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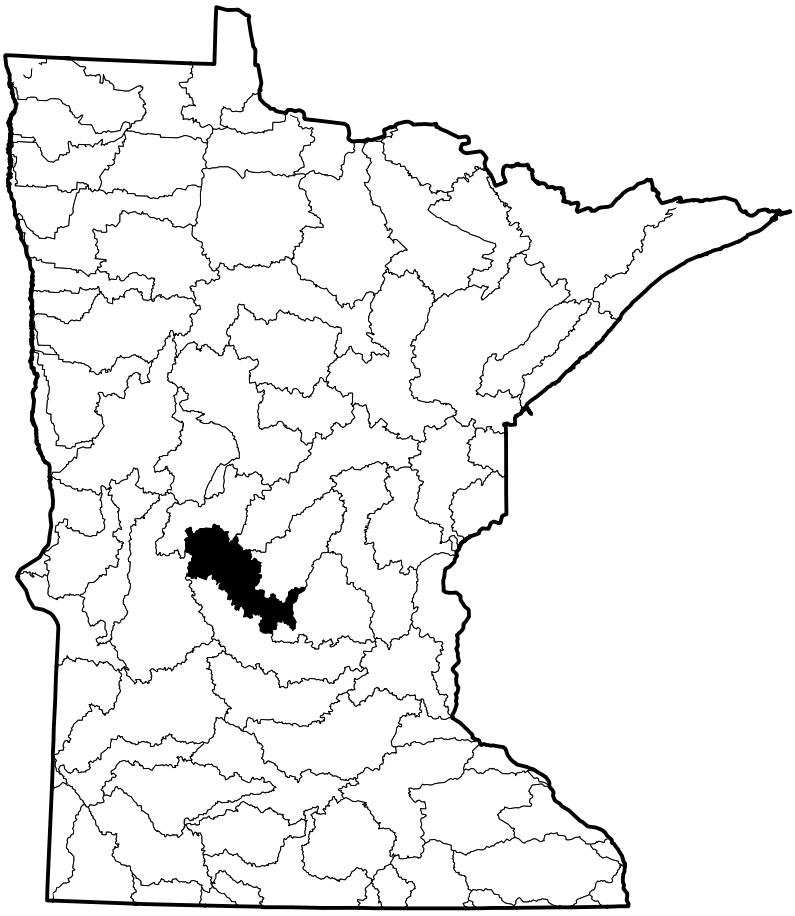
By C.A. Sanocki and B.C. Fischer
Open -File Report 00-233



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SANOCKI AND FISCHER
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Physical Characteristics of Stream Subbasins in the Sauk River Basin, Central Minnesota

By Christopher A. Sanocki and Brian C. Fischer

Abstract

Data that describe the physical characteristics of stream subbasins upstream from selected sites on streams in the Sauk River Basin, located in central Minnesota, are presented in this report. The physical characteristics are the drainage area of the subbasin, the percentage area of the subbasin covered only by lakes, the percentage area of the subbasin covered by both lakes and wetlands, the main-channel length, and the main-channel slope. Stream sites include outlets of subbasins of at least 5 square miles, and locations of U.S. Geological Survey high-flow, and continuous-record gaging stations.

Introduction

This report is part of a series detailing subbasin characteristics of streams in Minnesota and adjacent states. The Sauk River Basin drains an area of 1,040 square miles and is represented by hydrologic accounting unit 07010202 (U.S. Geological Survey, 1974). The Sauk River Basin includes parts of Douglas, Meeker, Morrison, Pope, Stearns, and Todd Counties in central Minnesota.

Selected data for sites on streams at outlets of subbasins larger than about 5 square miles; at locations of U.S. Geological Survey (USGS) high-flow, and continuous-record gaging stations located in the Sauk River Basin are presented in this report. This report was prepared in cooperation with the Minnesota Department of Transportation.

Acknowledgments

Scott Bryant a graduate student of St. Cloud State University, did much of the digitizing and assisted in the preparation of this report. These contributions were essential for the completion of this report.

