	79.35	79.07	79.37	80.19
10	80.31	80.76	81.24	81.82	82.21	82.82	82.44	80.52	79.29	79.16	79.34	80.35
15	80.43	80.73	81.37	81.73	82.37	82.89	81.99	79.98	79.07	79.22	79.31	80.25
20	80.45	80.89	81.38	81.92	82.39	82.68	81.73	79.70	79.19	79.23	79.45	80.69
25	80.60	81.00	81.62	82.18	82.56	82.75	81.38	79.41	79.16	79.29	79.58	80.50
EOM	80.58	81.16	81.73	82.25	82.41	82.60	80.95	79.21	79.15	79.17	80.12	80.67

WTR YEAR 1991 MAX 82.89 MAR 15 MIN 78.96 JUN 15

## SHAWANO COUNTY

444203088214601. Local number, SH-26/18E/30-0001.

LOCATION.--Lat 44°42'03", long 88°21'46", Hydrologic Unit 04030103. Owner: Wis. Dept. of Transportation.

AQUIFER.--Prairie du Chien.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in, depth 132 ft.

DATUM.--Altitude of land-surface is 917 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of plastic pipe, 0.43 ft below land-surface datum.

PERIOD OF RECORD.--April 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.75 ft below land-surface datum, Oct. 15, 1986; lowest water level measured, 65.15 ft below land-surface datum, Feb. 22, 1990.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	59.51	DEC 20	59.64	FEB 22	60.12	MAY 16	57.07	JUL 22	59.25	SEP 11	59.21
NOV 20	59.70	JAN 17	59.71	APR 17	55.99	JUN 19	58.01	AUG 21	58.15		

## GROUND-WATER LEVELS

583

## TAYLOR COUNTY

450947090483901. 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.

DATUM.--Altitude of land-surface is 1,200 ft above National Geodetic Vertical Datum of 1929. 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, 3.93 ft below land-surface datum, Apr. 18, 1982; lowest water level, 13.11 ft below land-surface datum, Oct. 15, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

LOWEST VALUE												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.66	9.20	8.86		9.68	9.34	7.91	8.68	7.35	9.27	9.38	10.15
10	8.91	9.31	9.39		9.43	9.39	7.24	8.31	8.50	9.55	9.61	9.61
15	9.09	9.40	9.42	9.47	9.64	9.35	7.33	8.77	8.98	9.22	9.85	9.39
20	8.94	9.45	9.52	9.55	9.48	8.69	8.07	8.78	9.21	9.38	9.94	9.39
25	8.75	9.40		9.57	9.55	6.64	8.85	9.01	8.67	9.62	10.02	9.55
ECM	9.10	9.23		9.59	9.46	6.83	8.80	7.77	9.16	9.73	10.17	9.69
WTR YEAR 1991 MAX 10.20 SEP 2 MIN 5.61 MAR 28												

## TREMPEALEAU COUNTY

440422091182901. Local number, TR-19/08W/35-0001.

LOCATION.--Lat 44°04'22", long 91°18'29", Hydrologic Unit 07040007. Owner: Mrs. William Davidson.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in, depth 195 ft.

DATUM.--Altitude of land-surface is 820 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.18 ft below land-surface datum, Jan. 13, 1955; lowest water level measured, 144.95 ft below land-surface datum, Oct. 27, 1966.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 3	139.26	JAN 6	140.15	MAR 13	140.14	MAY 3	138.63	JUL 17	139.70	SEP 14	139.66
DEC 9	139.60	FEB 11	140.17	APR 17	138.88	JUN 12	138.42	AUG 10	139.50		

440414091270401. Local number, TR-19/09W/33-0009.

LOCATION.--Lat 44°04'14", long 91°27'04", Hydrologic Unit 07040005. Owner: Village of Centerville.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled public-supply water-table, diameter 6 in, depth 71 ft, cased to 66 ft, screened 66-71 ft.

DATUM.--Altitude of land-surface is 740 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of breather pipe, at land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.26 ft below land-surface datum, Nov. 9, 1987; lowest water level measured, 57.11 ft below land-surface datum, Mar. 16, 1965.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	49.60	FEB 7	49.38	MAY 6	49.30	JUL 11	49.60	AUG 5	49.93	SEP 6	49.40
JAN 8	49.50	MAR 5	49.20	JUN 6	49.95						

## GROUND-WATER LEVELS

## VILAS COUNTY

455958089420501. Local number, VI-41/06E/26-0895.

LOCATION.--Lat 45°59'58", long 89°42'05", Hydrologic Unit 07070001. Owner: State of Wisconsin.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Augered water-table observation well, diameter 3 in., depth 22 ft, cased to 20 ft, screened 20-22 ft.

DATUM.--Datum of gage is 1,600 ft above National Geodetic Vertical Datum of 1929.

