

# Battle Creek

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ENVIRONMENTAL SERVICES

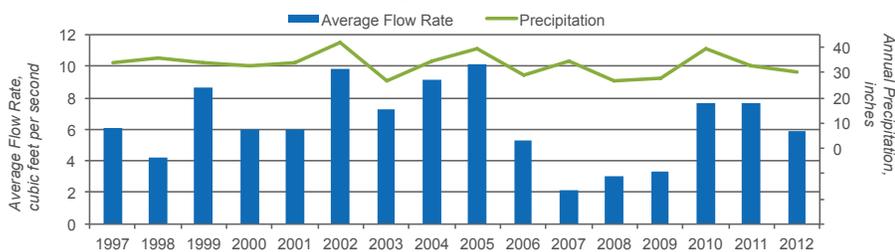
**Battle Creek** is an urban creek located in the central eastern metropolitan area. It begins at Battle Creek Lake outlet and primarily runs through wooded parks along its path, providing habitat for wildlife and the opportunity for recreational activities, before flowing into Pigs Eye Lake and discharging to the Mississippi River.

## Flow

Stream flow, or the rate of water flowing in a stream, affects aquatic life and the ecosystem. High flows can lead to flooding, erosion, and the transportation of pollutants.

Battle Creek flows year-round and is influenced by discharge from Battle Creek Lake, along with how much rain or snow has fallen in any given year. Since 2003, the average flow in the creek is a little more than six cubic feet-per-second. At that rate, it would take Battle Creek 41 days to fill the Target Center in Minneapolis.

**Battle Creek Annual Flows and Precipitation**



## Chloride

Chloride, one component of salt, is typically used for winter road, parking lot, and sidewalk maintenance and home water softening. While all of the Mississippi River urban streams have high concentrations of chloride, Battle Creek is the second highest, which reflects the dense network of roads and highways in the watershed.

## Sediment

Sediment from poorly-managed construction sites or eroded stream banks and gullies can decrease the light available in streams and harm aquatic life. Another term for sediment is “total suspended solids.”

Battle Creek carries an average of 1.096 million pounds of sediment to the Mississippi River each year (enough to fill 33 15-ton dump trucks), and its sediment concentrations are significantly higher (the second highest) of all the urban streams in the Mississippi River basin.

## Nutrients

Nutrients, like nitrogen and phosphorus, are necessary for stream health. However, elevated nutrient levels, caused by materials like fertilizers, animal manure, pet waste or grass clippings, can cause excessive algae growth

## FAST FACTS

**Major river basin:** Mississippi River

**Water source:** Surface water runoff, lake outflow

**Length:** 3.8 miles

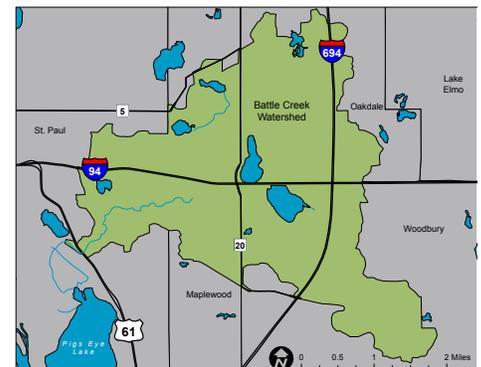
**Watershed area:** 11.2 square miles

**Watershed land use:** Mostly urban

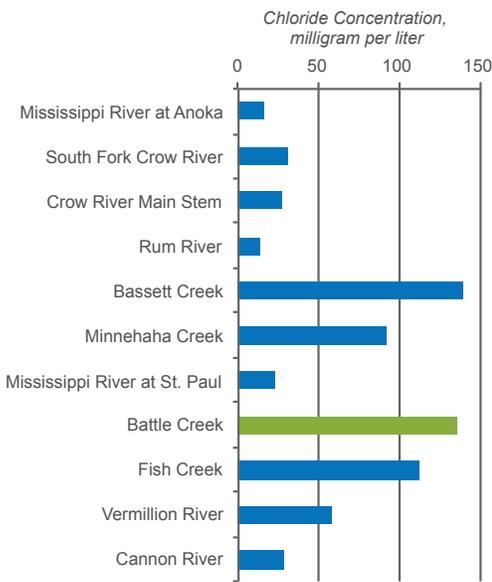
**Regional parks:** Battle Creek–Indian Mounds