Methods

USGS 7-1/2 minute series topographic maps were used as source maps to define subbasin boundaries and to obtain main-channel length, and contour elevation points used in this report. Paper copies of the maps were used. Lake and marsh data were obtained from U.S. Fish and Wildlife Service National Wetlands Inventory Data (U.S. Fish & Wildlife Service, 1981-present). A geographic information system (GIS) was used to define the geographic location and extent of the subbasins, lakes, marshes, main-channels, and elevation points. Data digitized from paper copies were in error by no more than twice the horizontal accuracy of National Mapping Standards of 40 feet (Thompson, 1987, p. 104). All thematic (digitized) data were projected into an Albers Equal-Area projection for storage and analysis.

Subbasin boundaries were delineated on the basis of anthropogenic activities and topographic contours. Anthropogenic activities, such as the installation of storm sewers, the drainage of wetlands, and the diversion of streams, may alter the drainage area of a stream; therefore data from field inspections and recent drainage-ditch maps, were transferred to the topographic maps. The subbasin boundaries were digitized by the Minnesota Department of Natural Resources (DNR), and the USGS Minnesota District using a GIS.

Lake and marsh boundaries were overlaid on the subbasin boundaries to associate each lake and marsh with a subbasin. The total area of lakes and marshes within each subbasin was calculated by the GIS. Total marsh area plus total lake area is defined as storage area.

Main channels were delineated for each subbasin on the 7-1/2 minute topographic maps starting at the outflow of the subbasin and continuing upstream. Whenever the main channel joined with another stream, the stream upstream of the junction that drained the largest area was selected as the main channel. The main channel, which represents the watercourse that drains the greatest area, is continuous and is defined as a single trace that passes through marshes, lakes, and midline of rivers and braided streams from the basin outlet to an endpoint in the basin,

generally at the basin divide. The main channels were digitized by the Minnesota Department of Transportation, using a computer aided drafting system and transferred to the GIS. Stream extensions that represent a portion of the main channel from the end of the mapped stream (blue line on 7-1/2 minute topographic maps) to an endpoint within the basin, generally at the basin divide, were digitized by USGS Minnesota District using a GIS. The main-channel data were overlaid onto the subbasin data to associate each main channel with its subbasin.

Elevation points were digitized at the intersection of topographic contour lines and main channel. The elevation data were digitized using a GIS. The elevation data was overlaid onto the main channel data to associate each elevation data point with a main channel. Two points on the main-channel, at 10 percent and at 85 percent of the main channel length from the basin outlet to the drainage divide, were located by the GIS. The elevations of these two points were interpolated from the digitized elevation data. Main-channel slope was calculated by dividing the difference in elevation between these points by the distance along the stream channel between these points.

Physical Characteristics of Sauk River Subbasins

Physical characteristics determined for each of the subbasins shown on plate 1 are presented in table 1. Subbasins are presented in order from headwaters to mouth. The rank of the subbasin stream is shown by indentation; whenever two subbasin streams joined, the stream draining the least cumulative area was assigned a lower rank and indented in the table.

The data for drainage area, and main-channel length are reported using three significant figures or rounded to the nearest one-hundredth of a unit. The data for lake area and storage area are reported to the nearest one-tenth of a percent. The data for main-channel slope is reported to the nearest one-tenth of a foot per mile.

The following is an explanation of the terms used in table 1 and plate 1:

Subbasin number. A seven digit number based on the Minnesota Common Stream and Watershed Numbering System (Minnesota Department of Natural Resources, 1981). The first two digits are “16” and identify the Sauk River Basin. The following three digits are arbitrary and were assigned by the DNR. The last two digits were added by the USGS Minnesota District, to identify additional subdivisions to the DNR’s watersheds at locations of USGS gaging stations and to identify noncontributing areas.

Stream name. The name of the stream or ditch shown on 7-1/2 minute topographic maps. The relative position of the subbasin above other subbasins, streams, and gaging stations.

