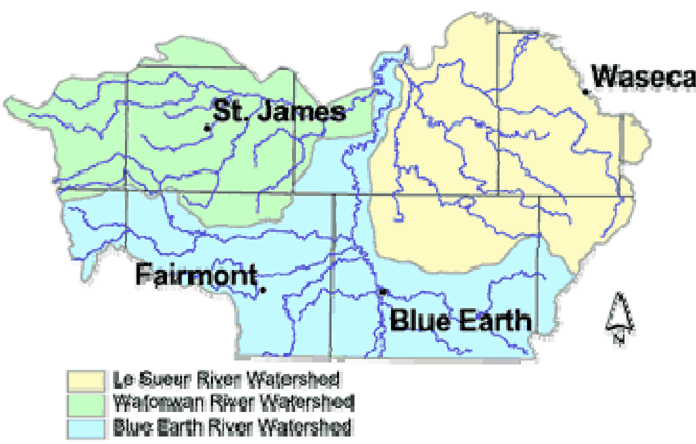
Minnesota Pollution Control Agency

Minnesota River Basin

Watonwan, Blue Earth, and Le Sueur River Watersheds

Among the earliest French adventurers in Minnesota was Pierre Charles Le Sueur, fur trader and explorer along the upper Mississippi in the late 1600's. From a smaller, more western river, Le Sueur had obtained a sample of strange, bluish-green clay, and he took the clay to France, so the story goes, where a king's officer, one Le Huillier, assayed it and concluded that it contained copper. Consequently in 1700 Le Sueur came back to the wilderness with an expedition fully prepared to ascend the Rivière St. Pierre and a southern tributary they named the Rivière Verte (Green River) to establish a copper mine.



Arriving in the fall, they quickly built Fort l'Huillier, named for the legendary assayer, and wintered on the stream we now call the Blue Earth River, about five miles from its mouth. Mining operations ensued the following spring. It turned out the clay contained no copper, and today, neither the remains of the clay beds or fort can be found along the river (T. Waters, 1977).

Physiography And Description

In an effort to divide the Minnesota River Basin into manageable geographic units, the Minnesota River Basin is often subdivided into thirteen major watersheds, the boundaries of which are delineated by drainage. The Watonwan and Le Sueur River Watersheds, though technically subwatersheds of the Blue Earth River (the Watonwan and Le Sueur are tributaries to the Blue Earth River) are considered major watersheds under this classification scheme. However, historical monitoring and current ongoing assessment and implementation activities within this section of the Minnesota River Basin treat the Watonwan and Le Sueur River Watersheds as subwatersheds of the Blue Earth River. Staying within the context of these activities, this document is written in the format of the latter classification structure.

The Blue Earth River Watershed is located in the south central Minnesota Counties of Blue Earth, Brown, Cottonwood, Faribault, Freeborn, Jackson, Le Sueur, Martin, Steele, Waseca, and Watonwan and in the north central Iowa counties of Emmet, Kossuth, and Winnebago. The drainage network of the Blue Earth River Watershed includes the main stem of Blue Earth River, flowing to the north, it’s two main tributaries, the Watonwan River flowing from the southwest and the Le Sueur River flowing from the southeast, and thirty one smaller tributaries. The Watonwan and Le Sueur Rivers join the Blue Earth just above its confluence with the Minnesota River at Mankato. The headwaters of the Blue Earth rise in Iowa and flow north across the state boundary as the West Fork and the main stem; both are small and ditched. The East Fork, a larger stream, originates entirely in Minnesota.

The Blue Earth River accounts for 46% of the flow of the Minnesota River at Mankato and has a total drainage area of 3,486 square miles, 3,135 of which are in Minnesota (including 831 square miles within the Watonwan River Subwatershed and 1,089 square miles within the Le Sueur River Subwatershed) and 351 in Iowa. The Blue Earth and its two major tributaries make up a wide, fan shaped watershed that is unique in Minnesota because it is broader than it is long. Each major tributary is almost as large as the Blue Earth itself, so that the watershed is composed of three major stream systems. Major streams have eroded channels 40 to 75 feet deep in headwater regions and 150 to 200 feet deep near the mouth of the Blue Earth River at Mankato. The watershed is extensively drained through both public and private ditch and tile systems. There are 314 public (county and judicial) ditch systems within the watershed.