**Cooperator organizations:**  
Ramsey Washington Metro  
Watershed District

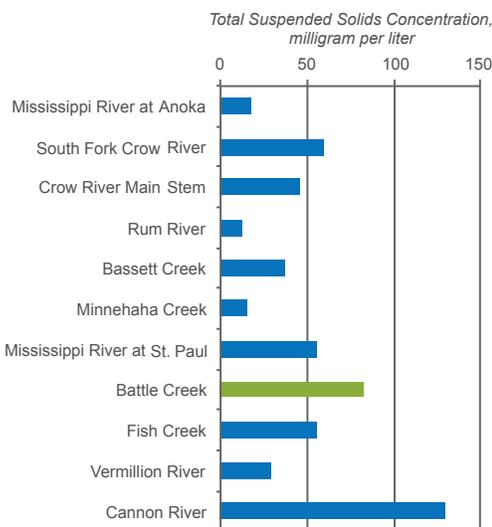
**Year first monitored:** 1996



**Median Chloride Concentrations in the Mississippi River and Tributary Streams, 2003–2012**



**Median Sediment Concentrations in the Mississippi River and Tributary Streams, 2003–2012**



and harm aquatic wildlife, insects and fish.

Battle Creek has a similar concentration of nitrogen (measured as nitrate) to the other streams with urban watersheds in the Mississippi River basin. Phosphorus concentration in Battle Creek is higher than most of the other urban streams in the basin.

**Aquatic Insects**

Aquatic insects are excellent indicators of the overall health of a stream since they spend the majority of their lives in the water, and are an important food source for fish, birds and other wildlife. Battle Creek has a consistent population of aquatic insects, but analysis indicates they are being affected by pollutants. Improved water quality would likely increase the number of aquatic insects in the stream.

**Preserving our Creeks**

The Ramsey County Washington Metro Watershed District is the local governing body responsible for managing the Battle Creek watershed. They work with private landowners, cities and various government agencies, and other groups to complete various improvement projects, including:

- Installing an alum treatment facility to remove phosphorus from stormwater before it can enter Tanners Lake
- Constructing water quality ponds and infiltration basins to treat stormwater runoff. One example is the McKnight Basin, which was constructed in Battle Creek Regional Park to treat runoff from I-94 and the 3M campus.
- Reconstructing residential streets as “living streets,” which can involve narrowing lanes, adding rain gardens or stormwater basins, or planting more boulevard trees

**Is the Stream Improving?**

Long-term data analysis and computer modeling indicate that Battle Creek’s phosphorus and sediment concentrations have decreased, but nitrate concentrations have increased.

Since Battle Creek’s levels of chloride, sediment and nutrients are higher than the Mississippi River at Saint Paul, the creek could potentially contribute to the degradation of the river.

**Protecting the region’s water resources**

This work supports the regional policies established in the Metropolitan Council’s Thrive MSP 2040 and Water Resources Policy Plan to collaborate with partners to promote the long-term sustainability and health of the region’s water resources, including surface water, wastewater and water supply

**For more information**

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About stream monitoring, contact Cassie Champion: [cassandra.champion@metc.state.mn.us](mailto:cassandra.champion@metc.state.mn.us), 651-602-8745

Visit [www.metrocouncil.org/streams](http://www.metrocouncil.org/streams) for the full results of the Comprehensive Water Quality Assessment of Select Metropolitan Area Streams.