Outlet location. The U.S. Public Lands Survey System is used to describe the location where the stream exits the subbasin, down to quarter-quarter section. The description includes quarter-quarter section, section, township, and range.

Drainage area. That area, measured on a horizontal plane, enclosed by a topographic divide, within which direct surface runoff from precipitation normally flows by gravity into a watercourse above a specific point. This may include closed basins and other areas that do not contribute directly to surface runoff.

Lake area. The percentage of the drainage area labeled lacustrine (lakes) on U.S. Fish and Wildlife Service National Wetlands Inventory Data.

Storage area. The percentage of a drainage area labeled lacustrine (lakes) and palustrine (wetlands) on U.S. Fish and Wildlife Service National Wetlands Inventory Data. Marsh areas shown on plate 1 are from USGS 1:100,000 digital line graph data 1993.

Main-channel length. The total length of the main channel from the basin outlet to a point within the basin (generally at the basin divide) representing the watercourse that drains the greatest area.

Main-channel slope. The average slope of the watercourse between the points at 10 and at 85 percent of the distance along the main channel from the basin outlet to the drainage divide.

Stream extension. A representation of the main channel from the end of the mapped stream line (blue line on 7-1/2 minute topographic maps) to an endpoint within the basin, generally at the basin divide. This is done by interpreting topographic relief so that the extension of the main channel represents the watercourse draining the greatest area.

References Cited

Minnesota Department of Natural Resources, 1981, The common stream and watershed numbering system: Minnesota Department of Natural Resources Stream Inventory and Data Retrieval Systems Report 7002, unpaged.

Thompson, M.M., 1987, Maps for America, 3d edition: U.S. Geological Survey, 265 p.

U.S. Geological Survey, 1974, Hydrologic unit map—1974 State of Minnesota: 1 plate, scale 1:500,000.

U.S. Fish & Wildlife Service, National Wetlands Inventory Digital Data: Oct. 1981 to present.

Table 1.—Physical characteristic data for the Sauk River Basin.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank Second Rank Third Rank Fourth Rank Fifth Rank												
1606400	Smith Lake outlet	SW SW	32	128N	36W	19.3	5.2	18.2	19.3	5.2	18.2	6.67	10.6
1606300	Fairfield Creek to Crooked Lake Ditch	SE NE	08	128N	36W	16.7	1.4	20.4	36.0	3.5	19.2	11.6	5.1
1606200	Crooked Lake Ditch above Fairfield Creek	SE NE	08	128N	36W	8.93	1.7	11.4	8.93	1.7	11.4	7.28	8.4
1606101	Crooked Lake Ditch above (basin 1606100)	NE SW	04	128N	36W	1.18	0.0	18.6	46.1	3.0	17.7	12.5	4.6
1606100	Crooked Lake Ditch to Lake Osakis	NE NW	07	128N	35W	14.1	0.3	15.5	60.2	2.4	17.2	18.0	1.8
1606600	Boss Creek to Lake Osakis	NE SE	34	129N	35W	18.5	3.5	23.0	18.5	3.5	23.0	11.1	4.5
1606500	Unnamed tributary to Lake Osakis	SW SE	26	129N	35W	14.2	1.6	22.2	14.2	1.6	22.2	8.91	6.5
1606000	Lake Osakis outlet	NW SW	16	128N	35W	43.7	21.7	36.7	136.	8.7	24.8	20.6	1.7
1606700	Sauk River to Guernsey Lake	NE NE	11	127N	35W	16.2	0.5	13.4	153.	7.8	23.6	32.0	4.2
1607000	Unnamed tributary to Little Sauk Lake	NE NW	32	128N	34W	8.97	1.0	14.3	8.97	1.0	14.3	5.97	19.4
1606900	Sauk River above unnamed tributary (basin 1607500)	NW SE	26	128N	34W	19.2	5.1	17.0	181.	7.2	22.4	36.1	3.8
1607500	Unnamed tributary to Sauk River	NW SE	26	128N	34W	6.10	0.0	12.1	6.10	0.0	12.1	5.92	29.1
1607200	Sauk River to Sauk Lake	SE NE	11	127N	34W	7.11	5.0	21.3	194.	6.9	22.0	40.1	3.5
1600400	County Ditch No. 6 to Ashley Creek	SE SE	14	126N	36W	24.8	0.3	16.6	24.8	0.3	16.6	11.9	2.2
1600300	Ashley Creek above County Ditch No. 6	SW SE	14	126N	36W	21.8	2.7	14.8	21.8	2.7	14.8	9.49	4.6
1600200	Ashley Creek above Silver Creek	SE NW	25	127N	35W	19.9	0.0	8.4	66.4	1.0	13.6	22.3	3.6
1600100	Unnamed tributary to Silver Creek	SE SE	27	127N	35W	27.1	2.4	14.5	27.1	2.4	14.5	12.9	8.1
1606801	Silver Creek above unnamed tributary (basin 1600100)	SW SE	27	127N	35W	8.74	1.5	11.3	8.74	1.5	11.3	6.62	9.1
1606800	Silver Creek to Ashley Creek	SE NW	25	127N	35W	2.33	0.0	9.2	38.2	2.0	13.4	15.1	8.2

