

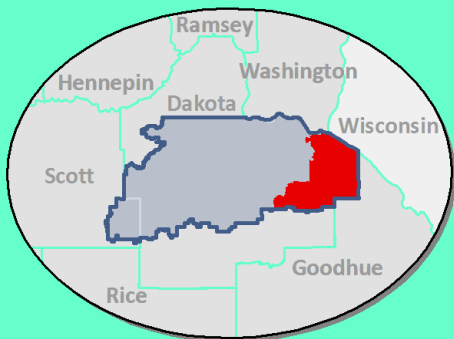


How can you improve local waters?



Mississippi Direct Subwatershed

Mississippi Direct Subwatershed



Includes:

- Northeastern Hastings,
- Ravenna Township,
- City of Coates,
- Northern Ninger Township,
- Northeastern corner of Rosemount,
- Eastern and southern Marshan Township,
- Northeastern corner of Hampton Township,
- Northern Douglas Township, and
- Vermillion River and all of its minor tributaries (including Etter Creek) between Hwy. 61 and the boundary of Goodhue County.

Strategies for a healthy subwatershed

The land area around the Vermillion River (and smaller streams that run into it) that flow directly to the Mississippi River make up the Mississippi Direct Subwatershed. The Mississippi Direct Subwatershed (shown in red on map, left) is part of the Vermillion River Watershed (shown in blue). Land and water in that area drain to the Vermillion River, or directly to the Mississippi River.

The Mississippi Direct Subwatershed is primarily rural and agricultural, with the exception of residential areas in the City of Hastings. Over many years of agricultural production, landowners have altered the land to expand, improve crop yields, and drain soggy fields. Residential development in Hastings increases runoff from roads, pavement, and parking lots.

These land uses alter the natural flow of water, allowing rain water to move more quickly from where it falls. Increased runoff carries pollutants such as sediment, nitrate, and *E. coli* bacteria to lakes, rivers, and streams.

Practices that slow down stormwater and soak up the rain can improve water quality – not only in the Vermillion River, but also in the groundwater. Surface water percolates down into the groundwater aquifers in the Mississippi Direct Subwatershed, affecting drinking water sources.

Healthy land and water resources depend on everyone. Find out more about what you can do to improve the Mississippi Direct Subwatershed’s water resources.

Project Highlight Hastings Industrial Park Ravine Stabilization and Restoration Stormwater flow caused significant erosion, 10-12 feet deep in places, in a 2,200-foot-long ravine in Hastings. Sediment- and nutrient-laden waters drained into the Vermillion River. The City of Hastings and VRWJPO re-graded and stabilized the ravine using a turf reinforcement mat. A pond constructed at the top of the ravine controls the flow rate and provides settling of runoff sediment.



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Vermillion River Watershed Joint Powers Organization

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The Vermillion River Watershed encompasses an area of approximately 335 square miles, including portions of two counties and all or portions of 20 cities, towns, and townships. The main stem of the river begins in southeastern Scott County in New Market Township flowing east through central Dakota County, passing over a waterfall in the City of Hastings, and then discharging to the Mississippi River both through a northerly flowing outlet near the City of Hastings as well as through a southerly flowing outlet near the City of Red Wing, Minnesota.

Best Management Practices (BMPs) for the Mississippi Direct Subwatershed

What are the water-quality issues?

- *E. coli* bacteria in streams
- Excess sediment in streams
- Concerns about surface water pollutant impacts on groundwater used for drinking water supplies.

What are we (and partners) doing?

- **Stabilizing streambanks and ravines** to prevent erosion and restore areas badly eroded by water flowing down steep slopes.
- **Cost-sharing conservation buffers** through federal and state programs.
- **Piloting an irrigation scheduling program** to provide landowners with services of a University of Minnesota Extension irrigation specialist to find optimal irrigation effectiveness.
- **Supporting private well testing** by Dakota County and the Minnesota Department of Agriculture to monitor nitrates and other pollutants in drinking water.

What can you do at home?

- **Install a raingarden** to soak up the rain, filter pollutants, and provide habitat.
- Pick up and properly **dispose of pet wastes** in the trash.
- **Stabilize and vegetate streambanks** to prevent erosion, filter pollutants, and provide habitat for wildlife.

What can you do on the farm?

- **Install a grassed waterway**, a vegetated channel designed to move surface water across farmland without causing soil erosion.
- **Install water and sediment control basins** to collect sediment and hold water until it seeps into the ground.
- **Use cover crops** on cropland when the soil would otherwise be bare to reduce erosion and runoff pollutants. Common cover crops in Minnesota include rye and other small grains.
- Follow University of Minnesota Extension's [best management practices](#) for **nitrogen use**.
- **Keep livestock out of streams** and manage manure properly to reduce bacteria loads.

Visit our website for more information:
www.vermillionriverwatershed.org