Historical records state that prior to regional settlement and widespread agricultural development "The Big Woods," a large tract of virgin hardwoods that covered much of east-central Minnesota, extended into the northern part of the Blue Earth drainage. To the south were flat plains with natural grassland. Into these plains the streams cut deep ravines, and along the steep riverbank hillsides, extended fingers of the Big Woods from the north. "The Big Woods" area is situated in the North Central Hardwood Forests Ecoregion while the plains region falls within the Western Corn Belt Plains Ecoregion.

Overall, geomorphology of the Blue Earth River Watershed can be described as nearly level to gently rolling surficial till deposits with almost imperceptible slopes. The surface relief descends from three directions, converging from the east, west, and south toward the central portion of the watershed. The western half of the watershed lies primarily within the Blue Earth Till Plain. Landscapes within this till plain are characterized as being a complex mixture of gently sloping (2-6%) well drained loamy soils and nearly level (0-2%) poorly drained loamy soils. Artificial drainage to remove ponded water from flat and depressional areas is extensive. Water erosion potential is moderate on much of lands (46%) within this geomorphic setting.

Geomorphology of the eastern half of the watershed is a complex mixture of glacial lake plains, till plains, and moraines. Sections of the "glacial" Minnesota Lake Plain are located in the eastern half of the Blue Earth River Watershed (within the western half of the Le

Sueur River Subwatershed and the southeastern corner of the Watonwan River subwatershed). Landscapes within the lake plain are characterized as nearly level with poorly drained or very poorly-drained clayey or silty clay soils. Subsurface and surface tiling are extensively used in this region of the watershed, but internal drainage remains poor. The majority of lands within this geomorphic setting are not bordered by streams, lakes or drainage ditches. Roughly 58% of these lands have a low water erosion potential.

Table 4.32: Historical Flows of the Blue Earth River and Its Major Tributaries

River	Drainage Area (acres)	Annual Flow (cfs)	April through June Flow (cfs)	July through August Flow (cfs)
Watonwan	541,826	336	655	239
Blue Earth	774,115	606	1314	481
Le Sueur	705,216	476	993	361

The western, southern and eastern boundaries of the watershed are end moraines formed by Pleistocene glaciers. Various ground moraines are also contained in the eastern half of the watershed. In general, theses morainal complexes exhibit a undulating to hilly landscape with slopes ranging from 2-12%. Approximately one fourth of these lands are adjacent to streams and ditches, thus creating a moderate potential for sediment delivery to streams. Soils are predominantly loamy in texture. The majority of agricultural lands within the watershed's morainal complexes are moderately steep and well drained, although, approximately 25% of these tilled lands are nearly level, poorly drained, requiring tile drainage. Fifty percent of the cropped lands within this geomorphic setting have a high potential for water erosion.

Geology And Land Use

The oldest and deepest rocks of the Blue Earth River Watershed are Precambrian in age. Found primarily in the western third of the watershed, these hard, relatively impermeable, crystalline rocks are of igneous and metamorphic origins. Overlying the Precambrian rocks to the west and comprising the primary bedrock in a west to east gradient through the remaining two thirds of the watershed are Cambrian and then Ordovician sedimentary rocks. Pleistocene glacial deposits cover almost the entire watershed and are predominantly till, an unstratified mixture of clay, silt, sand, and gravel. Within the center of the watershed, a flat-lying, thin clay deposit is present on top of the till, a remnant lake bed of "glacial" Lake Minnesota. Buried bedrock valleys also exist throughout the watershed, reflecting preglacial drainage patterns. These valleys were later filled by glacial deposits during subsequent glacial advances.