PERIOD OF RECORD.--October 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed water level, 27.08 ft, Apr. 26-28, 1986; minimum observed water level, 22.64 ft, Mar. 14, 1990.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.26	23.62	---	23.60	23.49	23.41	23.53	24.33	24.84	25.00	25.07	24.88
2	23.26	23.63	---	23.60	23.49	23.41	23.54	24.34	24.86	25.00	25.07	24.88
3	23.27	23.64	---	23.60	23.49	23.41	23.55	24.37	24.87	25.00	25.07	24.87
4	23.28	23.65	---	23.59	23.49	23.41	23.57	24.39	24.89	25.00	25.07	24.86
5	23.28	23.66	---	23.59	23.48	23.41	23.59	24.41	24.90	25.01	25.07	24.86
6	23.29	23.67	---	23.59	23.48	23.41	23.62	24.43	24.91	25.01	25.07	24.85
7	23.29	23.68	---	23.58	23.48	23.41	23.63	24.44	24.92	25.01	25.07	24.83
8	23.29	23.69	---	23.58	23.48	23.41	23.66	24.46	24.93	25.01	25.07	24.83
9	23.29	23.69	---	23.57	23.47	23.41	23.68	24.49	24.94	25.01	25.07	24.85
10	23.29	23.69	---	23.56	23.47	23.40	23.70	24.51	24.95	25.01	25.06	24.86
11	23.29	23.70	23.65	23.56	23.46	23.40	23.74	24.53	24.95	25.01	25.05	24.86
12	23.29	23.70	23.65	23.56	23.46	23.40	23.78	24.54	24.95	25.02	25.03	24.86
13	23.30	23.69	23.65	23.55	23.46	23.40	23.83	24.57	24.95	25.02	25.03	24.86
14	23.30	23.70	23.65	23.55	23.45	23.39	23.87	24.58	24.97	25.02	25.02	24.87
15	23.30	23.71	23.65	23.54	23.44	23.40	23.91	24.59	24.96	25.02	25.02	24.87
16	23.31	23.71	23.64	23.53	23.44	23.40	23.95	24.61	24.96	25.02	25.01	24.88
17	23.32	23.71	23.64	23.53	23.45	23.40	23.98	24.63	24.94	25.03	25.01	24.88
18	23.33	23.70	23.64	23.53	23.44	23.39	24.01	24.63	24.95	25.03	25.00	24.89
19	23.34	23.70	23.64	23.53	23.44	23.39	24.05	24.65	24.95	25.04	24.99	24.87
20	23.37	23.70	23.64	23.53	23.43	23.39	24.07	24.67	24.95	25.04	24.98	24.87
21	23.39	23.70	23.63	23.52	23.43	23.39	24.10	24.68	24.95	25.04	24.98	24.87
22	23.41	23.70	23.63	23.52	23.42	23.39	24.13	24.70	24.95	25.05	24.97	24.87
23	23.44	23.70	23.63	23.52	23.42	23.39	24.15	24.71	24.96	25.05	24.96	24.86
24	23.45	23.70	23.63	23.51	23.42	23.39	24.17	24.72	24.97	25.05	24.95	24.85
25	23.48	23.70	23.62	23.51	23.42	23.39	24.19	24.73	24.97	25.05	24.95	24.86
26	23.50	23.70	23.62	23.52	23.42	23.41	24.22	24.74	24.99	25.05	24.95	24.86
27	23.53	23.69	23.61	23.52	23.42	23.45	24.25	24.75	24.99	25.05	24.94	24.84
28	23.56	23.70	23.61	23.51	23.41	23.47	24.26	24.77	24.99	25.05	24.92	24.84
29	23.57	23.68	23.61	23.50	---	23.48	24.29	24.79	24.99	25.05	24.91	24.83
30	23.59	---	23.60	23.50	---	23.49	24.31	24.80	24.99	25.06	24.90	24.83
31	23.60	---	23.60	23.50	---	23.52	---	24.82	---	25.06	24.89	---
MEAN	23.37	---	---	23.55	23.45	23.41	23.91	24.59	24.94	25.03	25.00	24.86
MAX	23.60	---	---	23.60	23.49	23.52	24.31	24.82	24.99	25.06	25.07	24.89
MIN	23.26	---	---	23.50	23.41	23.39	23.53	24.33	24.84	25.00	24.89	24.83

## GROUND-WATER LEVELS

585

## VILAS COUNTY

455910089403701. Local number, VI-41/07E/31-0085.

LOCATION.--Lat 45°59'10", long 89°40'37", Hydrologic Unit 07070001. Owner: State of Wisconsin.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Augered water-table observation well, diameter 3 in., depth 60 ft, cased to 57 ft, well screened 57-60 ft.

PERIOD OF RECORD.--November 1980 to current year.

