Browns Creek

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ENVIRONMENTAL SERVICES

Browns Creek is a small trout stream in Washington County that extends from the City of Grant to the St. Croix River. The water quality in Browns Creek makes it suitable for fishing, wildlife viewing, and other recreational activities. The Browns Creek State Trail (opening in 2015) is immediately adjacent to the creek and will allow cyclists and hikers excellent views of the creek gorge and its overlying broadleaf forest canopy.

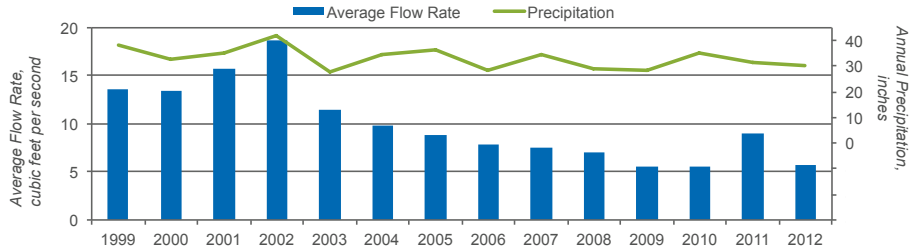
Flow

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 transport of pollutants.

Browns Creek flows year-round since it is partly fed by groundwater. Flow levels are also influenced by the amount of rain and/or snow that falls. The installation of a diversion structure in 2003 to protect the creek from urban runoff and pollutants decreased the amount of water in the creek.

The cold groundwater allows the stream to support trout and other types of cold-water aquatic life. Since 2004, the average flow in Browns Creek was nearly eight cubic feet-per-second. At that rate, it would take Browns Creek 32 days to fill the Target Center in Minneapolis!

Browns Creek Annual Flows and Precipitation



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.”

Browns Creek median sediment concentration is the highest of the MCES-monitored streams in the St. Croix River basin. For the last ten years, the stream carried an average of 965,000 pounds of sediment to the St. Croix River every year. This amount of sediment would fill 18 15-ton dump trucks!

Nutrients

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

On average, Browns Creek has a similar concentration of nitrogen (measured as nitrate) as its neighbor, Silver Creek. Nitrate concentration in all of the creeks monitored by MCES in the St. Croix River basin, except

FAST FACTS

Major river basin: St. Croix River

Water source: Surface water runoff and groundwater

Length: 8.25 miles

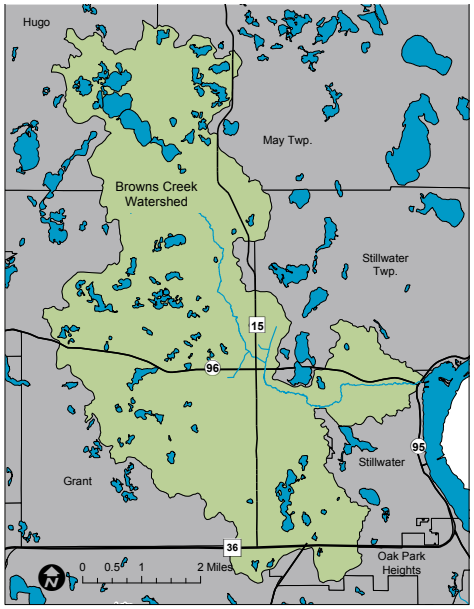
Designation: Coldwater Trout Stream

Watershed area: 28.5 square miles

Watershed land use: Agriculture, forest, grassland, some urban.

Cooperator organizations: Browns Creek Watershed District and Washington Conservation District

Year first monitored: 1998



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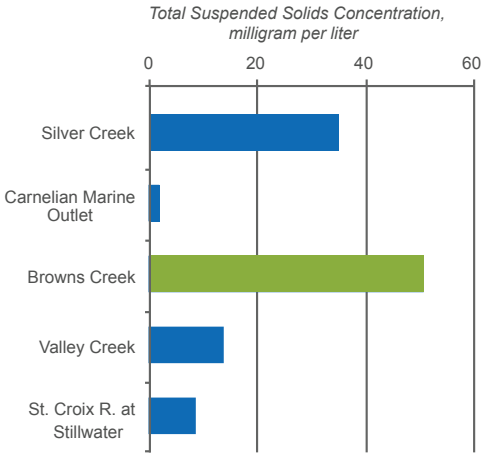
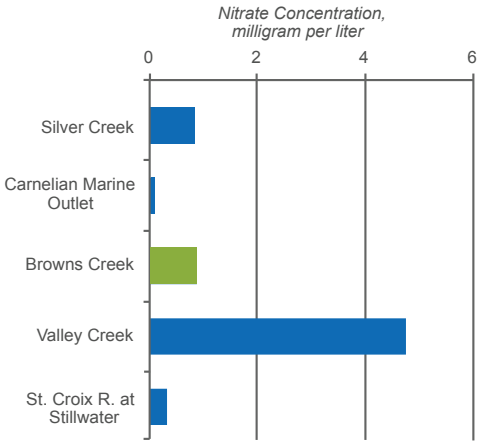
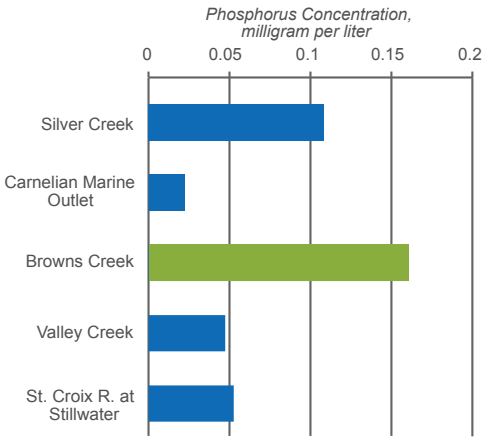
Median Sediment Concentrations in the St. Croix River and Tributary Streams, 2003–2012



Median Nutrient Concentrations in the St. Croix River and Tributary Streams, 2003–2012





Carnelian-Marine, are higher than the St. Croix River and thus potentially causing water quality degradation in the river.

Phosphorus concentration in Browns Creek is the highest of the St. Croix River basin streams monitored by MCES, and is higher than the phosphorus concentration in the St. Croix River.

Preserving our Creeks

The Browns Creek Watershed District is the local governing body responsible for managing the Browns Creek watershed. They work with many groups to complete restoration projects that improve Browns Creek water quality, including: private landowners; cities and townships; St. Anthony Falls Laboratory — University of Minnesota, and the Minnesota Department of Natural Resources

Improvement projects completed by Browns Creek Watershed District and its partners include:

- Construction of curb-cuts and raingardens
- Retrofitting stormwater infrastructure, including adding an iron-enhanced sand filter
- Restoring 1,300 linear feet of stream in the Oak Glen Golf Course

Is the Stream Improving?

Long-term data analysis and computer modeling indicate that Brown's Creek's water quality has declined because of increasing phosphorus and sediment levels have increased. However, the water quality has improved due to the decrease of nitrate levels in the stream.

Browns Creek's levels of nitrate, phosphorus, and sediment are all higher than the St. Croix River at Stillwater and 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 visit **www.metrocouncil.org/streams** for the full results of the *Comprehensive Water Quality Assessment of Select Metropolitan Area Streams*.

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