Land use within the Blue Earth River Watershed is primarily agricultural, accounting for approximately 84% of the available acres. Two-year corn/soybean rotations comprise approximately 92% of cropped lands within the watershed; small grains, hay, and grasslands enrolled in the Conservation Reserve Program (CRP) make up the majority of the balance. Early 1996 estimates were that 2.5% of watershed's agricultural acres were enrolled in the CRP program, a voluntary federal program that offers annual rental payments to farmers in exchange for planting areas of grass and trees on lands subject to erosion. The majority of the crop lands within the watershed are classified as highly productive and are considered to be among the finest agricultural lands within the United States.

1996 figures estimated there are roughly one million cattle and three million hogs in the Minnesota River Basin, of which, approximately 30 percent of the cattle and 50 percent of the hogs are raised within the southeastern section of the basin (which includes the Blue Earth River Watershed).

Climate

The climate within the Blue Earth River Watershed is continental, with cold dry winters and warm wet summers. Climatic records from St. James, Minnesota have shown temperatures over the last thirty years to have ranged from a low of -30^0 F in January of 1970 to a high of 105^0 F in July of 1988. Average monthly temperatures from the same site have ranged from 14^0 F in January to 73^0 F in July over this same time period. Annual precipitation rates within the watershed average between twenty seven to thirty inches and average annual runoff is estimated to be between four to five and one half inches. Figures show that on an annual basis the Blue Earth River Watershed receives more precipitation and delivers the greatest runoff of all the major watersheds within the Minnesota River Basin. Of the precipitation falling within the watershed, approximately 84 percent is returned to the atmosphere through the processes of evaporation and transpiration while sixteen percent leaves the watershed as runoff in streams.

Ground Water

Water supplies are obtained from wells tapping Pleistocene glacial deposits, Ordovician and Cambrian sedimentary rocks, and Precambrian crystalline rocks. In the western part of the watershed, buried glacial sand and gravel form the most accessible and widely used aquifers. Toward the east, increasing numbers of wells obtain water from Ordovician and Cambrian rocks. The Jordan, St. Peter, and Galena Formations are the most reliable and widely used aquifers in the central and eastern parts of the watershed.

Dominant regional ground-water flow converges on Mankato, where the surface flow also discharges from the Blue Earth River into the Minnesota River. In the higher areas along the edge of the watershed there is also significant downward flow. Some of this downward flow in the eastern and southeastern margins moves out of the watershed.

Water quality in bedrock and deep (greater than 125 feet) glacial aquifers is influenced by recharge through surface deposits and by the eastward movement on highly mineralized deep ground water. West of the Blue Earth River these water supplies are generally higher in sulfate and total dissolved solids (more than 800 milligrams per liter). In the area east of the Blue Earth River, most water supplies sampled from bedrock are lower (less than 600 milligrams per liter) dissolved solids, bicarbonate type water. However, within this same region, high dissolved solids, sulfate type water is found at Mapleton and at Wells, in the Prairie du Chien-Jordan aquifer. All water supplies tested within the watershed were very hard (hardness exceeding 180 milligrams per liter calcium carbonate); temporary hardness is dominant in the east, whereas permanent and temporary hardness are generally equivalent in the west. High iron concentrations are characteristic of the watershed and result from leaching of iron by reducing potentials related to decay of organic material (Anderson et. al., 1974).

Surface Water

Today, pollution of surface waters in the Minnesota River's major watersheds is a moderate to severe problem. Constituents of concern often include: suspended sediments, excess nutrients (primarily nitrogen and phosphorus), pesticides, pathogens, and biological oxygen demand. High concentrations and loads of suspended sediments and nutrients can often be linked to artificial drainage patterns (ditches, tile, etc.) and wetland reductions. Alone or in combination, these landscape alterations have effectively increased the hydraulic efficiency and magnitude of storm and snowmelt runoff events.