DATUM.--Datum of gage is 1,600 ft above National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed water level, 33.83 ft, Apr. 14, 1986; minimum observed water level, 29.27 ft, May 15-17, 1990.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.62	29.99	30.04	30.04	29.97	29.87	29.83	30.47	30.92	31.22	---	31.60
2	29.62	29.99	30.03	30.03	29.97	29.86	29.84	30.53	30.94	31.23	---	31.60
3	29.63	30.00	30.03	30.04	29.97	29.86	29.85	30.56	30.98	31.25	---	31.61
4	29.63	30.00	30.03	30.04	29.97	29.86	29.87	30.58	31.00	31.26	---	31.61
5	29.63	30.01	30.03	30.04	29.96	29.86	29.89	30.60	31.00	31.27	---	31.61
6	29.63	30.00	30.03	30.03	29.95	29.85	29.91	30.61	31.01	31.29	---	31.61
7	29.64	30.00	30.03	30.03	29.95	29.85	29.94	30.63	31.02	31.29	---	31.61
8	29.64	30.02	30.03	30.05	29.95	29.84	29.98	30.66	31.03	31.28	---	31.61
9	29.64	30.03	30.03	30.04	29.95	29.84	30.01	30.68	31.04	---	---	31.63
10	29.65	30.02	30.03	30.04	29.95	29.83	30.11	30.68	31.06	---	---	31.63
11	29.65	30.02	30.04	30.04	29.94	29.83	30.17	30.68	31.07	---	---	31.63
12	29.65	30.02	30.05	30.04	29.94	29.83	30.21	30.68	31.08	---	---	31.63
13	29.65	30.03	30.04	30.05	29.94	29.82	30.23	30.68	31.08	---	31.55	31.63
14	29.65	30.04	30.04	30.05	29.94	29.82	30.23	30.69	31.10	---	31.56	31.64
15	29.65	30.04	30.04	30.04	29.93	29.81	30.25	30.70	31.11	---	31.56	31.64
16	29.65	30.03	30.04	30.02	29.93	29.80	30.29	30.70	31.11	---	31.57	31.64
17	29.66	30.03	30.04	30.02	29.92	29.80	30.32	30.72	31.11	---	31.58	31.64
18	29.66	30.04	30.05	30.02	29.91	29.80	30.34	30.73	31.11	---	31.58	31.64
19	29.69	30.04	30.04	30.02	29.91	29.80	30.35	30.75	31.11	---	31.58	31.62
20	29.75	30.04	30.05	30.01	29.91	29.79	30.37	30.75	31.11	---	31.58	31.62
21	29.78	30.05	30.05	30.01	29.91	29.79	30.38	30.75	31.12	---	31.59	31.64
22	29.82	30.05	30.04	30.01	29.89	29.79	30.39	30.76	31.12	---	31.60	31.65
23	29.84	30.06	30.05	30.01	29.89	29.81	30.39	30.76	31.13	---	31.60	31.64
24	29.87	30.06	30.05	29.99	29.89	29.80	30.41	30.77	31.16	---	31.60	31.64
25	29.90	30.04	30.04	29.99	29.88	29.80	30.42	30.77	31.17	---	31.60	31.66
26	29.92	30.03	30.03	29.99	29.88	29.82	30.43	30.79	31.19	---	31.60	31.65
27	29.94	30.05	30.03	29.99	29.88	29.84	30.44	30.79	31.20	---	31.60	31.63
28	29.94	30.06	30.03	29.99	29.87	29.84	30.43	30.82	31.20	---	31.60	31.63
29	29.96	30.06	30.04	29.98	---	29.82	30.44	30.90	31.20	---	31.60	31.62
30	29.97	30.06	30.04	29.98	---	29.83	30.46	30.92	31.20	---	31.60	31.64
31	29.98	---	30.04	29.97	---	29.83	---	30.92	---	---	31.60	---
MEAN	29.74	30.03	30.04	30.02	29.93	29.83	30.21	30.71	31.09	---	---	31.63
MAX	29.98	30.06	30.05	30.05	29.97	29.87	30.46	30.92	31.20	---	---	31.66
MIN	29.62	29.99	30.03	29.97	29.87	29.79	29.83	30.47	30.92	---	---	31.60

## 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.

DATUM.--Altitude of land-surface is 1,640 ft above National Geodetic Vertical Datum of 1929. 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, 10.60 ft below land-surface datum, July 21, 1968; 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 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	13.09	JAN 15	13.38	MAY 15	11.96	JUL 15	11.93	AUG 14	12.15	SEP 16	12.35
DEC 18	12.76	APR 15	12.67	JUN 17	11.80						

## 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.

DATUM.--Altitude of land-surface is 860 ft above National Geodetic Vertical Datum of 1929. 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, 215.10 ft below land-surface datum, Mar. 5, 1990.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	211.52	DEC 5	209.89	FEB 21	210.50	MAR 25	209.99	MAY 6	209.55	JUL 17	210.49
NOV 28	209.91	JAN 16	210.49	MAR 4	209.57	APR 3	210.01	JUN 19	210.45	SEP 3	214.06

## WAUKESHA COUNTY

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.

DATUM.--Altitude of land-surface is 962 ft above National Geodetic Vertical Datum of 1929. 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, 126.28 ft below land-surface datum, June 10, 1974; lowest water level, 138.14 ft below land-surface datum, Feb. 2, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	134.73	134.74	134.53	134.25	134.26	133.94	133.49	132.89	133.35	134.10	134.13	134.45
10	134.75	134.63	134.51	134.22	134.15	133.95	133.51	132.85	133.53	133.90	134.29	134.48
15	134.74	134.60	134.42	134.09	133.94	133.95	133.27	133.11	133.65	133.76	134.50	134.03
20	134.71	134.64	134.43	134.14	134.09	133.84	133.01	133.15	133.81	133.99	134.73	134.19
25	134.79	134.60	134.39	134.22	134.12	133.87	132.91	132.92	133.98	133.93	134.90	134.05
EOM	134.77	134.67	134.28	134.26	134.01	133.70	132.83	133.30	134.05	133.84	134.89	134.10