Table 1.—Physical characteristic data for the Sauk River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank / Second Rank / Third Rank / Fourth Rank / Fifth Rank												
1603502	Ashley Creek above unnamed tributary (basin 1607100)	SE SW	29	127N	34W	5.62	1.0	16.7	110.	1.3	13.7	25.2	4.5
1607109	Noncontributing area to basin 1607100	--	--	--	--	0.99	1.0	12.0	0.99	1.0	12.0	--	--
1607100	Unnamed tributary to Ashley Creek	SE SW	29	127N	34W	6.31	12.8	21.1	7.30	11.2	19.9	5.59	12.7
1603501	Ashley Creek above gaging station at Sauk Center: station number is 05270150	NW SE	29	127N	34W	1.45	0.0	16.1	119.	1.9	14.1	25.8	4.6
1603500	Ashley Creek to Sauk Lake	NE NW	04	126N	34W	1.89	0.1	13.3	121.	1.9	14.1	28.3	4.6
1603700	Unnamed tributary to Hoboken Creek	SE SW	24	126N	35W	10.7	0.0	8.2	10.7	0.0	8.2	8.06	7.8
1603601	Hoboken Creek above unnamed tributary (basin 1603700)	SE SW	24	126N	35W	4.90	0.0	5.8	4.90	0.0	5.8	5.79	11.5
1603600	Hoboken Creek above Sauk Lake	NE NW	09	126N	34W	11.9	0.4	9.8	27.6	0.2	8.5	13.1	8.7
1603400	Sauk Lake outlet	SW NW	10	126N	34W	24.6	15.6	24.3	367.	5.3	18.5	47.6	3.3
1603800	Sauk River above unnamed tributary (basin 1603900)	SW SE	22	126N	34W	9.63	0.1	10.3	377.	5.2	18.3	51.5	3.0
1604000	Unnamed tributary to unnamed tributary (basin 1603900)	NE NE	04	125N	34W	7.98	0.9	9.1	7.98	0.9	9.1	6.34	13.5
1603901	Unnamed tributary above unnamed tributary (basin 1604000)	NW NE	04	125N	34W	6.29	0.0	13.9	6.29	0.0	13.9	6.65	12.1
1603900	Unnamed tributary to Sauk River	SW SE	22	126N	34W	3.36	0.0	7.8	17.6	0.4	10.6	9.42	12.1
1604100	Sauk River above unnamed tributary (basin 1603300)	SW SE	29	126N	33W	20.2	0.9	14.9	415.	4.8	17.8	60.3	2.9
1603300	Unnamed tributary to Sauk River	SE SE	29	126N	33W	13.1	4.6	21.7	13.1	4.6	21.7	8.06	12.0
1602801	Sauk River above Adley Creek	SE NE	36	126N	33W	6.02	2.0	12.4	434.	4.7	17.9	22.0	8.1
1607300	Trout Creek to Prairie Creek	SE SW	04	127N	33W	16.1	2.1	20.3	16.1	2.1	20.3	7.41	20.8