Estimates vary, but about 80 percent of the wetlands in the Minnesota River Basin have been drained and converted to other uses. High nutrient levels in lakes and streams often result from over-land runoff across erodible soils. Eroded soils and the runoff which transport these particles often carry pesticides and excess nutrients to receiving waters. Increased discharges and elevated flood peaks also erode streambanks, destroy shoreline vegetation and deposit sediment on floodplains, in streams, and in downstream receiving waters. Sediment in water often leads to impaired habitat for aquatic life, decreased photosynthetic activity, and reduced recreational quality. Excessive levels of nutrients often promote eutrophication; defined as nutrient rich oxygen poor water. Elevated nutrient levels often promote abundant algal populations which in turn can cause large diurnal fluctuations in dissolved oxygen concentrations (photosynthesis being responsible for daytime highs, respiration for nighttime lows). In addition, algal decomposition is often a major factor responsible for high biochemical oxygen demand (BOD) levels. BOD is the amount of oxygen consumed-biologically and chemically-over a five day period. The BOD test reflects the effect of easily decomposed organic materials on oxygen depletion.

Other sources of organic materials include eroded organic materials associated with sediment or manure, and discharges from faulty wastewater treatment plants, and faulty septic systems. The presence of water-borne pathogens is often characterized by determining the population of fecal coliform in water quality monitoring samples. Fecal coliform are a subset of bacterial populations, and generally arise from the fecal excrement of humans, livestock, and water fowl. Common sources of fecal coliform include feedlots, faulty wastewater treatment plants, and faulty septic systems.

The Blue Earth River and its major tributaries, in particular, are having a large impact on the Minnesota River which in turn is contributing large amounts of pollution to the Mississippi

River. Data collected during the Minnesota River Assessment Project (MRAP) showed that the Blue Earth River delivered 46 percent of the flow in the Minnesota River at Mankato, while delivering 55 percent of the suspended sediment load and 69 percent of the nitrate nitrogen load. Sediment yields from the Blue Earth River Watershed were 84.2 tons/sq. mi. during 1990, 313 tons/sq. mi. during 1991, and 241 tons/sq. mi. during 1992. In comparison, sediment yields for the Minnesota River Basin upstream of the confluence with the Blue Earth River were 19.9, 78.5, and 62.1 tons/mi^s during the same respective time period. Nitrate concentrations in the Blue Earth River and its major tributaries frequently exceeded the Federal Drinking Water Standard of 10 mg/l during the MRAP study period with peak concentrations exceeding 20 mg/l. The fecal coliform bacteria standard was exceeded in 32 percent of the samples collected from the Blue Earth River during the same study period. Total phosphorus concentrations in the Blue Earth River are elevated (200-500 µg/l) during runoff periods resulting in the load deliveries of up to 15 tons/day to the Minnesota River. Dissolved orthophosphorus concentrations exceeded 100 µg/l in 30 percent of the Blue Earth River samples and total phosphorus concentrations exceeded 100 µg/l in 74 percent of the samples.

Among the nutrients, phosphorus is a pollutant of major concern to the water quality of the Minnesota River and its tributaries. Any strategy to restore the Minnesota River will require the major watersheds to take part in reducing phosphorus loadings to the main stem.

Eventually, through basin management, a basinwide phosphorus loading reduction goal can be established. Through a collaborative process involving local, state and federal government, in addition to watershed residents and other stakeholders, this whole-basin load-reduction goal can be allocated among the 13 major watersheds. Within each major watershed, in turn, the total watershed load- reduction goal can be further allocated among point and nonpoint sources.