WTR YEAR 1991 MAX 135.00 AUG 29 MIN 132.24 APR 29

## 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.

DATUM.--Altitude of land-surface is 764 ft above National Geodetic Vertical Datum of 1929. 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, 15.91 ft below land-surface datum, Feb. 23, 1954.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	13.86	DEC 15	14.30	FEB 16	14.68	APR 13	13.04	JUN 8	12.49	AUG 3	13.29
13	13.90	22	14.33	23	14.70	20	12.30	15	12.47	17	13.57
20	14.14	29	14.38	MAR 2	14.73	27	12.21	22	12.45	24	13.79
27	14.20	JAN 5	14.40	9	14.75	MAY 4	12.56	29	12.60	31	13.85
NOV 10	14.23	13	14.48	16	14.59	11	12.60	JUL 3	12.63	SEP 7	14.01
17	14.22	19	14.50	23	14.54	18	12.67	13	12.70	14	14.20
24	14.15	26	14.53	30	14.50	25	12.60	20	12.98	21	14.29
DEC 1	14.13	FEB 1	14.62	APR 6	13.10	JUN 1	12.58	27	13.20	28	14.38
8	14.28	9	14.66								

## 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.

DATUM.--Altitude of land-surface is 1,080 ft above National Geodetic Vertical Datum of 1929. 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, 15.71 ft below land-surface datum, June 10, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

## LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.56	10.68	10.81	11.01	11.24	11.45	10.97	10.20	9.43	9.22	9.60	9.97
10	10.57	10.71	10.85	11.05	11.28	11.49	10.86	10.10	9.24	9.27	9.66	10.03
15	10.58	10.73	10.87	11.08	11.32	11.52	10.78	10.00	9.17	9.33	9.72	10.09
20	10.59	10.75	10.90	11.12	11.36	11.54	10.68	9.94	9.15	9.39	9.77	10.15
25	10.62	10.76	10.93	11.15	11.40	11.43	10.52	9.86	9.17	9.45	9.84	10.20
EOM	10.66	10.79	10.97	11.20	11.42	11.12	10.35	9.72	9.19	9.52	9.91	10.26

WTR YEAR 1991 MAX 11.54 MAR 19 MIN 9.15 JUN 20

441414089091101. Local number, WS-20/11E/02-0053.

LOCATION.--Lat 44°14'14", long 89°09'11", Hydrologic Unit 04030202. Owner: Merle Knox.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in, depth 177 ft, cased to 172 ft, screened 172-177 ft.

DATUM.--Altitude of land-surface is 923 ft above National Geodetic Vertical Datum of 1929. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.78 ft below land-surface datum, Oct. 18, 1986; lowest water level measured, 40.41 ft below land-surface datum, Mar. 4, 1959.

## WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	36.43	DEC 16	36.63	FEB 18	36.95	APR 17	36.22	JUN 20	35.15	AUG 18	36.20
NOV 15	36.75	JAN 18	36.80	MAR 17	36.95	MAY 18	35.61	JUL 18	35.96	SEP 24	36.30



GEOLOGICAL UNIT.--110QRNR, rocks of the Quaternary System of the Cenozoic Era. 350 SLRN, rocks of the Silurian System. 360ODVC, rocks of the Ordovician System of the Paleozoic Era. 365CMPL, rocks of the Champlanian Series of the Ordovician System. 365SNNP, rocks of the Sennepsee Group. 365STPR, St. Peter Sandstone. 368PRDC, Prairie du Chien Group of the Ordovician System. 372SCRX, rocks of the St. Croix Series of the Cambrian System of the Paleozoic Era. 372TMPL, rock of the Trempealeau Group of Cambrian System. 400BCPX, Precambrian crystalline rocks of the basement complex.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	LOCAL IDENT- IFIER	GEO- LOGIC UNIT	DATE	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)
CALUMET COUNTY							
440003088091401	CA-18/20E/30-1117		350SLRN	03-19-91	122.00	712	7.1
			350SLRN	08-01-91	122.00	722	7.0
COLUMBIA COUNTY							
431938089102401	CO-10/11E/15-0078		372SCRX	03-27-91	222.00	599	8.0
			372SCRX	07-22-91	222.00	622	7.5
DANE COUNTY							
431136089470201	DN-08/06E/04-1143		110QRNR	03-11-91	220.00	522	7.4
			110QRNR	08-21-91	220.00	--	--
DODGE COUNTY							
433223088491201	DG-12/14E/03-1042		365STPR	03-20-91	264.00	526	7.2
			365STPR	07-25-91	264.00	541	7.1
DUNN COUNTY							
444620091430601	DU-27/11W/33-0340		110QRNR	04-02-91	154.00	185	7.0
			110QRNR	08-16-91	154.00	205	--
444828091423301	DU-27/11W/22-0341		110QRNR	04-02-91	50.00	--	--
			110QRNR	08-16-91	50.00	230	--
GRANT COUNTY							
425732090452301	GR-06/03W/32-0120		368PRDC	04-04-91	275.00	662	7.1
			368PRDC	07-24-91	275.00	688	7.0
GREEN COUNTY							
423015089321701	GN-01/08E/23-0131		365CMPL	03-12-91	100.00	796	7.1
			365CMPL	07-23-91	100.00	792	6.9
GREEN LAKE COUNTY							
435301088564201	GL-16/13E/03-0081		360ODVC	03-20-91	123.00	712	6.8
			360ODVC	07-25-91	123.00	729	6.7
IOWA COUNTY							
425709090215501	IW-06/01E/34-0240		365SNNP	03-21-91	120.00	735	7.1
			365SNNP	07-24-91	120.00	743	7.2



## QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	DATE	TEMPER- ATURE WATER (DEG C) (00010)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	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)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
CALUMET COUNTY--CONTINUED								
440003088091401		03-19-91	10.5	--	<0.010	1.80	<0.010	0.010
		08-01-91	15.0	--	<0.010	1.60	0.020	0.020
COLUMBIA COUNTY--CONTINUED								
431938089102401		03-27-91	10.0	--	<0.010	7.30	0.020	<0.010
		07-22-91	11.0	7.19	0.010	7.20	0.020	<0.010
DANE COUNTY--CONTINUED								
431136089470201		03-11-91	10.5	--	<0.010	<0.050	0.030	<0.010
		08-21-91	--	--	<0.010	<0.050	0.040	0.070
DODGE COUNTY--CONTINUED								
433223088491201		03-20-91	10.5	--	<0.010	0.160	0.010	<0.010
		07-25-91	12.0	0.180	0.020	0.200	0.020	<0.010
DUNN COUNTY--CONTINUED								
444620091430601		04-02-91	11.5	--	<0.010	8.80	<0.010	0.100
		08-16-91	11.5	--	<0.010	11.0	0.020	0.120
444828091423301		04-02-91	--	--	<0.010	11.0	<0.010	0.010
		08-16-91	11.0	--	<0.010	10.0	0.010	0.090
GRANT COUNTY--CONTINUED								
425732090452301		04-04-91	11.5	--	<0.010	3.80	<0.010	0.010
		07-24-91	22.0	4.19	0.010	4.20	0.020	<0.010
GREEN COUNTY--CONTINUED								
423015089321701		03-12-91	10.5	18.0	0.020	18.0	<0.010	<0.010
		07-23-91	14.0	19.0	0.010	19.0	0.020	<0.010
GREEN LAKE COUNTY--CONTINUED								
435301088564201		03-20-91	10.5	--	<0.010	7.30	<0.010	<0.010
		07-25-91	11.5	7.78	0.020	7.80	0.020	<0.010
IOWA COUNTY--CONTINUED								
425709090215501		03-21-91	11.5	--	<0.010	17.0	0.030	0.020
		07-24-91	11.0	15.0	0.010	15.0	0.020	0.010

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	LOCAL IDENT- I- FIER	GEO- LOGIC UNIT	DATE	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
JEFFERSON COUNTY									
425847088524401	JE-06/14E/18-0878		368PRDC	03-26-91	221.00	607	7.6	10.5	--
			368PRDC	07-25-91	221.00	375	6.8	12.0	--
LAFAYETTE COUNTY									
423911090185701	LF-02/01E/13-0325		365STPR	03-25-91	224.00	535	7.0	10.0	--
			365STPR	07-24-91	224.00	556	7.3	12.5	--
MENOMINEE COUNTY									
445230088414801	ME-28/15E/17-0230		110QRNR	08-15-91	38.00	424	7.3	11.5	--
445301088370801	ME-28/15E/25-0135		110QRNR	08-15-91	51.00	358	7.6	15.5	--
445334088391501	ME-28/15E/22-0050		400PCBX	08-14-91	263.00	531	7.8	12.0	--
445358088350701	ME-28/16E/17-0232		110QRNR	08-15-91	64.00	297	8.0	10.5	--
445401088385001	ME-28/15E/14-0231		400PCBX	08-14-91	66.00	367	8.0	12.0	--
445426088425001	ME-28/15E/17-0100		400BCPX	08-15-91	185.00	343	7.7	13.5	--
445439088385801	ME-28/15E/14-0034		110QRNR	08-20-91	40.00	393	7.7	11.5	--
450015088365001	ME-29/15E/12-0110		110QRNR	08-20-91	46.00	160	5.9	13.0	--
MONROE COUNTY									
434800090323001	MO-15/01W/06-0201		110QRNR	03-28-91	10.00	440	8.2	3.5	13.0
			110QRNR	07-02-91	10.00	--	--	--	--
434800090323017	MO-15/01W/06-0204		110QRNR	03-28-91	10.00	296	7.3	4.5	5.2
434800090323020	MO-15/01W/06-0209		110QRNR	03-28-91	10.00	--	--	--	--
434800090323026	MO-15/01W/06-0203		110QRNR	03-28-91	10.00	--	--	--	--
434800090323027	MO-15/01W/06-0210		110QRNR	03-28-91	10.00	290	7.2	5.5	3.0
			110QRNR	07-02-91	10.00	--	--	--	--
434800090323029	MO-15/01W/06-0229		110QRNR	07-08-91	10.00	--	--	--	--
434800090323030	MO-15/01W/06-0230		110QRNR	07-03-91	10.00	--	--	--	--
			110QRNR	07-08-91	10.00	380	6.9	25.5	--
434800090323031	MO-15/01W/06-0231		110QRNR	07-02-91	10.00	380	7.1	12.0	--
434800090323032	MO-15/01W/06-0232		110QRNR	07-08-91	10.00	480	7.9	19.5	--
434800090323033	MO-15/01W/06-0233		110QRNR	07-08-91	10.00	490	8.5	25.5	--
434800090323034	MO-15/01W/06-0234		110QRNR	07-08-91	20.00	290	7.2	13.0	--
OUTAGAMIE COUNTY									
441935088403001	OU-21/15E/04-0415		372TMPL	03-18-91	140.00	--	--	--	--
			372TMPL	03-18-91	140.00	605	7.1	8.0	--
			372TMPL	08-01-91	140.00	614	7.0	14.5	--
PEPIN COUNTY									
443642092012301	PP-25/14W/25-0067		110QRNR	04-02-91	104.00	333	6.3	12.0	--
			110QRNR	08-16-91	104.00	377	--	13.5	--
RICHLAND COUNTY									
432755090213001	RI-11/01E/03-0076		110QRNR	03-27-91	10.00	320	7.7	10.5	--
432755090213004	RI-11/01E/03-0074		110QRNR	03-27-91	10.00	--	--	--	--
432755090213007	RI-11/01E/03-0073		110QRNR	03-27-91	10.00	460	7.4	8.5	--
432755090213016	RI-11/01E/03-0077		110QRNR	03-27-91	10.00	240	6.9	9.5	--

## QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	DATE	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)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
JEFFERSON COUNTY--CONTINUED										
425847088524401		03-26-91	--	--	--	--	--	--	--	--
		07-25-91	--	--	--	--	--	--	--	--
LAFAYETTE COUNTY--CONTINUED										
423911090185701		03-25-91	--	--	--	--	--	--	--	--
		07-24-91	--	--	--	--	--	--	--	--
MENOMINEE COUNTY--CONTINUED										
445230088414801		08-15-91	--	--	--	--	--	--	--	--
445301088370801		08-15-91	--	--	--	--	--	--	--	--
445334088391501		08-14-91	--	--	--	--	--	--	--	--
445358088350701		08-15-91	--	--	--	--	--	--	--	--
445401088385001		08-14-91	--	--	--	--	--	--	--	--
445426088425001		08-15-91	--	--	--	--	--	--	--	--
445439088385801		08-20-91	--	--	--	--	--	--	--	--
450015088365001		08-20-91	--	--	--	--	--	--	--	--
MONROE COUNTY--CONTINUED										
434800090323001		03-28-91	230	49	25	4.7	3.4	202	15	13
		07-02-91	--	--	--	--	--	--	--	--
434800090323017		03-28-91	150	33	16	1.6	0.70	140	10	2.3
434800090323020		03-28-91	150	34	17	2.4	0.70	159	1.4	5.3
434800090323026		03-28-91	210	45	24	1.4	0.70	189	19	3.0
434800090323027		03-28-91	150	34	17	1.5	0.80	148	15	2.1
		07-02-91	--	--	--	--	--	--	--	--
434800090323029		07-08-91	--	--	--	--	--	--	--	--
434800090323030		07-03-91	--	--	--	--	--	--	--	--
		07-08-91	--	--	--	--	--	--	--	--
434800090323031		07-02-91	--	--	--	--	--	--	--	--
434800090323032		07-08-91	--	--	--	--	--	--	--	--
434800090323033		07-08-91	--	--	--	--	--	--	--	--
434800090323034		07-08-91	--	--	--	--	--	--	--	--
OUTAGAMIE COUNTY--CONTINUED										
441935088403001		03-18-91	--	--	--	--	--	--	--	--
		03-18-91	--	--	--	--	--	--	--	--
		08-01-91	--	--	--	--	--	--	--	--
PEPIN COUNTY--CONTINUED										
443642092012301		04-02-91	--	--	--	--	--	--	--	--
		08-16-91	--	--	--	--	--	--	--	--
RICHLAND COUNTY--CONTINUED										
432755090213001		03-27-91	150	34	17	3.6	4.3	140	15	8.5
432755090213004		03-27-91	260	56	30	2.9	0.60	256	9.9	4.0
432755090213007		03-27-91	250	54	28	2.3	0.50	248	11	3.8
432755090213016		03-27-91	130	29	14	3.0	0.60	105	7.7	6.9