Table 1.—Physical characteristic data for the Sauk River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank / Second Rank / Third Rank / Fourth Rank / Fifth Rank												
1603209	Noncontributing area to basin 1603200	--	--	--	--	1.39	6.4	9.0	1.39	6.4	9.0	--	--
1603200	Prairie Creek above Trout Creek	NW NE	09	127N	33W	8.55	2.5	16.4	9.94	3.0	15.3	5.39	12.2
1607400	Prairie Creek to Little Birch Lake	NW SE	23	127N	33W	11.3	2.4	24.1	37.4	2.4	20.1	13.0	14.3
1603000	Unnamed tributary from Big Birch Lake to Little Birch Lake	SW NE	25	127N	33W	19.15	18.9	32.8	19.2	18.9	32.8	6.83	22.9
1603100	Little Birch Lake outlet	NE NW	02	126N	33W	9.65	13.7	25.9	66.2	8.8	24.7	16.2	11.6
1602900	Adley Creek to Sauk River	SE NE	36	126N	33W	22.2	1.4	16.1	88.3	7.0	22.5	22.0	8.1
1602800	Sauk River above unnamed tributary (basin 1602802)	SW SW	31	126N	32W	1.15	0.4	38.3	523.	5.1	18.7	67.0	2.7
1602802	Unnamed Tributary to Sauk River	SW SW	31	126N	32W	9.97	4.9	20.2	9.97	4.9	20.2	7.65	14.4
1604300	Unnamed tributary to Sauk River	NW NW	06	125N	32W	10.6	0.6	18.4	10.6	0.6	18.4	7.74	14.1
1604400	Sauk River above County Ditch No. 44	NE NW	31	125N	32W	18.9	3.4	18.5	563.	5.0	18.7	75.5	2.9
1604200	County Ditch No. 44 to Sauk River	NW NW	31	125N	32W	29.8	0.8	15.0	29.8	0.8	15.0	15.0	10.2
1604501	Sauk River above Getchell Creek	SW SE	01	124N	33W	6.48	0.0	8.2	599.	4.7	18.4	78.0	2.9
1602700	Unnamed tributary to Getchell Creek	NE SE	13	126N	32W	12.6	2.0	20.6	12.6	2.0	20.6	6.75	16.4
1602600	Unnamed tributary to Getchell Creek	NW SW	18	126N	31W	5.23	4.0	17.6	5.23	4.0	17.6	4.85	14.6
1602500	Getchell Creek above County Ditch No. 15	NE SW	24	125N	32W	20.7	0.0	10.7	38.5	1.2	14.9	14.8	2.5
1602400	County Ditch No. 15 to Getchell Creek	SE SW	24	125N	32W	9.71	3.3	14.7	9.71	3.3	14.7	7.44	10.1
1602300	Getchell Creek to Sauk River	SW SE	01	124N	33W	18.4	0.6	11.8	66.6	1.3	14.0	22.4	2.8
1604500	Sauk River above Story Creek	NE SW	24	124N	33W	5.21	0.0	6.8	671.	4.3	17.9	83.4	2.9
1604601	Story Creek above County Ditch No. 31	SE SW	15	124N	33W	13.7	0.0	10.4	13.7	0.0	10.4	10.1	10.9
1604700	County Ditch No. 31 to Story Creek	NE NW	22	124N	33W	7.64	0.0	7.7	7.64	0.0	7.7	6.04	13.2
1604600	Story Creek to Sauk River	NW SW	24	124N	33W	4.37	0.0	8.5	25.7	0.0	9.3	12.8	14.4