Table 4.33: Estimates of Point Source Phosphorus Loads for the Blue Earth River Watershed (1996)

NPDES# (National Pollutant Discharge Elimination Number)	Permittee	Ave. Annual Flow (MGD)	Discharge Facility	Total Phos. Conc. (mg/L)	Total Phos. Load (lbs./yr.)
MN0030490	VERNON CENTER	0.0423	POTW*	4	514
MN0049671	GRANADA	0.0195	POTW-pond	2	119
MN0024384	NORTHROP	0.05	POTW-pond	2	304
MN0022918	BRICELYN	0.067	POTW-pond	2	407
MN0039721	KIESTER	0.0681	POTW-pond	2	414
MN0021920	ELMORE	0.0362	POTW-pond	2	220

MN0020605	ALDEN	0.1444	POTW-pond	2	878
MN0021296	WELCOME	0.0662	POTW, lake	1	201
MN0022624	AMBOY	0.1302	POTW	4	1,583
MN0022071	TRIMONT	0.0913	POTW	4	1,110
MN0020532	BLUE EARTH	0.5497	POTW	4	6,683
MN0025267	WINNEBAGO	0.3896	POTW	4	4,737
MN0030112	FAIRMONT	1.4561	POTW	4	17,702
MN0002984	BLUE EARTH WTP	0.008	water	1	24
MN0003280	WINNEBAGO WTP	0.0018	water	1	5
MN0001228	HONEYMEAD	2.916	cooling	0.54	4,786
MN0045691	FAIRMONT STEAM PLANT	1.1429	power plant	0.1	347
MN0002313	DARLING INTERNATIONAL	0.0791	rendering	19	4,568
MN0001996	FAIRMONT FOODS	0	NCC+process	1	0
MN0000957	INTERSTATE POWER	1.9793	power plant	1	6,016
MN0004111	MIDWEST ELECTRIC PRODUCTS	0.0397	dom. & NCC	3	362
MN0052329	NORTHERN BORDER PIPELINE	0	hydrotest	1	0
MN0047546	OWATONNA CANNING BRICELYN	0.0154	NCC (LA), seas	1	47
MN0001287	SENECA FOODS BLUE EARTH	0.0483	NCC (LA), seas	1	147
MN0001058	STOKELY USA WELLS	0.0703	NCC (LA), seas	1	214

In preparation such a process, several kinds of information on phosphorus pollution sources, concentrations and loads have been collected. This includes an estimate of phosphorus loads from point sources within the major watershed (Tables 4.33-4.35), together with watershed specific monitoring data on recent phosphorus concentrations, flows, total phosphorus load estimates, ecoregion specific phosphorus values, and basin wide ecoregion weighted phosphorus values (Table 4.36).

As mentioned, livestock feedlots are a major potential source of several pollutants: phosphorus, nitrogen, and pathogens in particular. Considerable progress has been made through the state feedlot program in recent years. Figures 4.11-12 display feedlots in the

Blue Earth River, Le Sueur and Watonwan watersheds that have received certificates of compliance, often referred to as feedlot permits *(coming soon)*.

Seasonal patterns often influence flow discharge patterns in the Blue Earth River and its major tributaries. The general trend is for flows to increase in spring, peak in late spring to early summer, and decline through late summer.

Table 4.34: Estimates of Point Source Phosphorus Loads for the Watonwan River Watershed (1996)

7020010	Watonwan Basin				
NPDES# (National Pollutant Discharge Elimination Number)	Permittee	Ave. Annual Flow (MGD)	Discharge Facility	Total Phos. Conc. (mg/L)	Total Phos. Load (lbs./yr.)
MN0062588	NEUHOF HUTTERIAN BRETHERN	0.0043	san-pond	2	26
MN0021687	COMFREY	0.0384	POTW*	4	467
MN0021652	TRUMAN	0.0936	POTW	4	1,138
MN0022977	BUTTERFIELD	0.1301	POTW-pond	3	1,186
MN0021466	MOUNTAIN LAKE	0.2614	POTW-pond	2	1,589
MN0024040	MADELIA	0.5268	POTW	6	9,607
MN0024759	SAINT JAMES	1.1878	POTW	5.93	21,408
MN0043958	LEWISVILLE WTP	0.001	water	1	3
MNG640058	MADELIA WTP	0.25	water	1	760
MN0041904	TRUMAN WTP	0.0007	water	1	2
MN0058980	VAN DEN BERGH FOODS	0.0023	cooling	1	7
				Total	36,193