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	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)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
JEFFERSON COUNTY--CONTINUED										
425847088524401		03-26-91	--	--	--	0.420	0.010	0.430	0.040	--
		07-25-91	--	--	--	0.360	0.030	0.390	0.020	--
LAFAYETTE COUNTY--CONTINUED										
423911090185701		03-25-91	--	--	--	--	<0.010	<0.050	0.030	--
		07-24-91	--	--	--	--	0.010	<0.050	0.020	--
MENOMINEE COUNTY--CONTINUED										
445230088414801		08-15-91	--	--	--	--	--	--	--	--
445301088370801		08-15-91	--	--	--	--	--	--	--	--
445334088391501		08-14-91	--	--	--	--	--	--	--	--
445358088350701		08-15-91	--	--	--	--	--	--	--	--
445401088385001		08-14-91	--	--	--	--	--	--	--	--
445426088425001		08-15-91	--	--	--	--	--	--	--	--
445439088385801		08-20-91	--	--	--	--	--	--	--	--
450015088365001		08-20-91	--	--	--	--	--	--	--	--
MONROE COUNTY--CONTINUED										
434800090323001		03-28-91	0.20	8.8	245	0.980	0.020	1.00	0.150	0.070
		07-02-91	--	--	--	0.660	0.060	0.720	0.060	0.130
434800090323017		03-28-91	0.20	11	160	--	<0.010	<0.050	0.020	<0.010
434800090323020		03-28-91	0.10	13	173	--	<0.010	<0.050	0.320	0.180
434800090323026		03-28-91	0.20	11	222	--	<0.010	0.350	<0.010	0.010
434800090323027		03-28-91	0.10	10	171	--	<0.010	<0.050	0.050	0.020
		07-02-91	--	--	--	--	0.010	<0.050	0.070	0.030
434800090323029		07-08-91	--	--	--	10.7	7.30	18.0	6.60	<0.010
434800090323030		07-03-91	--	--	--	--	--	--	--	--
		07-08-91	--	--	--	--	0.020	<0.050	1.20	0.030
434800090323031		07-02-91	--	--	--	--	0.010	<0.050	0.040	0.020
434800090323032		07-08-91	--	--	--	--	--	--	--	--
434800090323033		07-08-91	--	--	--	--	--	--	--	--
434800090323034		07-08-91	--	--	--	--	--	--	--	--
OUTAGAMIE COUNTY--CONTINUED										
441935088403001		03-18-91	--	--	--	--	<0.010	<0.050	0.050	--
		03-18-91	--	--	--	--	<0.010	<0.050	0.060	--
		08-01-91	--	--	--	--	<0.010	<0.050	0.050	--
PEPIN COUNTY--CONTINUED										
443642092012301		04-02-91	--	--	--	--	<0.010	13.0	0.010	--
		08-16-91	--	--	--	--	<0.010	15.0	0.010	--
RICHLAND COUNTY--CONTINUED										
432755090213001		03-27-91	<0.10	8.1	178	0.720	0.020	0.740	0.160	0.120
432755090213004		03-27-91	0.30	15	274	--	<0.010	<0.050	0.060	0.040
432755090213007		03-27-91	0.20	13	263	--	<0.010	<0.050	0.110	0.040
432755090213016		03-27-91	<0.10	15	155	--	<0.010	3.60	0.030	0.090

## QUALITY OF GROUND WATER

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	DATE	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, TOTAL (INORG + ORG) (MG/L AS C) (00690)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, INOR- GANIC, TOTAL (MG/L AS C) (00685)	RADON 222 TOTAL (PC/L) (82303)	RA-222 2 SIGMA WATER, WHOLE, TOTAL, (PCI/L) (76002)
JEFFERSON COUNTY--CONTINUED										
425847088524401		03-26-91	<0.010	--	--	--	--	--	--	--
		07-25-91	<0.010	--	--	--	--	--	--	--
LAFAYETTE COUNTY--CONTINUED										
423911090185701		03-25-91	<0.010	--	--	--	--	--	--	--
		07-24-91	<0.010	--	--	--	--	--	--	--
MENOMINEE COUNTY--CONTINUED										
445230088414801		08-15-91	--	--	--	--	--	--	1200	33
445301088370801		08-15-91	--	--	--	--	--	--	200	33
445334088391501		08-14-91	--	--	--	--	--	--	26000	95
445358088350701		08-15-91	--	--	--	--	--	--	240	31
445401088385001		08-14-91	--	--	--	--	--	--	2500	39
445426088425001		08-15-91	--	--	--	--	--	--	7300	52
445439088385801		08-20-91	--	--	--	--	--	--	1500	33
450015088365001		08-20-91	--	--	--	--	--	--	3900	43
MONROE COUNTY--CONTINUED										
434800090323001		03-28-91	0.050	73	120	--	--	--	--	--
		07-02-91	0.140	--	--	54	3.0	51	--	--
434800090323017		03-28-91	<0.010	1200	160	--	--	--	--	--
434800090323020		03-28-91	0.030	3300	410	--	--	--	--	--
434800090323026		03-28-91	<0.010	2900	92	--	--	--	--	--
434800090323027		03-28-91	<0.010	1200	150	--	--	--	--	--
		07-02-91	0.030	--	--	38	0.3	38	--	--
434800090323029		07-08-91	<0.010	--	--	32	28	4.1	--	--
434800090323030		07-03-91	--	--	--	54	4.3	50	--	--
		07-08-91	0.010	--	--	--	--	--	--	--
434800090323031		07-02-91	<0.010	--	--	48	0.4	48	--	--
434800090323032		07-08-91	--	--	--	60	6.2	54	--	--
434800090323033		07-08-91	--	--	--	60	7.1	53	--	--
434800090323034		07-08-91	--	--	--	40	0.9	39	--	--
OUTAGAMIE COUNTY--CONTINUED										
441935088403001		03-18-91	<0.010	--	--	--	--	--	--	--
		03-18-91	<0.010	--	--	--	--	--	--	--
		08-01-91	<0.010	--	--	--	--	--	--	--
PEPIN COUNTY--CONTINUED										
443642092012301		04-02-91	<0.010	--	--	--	--	--	--	--
		08-16-91	<0.010	--	--	--	--	--	--	--
RICHLAND COUNTY--CONTINUED										
432755090213001		03-27-91	0.110	78	59	--	--	--	--	--
432755090213004		03-27-91	0.020	920	410	--	--	--	--	--
432755090213007		03-27-91	<0.010	1200	610	--	--	--	--	--
432755090213016		03-27-91	0.080	41	9	--	--	--	--	--

