Carnelian-Marine Outlet

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ENVIRONMENTAL SERVICES

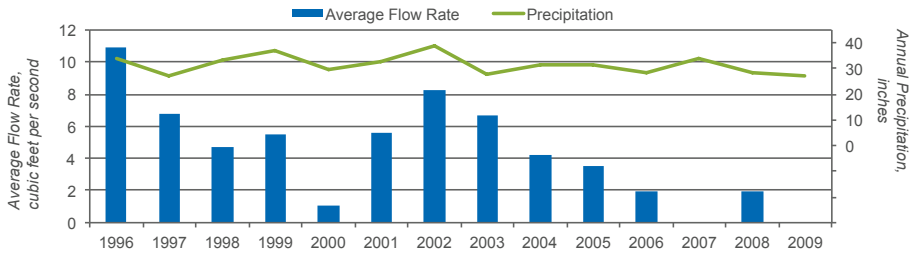
The Carnelian-Marine stream system connects a series of lakes and wetlands in Washington County. It extends from Scandia to the St. Croix River. The outlet of the system is at Little Carnelian Lake. Once leaving the lake, the water flows in a pipe until it empties into the St. Croix River near the historical Boomsite north of Stillwater. The Carnelian-Marine watershed provides opportunities for swimming, fishing, wildlife viewing, and other recreational activities. The stream and its surrounding area are a valuable scenic amenity for the community.

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.

The Carnelian-Marine stream is fed by the seven water bodies along its path, and the stream flow depends on their water levels. A lake or wetland needs to be full before the stream can flow out of it. Flow levels are also influenced by the amount of rain and/or snow that falls. The flows leaving Little Carnelian Lake have been declining since 2002, and no water flowed from the lake during drier years (like 2007 or 2009). Due to the lack of flow, MCES discontinued monitoring this site after 2009.

Carnelian-Marine Annual Flows and Precipitation



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, Carnelian-Marine Outlet has the lowest concentrations of nitrogen (measured as nitrate) and phosphorus of all of the St. Croix tributaries and they are lower than St Croix River itself. The water takes longer to move through the Carnelian-Marine series of lakes than the other St. Croix tributaries, providing more time for nutrient removal along the way.

Sediment

Sediment from poorly-managed construction sites or eroded stream banks and gullies can decrease the light available in streams and harm aquatic life.

FAST FACTS

Major river basin: St. Croix River

Water source: Surface water runoff and lake/wetland overflow

Length: 12.25 miles

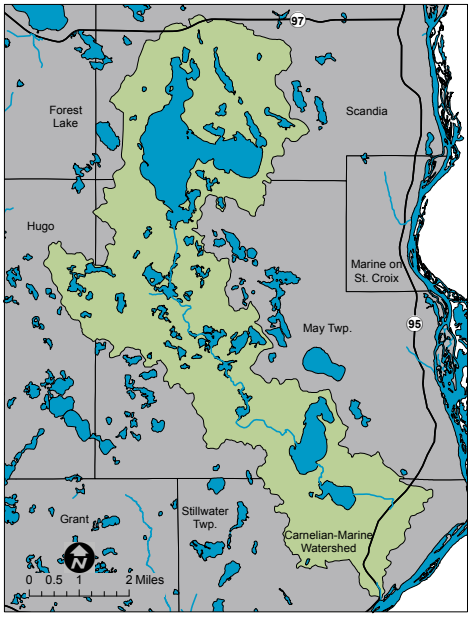
Watershed area: 31 square miles

Watershed land use: Rural-residential, agricultural, and forested lands

Regional parks: Big Marine

Cooperator organizations: Carnelian-Marine St. Croix Watershed District and Washington Conservation District

Years monitored: 1995–2009



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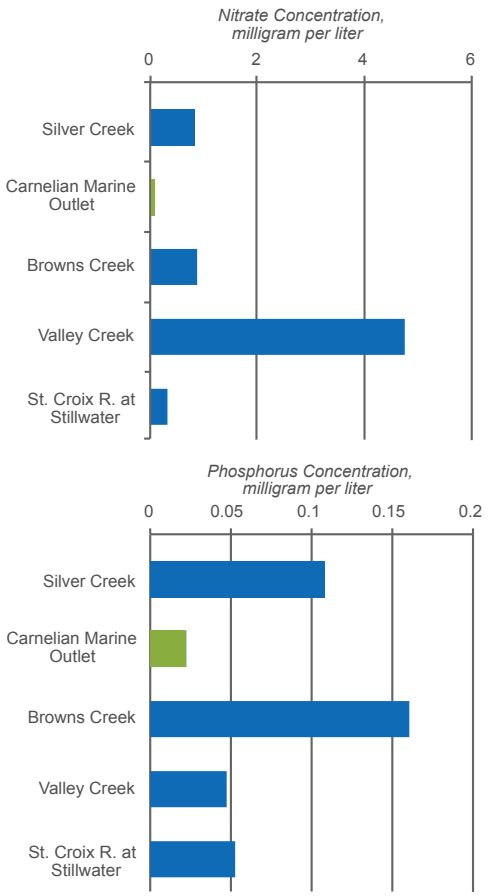
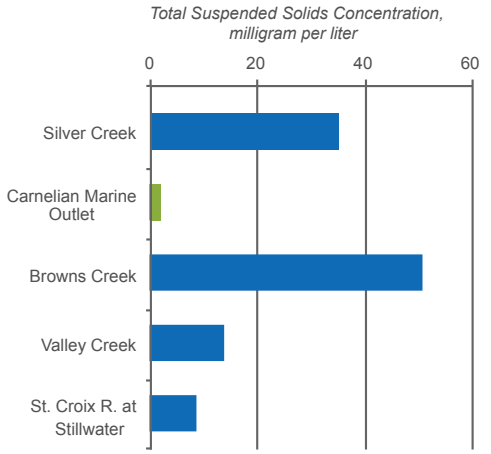
Median Nutrient Concentrations in the St. Croix River and Tributary Streams, 2003–2012



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



Another term for sediment is “total suspended solids.”

The Carnelian-Marine Outlet median sediment concentration is the lowest of the MCES-monitored streams in the St. Croix River basin. From 2003-2009, the stream carried an average of 4,500 pounds of sediment to the St. Croix River every year. This amount of sediment would not even fill one 15-ton dump truck!

Preserving our Creeks

The Carnelian-Marine St. Croix Watershed District is the local governing body responsible for managing the Carnelian-Marine watershed. They work with many groups to complete restoration projects that improve the Carnelian-Marine watershed’s water quality, including:

- Private landowners
- Municipalities (Scandia, Hugo, May Township, Stillwater Township)
- Minnesota Department of Natural Resources

Improvement projects completed by the Carnelian-Marine St. Croix Watershed District and its partners include:

- Construction of over 50 cost-share projects, including raingardens, shoreland restoration, lakeshore vegetative buffers, agricultural grassy waterways, prairie plantings, and conversion of agricultural crop lands to prairie
- Implementation of a permit program that requires installation of raingardens and vegetative buffers at new construction projects occurring within 1,000 feet of the lakes and stream

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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