Table 4.35: Estimates of Point Source Phosphorus Loads for the Le Sueur River Watershed (1996)

7020011	Le Sueur River Watershed				
NPDES# (National	Permittee	Ave.	Discharge	Total	Total Phos.

Pollutant Discharge Elimination Number)		Annual Flow (MGD)	Facility	Phos. Conc. (mg/L)	Load (lbs./yr.)
MN0040908	FREEBORN	0.0105	POTW*-pond	2	64
MN0049174	HARTLAND	0.0288	POTW-pond	2	175
MN0020851	GOOD THUNDER	0.06	POTW-pond	2	365
MN0024716	SAINT CLAIR	0.0726	POTW	4	883
MN0040789	MADISON LAKE	0.0773	POTW	4	940
MN0021849	WALDORF	0.0685	POTW	4	833
MN0021105	JANESVILLE	0.1327	POTW-pond	2	807
MN0021172	MAPLETON	0.4411	POTW-pond	2	2,681
MN0025224	WELLS-EASTON-MINN. LAKE	0.5885	POTW-pond	2	3,577
MN0021032	NEW RICHLAND	0.1458	POTW	4	1,773
MN0020796	WASECA	1.3619	POTW	6	24,836
MN0045713	GOOD THUNDER WTP	0.0011	water	1	3
MN0043427	SAINT CLAIR WTP	0.0017	water	1	5
				Total	36,942

* -Public Owned Treatment Works

Table 4.36: Phosphorus and Total Suspended Sediment Data for the Blue Earth, Watonwan and LeSueur Rivers

Parameter	**Le Sueur River**	**Watonwan River**	**Blue Earth River**
Mean Annual Flow	476 cfs	336 cfs	606 cfs [b]
Mean Annual Total Phosphorus Conc.	NA	NA	0.248 mg/lc
Mean Summer Total Phosphorus Concentration (June through September)	NA	NA	0.279 mg/lc

Western Corn Belt Ecoregion Mean Total Phosphorus Concentration	0.304 mg/l	0.304 mg/l	0.304 mg/l
Minnesota River Basin Mean Total Phosphorus Concentration	0.251 mg/l	0.251 mg/l	0.251 mg/l
Estimated TP Load (March to August)	197.13 tons	64.17 tons	172.0 tons[b]
Percent of Minnesota River Basin TP Loada	16.7%	5.43%	14.57%
Estimated TSS Load (March to August)	97,928 tons	20,215 tons	89,931 tons[b]
Percent of Minnesota River Basin			
TSS Load[a]	20.72%	4.28%	19.03%

[a] - based on total load contributions to the Minnesota River (point and nonpoint sources)
[b] - Excluding inputs from the Watonwan and Le Sueur Rivers. Estimated by the University of Minnesota's Department of Soil, Water and Climate.
[c] - Blue Earth River at Mankato

Table 4.37: Water Quality Standard Exceedances for Turbidity and Fecal Coliform

Parameter	**Percent of Samples Exceeding Federal Water Quality Limits for the Blue Earth River at Mankato**		
	Standards	**April - June**	**July - August**
Turbidity	25 NTU	63%	44%
Fecal Coliform*	200 org./100 ml	66%	46%

* percent of samples in violation do not meet the frequency of sampling requirements of state law (see above), but represent the percentage of pre-1997 samples collected over the last thirty years, which have exceeded 200 organisms/100 ml.

High soil moisture content, undeveloped crop canopies, and lower evapotranspiration rates, are the most likely factors influencing the observed trends. Annual and seasonal patterns for the Watonwan, Le Sueur, and Blue Earth Rivers are listed in table 4.32.