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

STATION	NUMBER	LOCAL IDENT- IFIER	GEO- LOGIC UNIT	DATE	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH (STAND- ARD UNITS) (00400)
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## ROCK COUNTY

424103088534201	RO-03/13E/36-0602		110QRNR	03-22-91	60.00	696	7.2
			110QRNR	07-23-91	60.00	707	7.2
424334088571101	RO-03/13E/15-0601		110QRNR	03-26-91	284.00	609	7.1
			110QRNR	07-23-91	284.00	622	7.2

## ST CROIX COUNTY

450337092283301	SC-30/17W/29-0751		372TMPL	04-01-91	370.00	282	7.6
			372TMPL	08-16-91	370.00	286	7.4

## WINNEBAGO COUNTY

440846088350401	WI-19/16E/04-0608		365SNNP	03-19-91	82.00	923	7.3
			365SNNP	07-31-91	82.00	--	--
			365SNNP	07-31-91	82.00	890	7.3

STATION	NUMBER	DATE	TEMPER- ATURE WATER (DEG C) (00010)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	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)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
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## ROCK COUNTY--CONTINUED

424103088534201	03-22-91	10.5	--	<0.010	8.60	0.020	<0.010
	07-23-91	11.0	8.89	0.010	8.90	0.020	<0.010
424334088571101	03-26-91	11.5	--	<0.010	5.10	0.030	<0.010
	07-23-91	11.0	4.99	0.010	5.00	0.020	<0.010

## ST CROIX COUNTY--CONTINUED

450337092283301	04-01-91	8.0	--	<0.010	<0.050	0.030	<0.010
	08-16-91	12.5	--	<0.010	<0.050	0.030	<0.010

## WINNEBAGO COUNTY--CONTINUED

440846088350401	03-19-91	11.0	--	<0.010	<0.050	0.040	<0.010
	07-31-91	--	--	<0.010	<0.050	0.050	0.010
	07-31-91	14.0	--	--	--	--	--

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

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 basins--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.

Cline, D.R., 1965, Geology and ground-water resources of Dane County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1779-U, 64 p.

Holt, C.L.R., Jr., 1965, Geology and water resources of Portage County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1796, 77 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 Hindell, 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

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.

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

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 Crux 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, stream-flow, 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: 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 Skavronck, Steven, 1981, Comparison of the propone-area tracer method and predictive equations for determination of stream-recreation 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 Skavronck, Steven, 1980, Comparison of tracer methods and predictive models for determination of stream-recreation 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 54-75, 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 17-75, 31 p.

Gebert, W.A., and Holmstrom, B.K., 1974, Low-flow characteristics of Wisconsin streams at sewage-treatment plants: U.S. Geological Survey Water-Resources Investigations 45-74, 101 p.

Hendrickson, G.E., Knutilla, R.L., and Doonan, C.J., 1973, Hydrology and recreation of selected cold-water rivers of the St. Lawrence River basin in Michigan, New York, and Wisconsin: U.S. Geological Survey Water-Resources Investigations 8-73, 73 p.

#### OPEN-FILE REPORTS

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.

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 stream-flow 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.

\_\_\_\_\_, 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 probably 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 plates.

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 plate.

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.

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.

#### OTHER PUBLICATIONS

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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## FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$ $2.54 \times 10^{-2}$	millimeters (mm) meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$ $4.047 \times 10^{-1}$ $4.047 \times 10^{-3}$	square meters (m <sup>2</sup> ) square hectometers (hm <sup>2</sup> ) square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$ $3.785 \times 10^0$ $3.785 \times 10^{-3}$	liters (L) cubic decimeters (dm <sup>3</sup> ) cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$ $3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> ) cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$ $2.832 \times 10^{-2}$	cubic decimeters (dm <sup>3</sup> ) cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$ $2.447 \times 10^{-3}$	cubic meters (m <sup>3</sup> ) cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$ $1.233 \times 10^{-3}$ $1.233 \times 10^{-6}$	cubic meters (m <sup>3</sup> ) cubic hectometers (hm <sup>3</sup> ) cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$ $2.832 \times 10^1$ $2.832 \times 10^{-2}$	liters per second (L/s) cubic decimeters per second (dm <sup>3</sup> /s) cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$ $6.309 \times 10^{-2}$ $6.309 \times 10^{-5}$	liters per second (L/s) cubic decimeters per second (dm <sup>3</sup> /s) cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$ $4.381 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s) cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons

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