Table 1.—Physical characteristic data for the Sauk River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank / Second Rank / Third Rank / Fourth Rank / Fifth Rank												
1605002	Sauk River above unnamed tributary (basin 1604800)	NW NE	25	124N	33W	0.62	0.0	5.6	697.	4.2	17.6	84.2	2.9
1604801	Unnamed tributary above gaging station near Spring Hill: station number is 05270300	SW NE	27	124N	33W	7.11	0.0	4.8	7.11	0.0	4.8	5.89	13.6
1604800	Unnamed tributary to Sauk River	SW NE	25	124N	33W	9.89	2.5	9.7	17.0	1.5	7.7	9.22	20.4
1605003	Unnamed tributary above gaging station near St. Martin: station number is 05270310	SW SE	19	124N	32W	0.26	0.0	1.5	0.26	0.0	1.5	0.77	91.9
1605001	Sauk River above unnamed tributary (basin 1604900)	SW SE	30	124N	32W	1.92	0.0	9.5	716.	4.1	17.3	86.0	2.8
1604900	Unnamed tributary to Sauk River	SW SE	30	124N	32W	5.48	0.0	8.9	5.48	0.0	8.9	7.22	28.3
1605000	Sauk River above unnamed tributary (basin 1605200)	NE SE	32	124N	32W	2.95	0.0	9.7	725.	4.0	17.2	88.2	2.8
1605200	Unnamed tributary to Sauk River	NE SE	32	124N	32W	6.09	0.0	3.4	6.09	0.0	3.4	6.83	23.4
1605101	Sauk River above unnamed tributary (basin 1602200)	NW NE	26	124N	32W	11.8	0.0	8.5	743.	3.9	16.9	92.8	2.8
1602200	Unnamed tributary to Sauk River	NE NW	26	124N	32W	6.05	0.6	7.4	6.05	0.6	7.4	5.10	26.7
1605100	Sauk River above unnamed tributary (basin 1602100)	SW SW	24	124N	32W	1.85	0.0	10.6	750.	3.9	16.9	94.1	2.9
1602100	Unnamed tributary to Sauk River	NW SW	24	124N	32W	6.29	0.1	12.2	6.29	0.1	12.2	4.95	26.2
1601900	Sauk River above unnamed tributary (basin 1601800)	NW SE	06	123N	31W	9.67	0.0	11.5	766.	3.8	16.8	99.1	2.9
1601801	Unnamed tributary above unnamed tributary (basin 1602000)	SW SW	29	124N	31W	8.29	1.5	14.9	8.29	1.5	14.9	5.59	17.2
1602000	Unnamed tributary to unnamed tributary (basin 1601800)	SW SW	29	124N	31W	6.11	1.0	9.6	6.11	1.0	9.6	5.04	11.2
1601800	Unnamed tributary to Sauk River	NE SE	06	123N	31W	2.13	0.0	6.7	16.5	1.1	11.9	7.84	17.7
1601400	Unnamed tributary to Sauk River	SE SE	11	123N	31W	18.6	7.9	24.6	18.6	7.9	24.6	12.6	10.1