As with discharge, seasonal patterns of turbidity and fecal coliform are evident in the Blue Earth River. Levels of these parameters are generally greater for the July through August period than for the April through June period. Monitoring data collected periodically over the last 30 years was compiled and summarized by the University of Minnesota's Department of Soil Water and Climate according to the percent of samples in the entire record that exceed state or federal water quality standards (Table 4.37). State standards for turbidity are expressed in terms of nephelometric turbidity units (NTU's), which is a measure of light scattered by suspended sediment and organic particles. The state standard for turbidity is exceeded in water with turbidities greater than 25 NTU's. For swimming areas and sewage effluent, state standards for bacteria are exceeded when fecal coliform counts are greater than 200 organisms per 100 ml of water as a geometric mean of not less than five samples in a calendar month, or if more than ten percent of all samples taken during any calendar month individually exceed 2,000 organisms per 100 milliliters. The presence of fecal coliforms indicates recent fecal contamination from warm blooded animals and the possible presence of enteric (intestinal) pathogens.

Although load magnitudes can be controlled through upland management practices, relative nutrient and sediment loads for the major watersheds of the Minnesota River are strongly correlated to temporal variations in rainfall and runoff. A west to east precipitation gradient exists within the Minnesota River Basin, with average precipitation generally increasing from east to west. Runoff also increases from one inch at the western edge of the Minnesota River Basin to six inches in the eastern part of the basin. Findings from MRAP Volume II stated, "most of the annual sediment load in the lower reaches of the Minnesota River is delivered from tributary basins that have the highest annual rainfall and runoff. These basins are located in the eastern part of the Minnesota River Basin." As stated, the Blue Earth River contributes about 55 percent of the suspended sediment load in the Minnesota River at Mankato. However, the Blue Earth only drains 24 percent of the contributing area at this location. In addition, from April through July 1991, the Blue Earth River delivered 69 percent of the total nitrate load in transport in the Minnesota River at Mankato.

In addition to fluvial, ditch, and wetland systems, the Blue Earth River Watershed also contains several major lakes including Eagle, Lura, Cedar, Fox, Madison, Rice, Freeborn, Elysian, Hanska, and several others. These lakes are an important recreational asset and many provide excellent fish and wildlife habitat. However, according to a 1994 lake assessment survey conducted by the Minnesota Pollution Control Agency (MPCA), water quality of lakes within the watershed are generally considered threatened or impaired.

Recreation

Camping, hunting, fishing and other outdoor activities all can be found within the Blue Earth River Watershed. Camping is available at Sibley Park in Mankato, at the mouth of the Blue Earth River. Walnut Lake Wildlife Management Area, including South Walnut Lake, is located on the East Branch south of the village of Wells. This 2,000-acre public hunting area is one of the major wildlife management areas in south-central Minnesota. It is managed primarily for waterfowl, pheasants, and other small game.

The lower reach of the Blue Earth River between the Rapidan Dam (a previously operated, now silted-in hydroelectric facility above the confluence with the Le Sueur but slightly below that of the Watonwan) and its mouth in the Minnesota is unique in southern Minnesota and exceptional in the watershed. Swift rapids alternate with quiet pools throughout the twelve-mile section. This stretch of the river is canoed by many, especially in the high flows of spring that occur at the same time that springtime vegetation flowers on the riverbanks. The river flows between high, wooded bluffs and rocky escarpments, eroded through glacial drift to sedimentary bedrock. No other stream section in South-Central Minnesota contains similar resources of fish, wildlife, and scenic views of valley and wooded hills.

For the fishing enthusiast, the upper watershed of the East Fork has the only trout stream in the Blue Earth basin: Brush Creek, a small, cold stream emanating from the Kiester Hills. Several lakes in the watershed have excellent game fish populations due to the installation of aeration systems and stocking efforts by the Department of Natural Resources. Most lakes in the Blue Earth basin are also valuable waterfowl production areas. The gorge area of the lower Blue Earth used to include an excellent fishery for smallmouth bass. Fishing for this prized species has declined, and carp are more abundant as a result of increased silting from headwater regions. Rough fish, especially the ubiquitous carp, predominate in river fish populations, although walleye, northern pike, and channel catfish are taken by anglers in many places.

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More Information

For questions about the Minnesota River Basin management framework, contact Norm Senjem at (507) 280-3592.