Table 1.—Physical characteristic data for the Sauk River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank / Second Rank / Third Rank / Fourth Rank / Fifth Rank												
1605301	Unnamed tributary above unnamed tributary (basin 1605500)	NW SW	19	123N	31W	11.4	0.0	10.1	11.4	0.0	10.1	6.40	19.5
1605500	Unnamed tributary to unnamed tributary (basin 1605300)	SW SW	19	123N	31W	8.72	1.1	29.1	8.72	1.1	29.1	6.95	5.4
1605300	Unnamed tributary to Kolling Creek	SE NE	29	123N	31W	2.73	0.0	9.8	22.8	0.4	17.3	8.94	16.9
1605600	Kolling Creek above unnamed tributary (basin 1605300)	SE NE	29	123N	31W	10.1	8.3	20.2	10.1	8.3	20.2	6.19	19.9
1605400	Becker Lake outlet	SW SW	24	123N	31W	6.50	5.8	21.7	39.4	3.3	18.8	13.0	10.8
1601700	Sauk River to East Lake	SE NE	26	123N	31W	16.8	0.4	8.8	858.	3.8	16.8	108.	2.8
1600601	Unnamed tributary above unnamed tributary (basin 1600700)	SW NW	01	121N	31W	19.1	0.5	10.5	19.1	0.5	10.5	8.43	10.5
1600700	Unnamed tributary above (basin 1600600)	SE NE	02	121N	31W	7.28	0.0	14.7	7.28	0.0	14.7	6.01	11.5
1600600	Unnamed tributary to Vails Lake	NW SE	35	122N	31W	0.42	6.7	17.1	26.8	0.4	11.7	9.48	9.7
1605900	Unnamed tributary to Browns Lake	SW NE	14	122N	31W	16.6	4.1	11.1	43.4	1.8	11.5	12.9	6.4
1601500	Long Lake outlet	NW SW	36	123N	31W	9.56	15.1	24.3	53.0	4.2	13.8	16.7	4.1
1605700	Unnamed tributary to Knaus Lake	NE SE	28	123N	30W	6.65	0.1	10.6	6.65	0.1	10.6	4.51	25.8
1601600	Knaus Lake outlet	NW NW	27	123N	30W	17.8	21.4	28.2	935.	4.1	16.8	114.	2.8
1601100	Sauk Lake above unnamed tributary (basin 1600900)	SW SW	09	123N	29W	21.9	2.4	12.4	957.	4.1	16.7	121.	2.6
1600808	Noncontributing area to basin 1600800	--	--	--	--	1.88	3.4	9.1	1.88	3.4	9.1	--	--
1600809	Noncontributing area to basin 1600800	--	--	--	--	7.63	10.3	12.0	7.63	10.3	12.0	--	--
1607600	Mill Creek above Pearl Lake	NW SW	03	122N	29W	9.09	3.3	20.4	9.09	3.3	20.4	6.01	8.9
1600800	Pearl Lake outlet	NW SE	03	122N	29W	9.89	12.3	23.1	28.5	8.3	18.4	4.96	17.8

Table 1.—Physical characteristic data for the Sauk River Basin—Continued.

Basin number	Stream name and location	Outlet location				By subbasin			Cumulative to mouth of basin				
		Quarter-quarter section	Section	Town-ship	Range	Drainage area (square miles)	Lake area (percent of subbasin area)	Storage area (percent of subbasin area)	Drainage area (square miles)	Lake area (percent of total area)	Storage area (percent of total area)	Main channel length (miles)	Main channel slope (foot per mile)
	First Rank / Second Rank / Third Rank / Fourth Rank / Fifth Rank												
1600901	Mill Creek above unnamed tributary (basin 1600900)	SW SE	16	123N	29W	7.55	2.3	27.4	36.0	7.0	20.2	10.1	6.8
1601000	Unnamed tributary to Mill Creek	SW SE	16	123N	29W	11.4	10.7	22.2	11.4	10.7	22.2	8.20	11.7
1600900	Mill Creek to Sauk River	SW SW	09	123N	29W	0.85	0.0	17.1	48.3	7.8	20.6	11.5	6.7
1601200	Sauk River above County Ditch No. 17	NW SE	13	124N	29W	16.2	0.3	14.6	1020.	4.2	16.8	129.	2.5
1601300	County Ditch No. 17 to Sauk River	NE SE	13	124N	29W	11.4	4.1	21.7	11.4	4.1	21.7	7.94	9.8
1605801	Sauk River above gaging station near St. Cloud: station number is 05270500	SW SW	08	124N	28W	1.03	0.0	15.3	1030.	4.2	16.9	131.	2.6
1605800	Sauk River to Mississippi River	SW	25	125N	28W	8.42	0.0	3.2	1040.	4.1	16.8	136.	2.6