

# Summary of Marsh River Watershed Monitoring and Assessment Report



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## Why is it important?

The Marsh River Watershed gets its name from the vast prairies and numerous shallow wetlands that once dominated its landscape. Early settlers took advantage of the soils left by ancient Lake Agassiz to grow crops and raise livestock. Extensive alterations to the landscape and streams were made to enhance farming even further. About 67% of the streams within the watershed have been altered, including all tributaries on the Minnesota side. The Marsh River is the only remaining natural watercourse in the entire watershed.

There are no notable lakes within the watershed; however, there are multiple streams and small tributaries to the Marsh River, most notably County Ditch 11.

Intensive monitoring of surface water quality was completed in 2016. Streams were assessed for aquatic life (fish and aquatic insects), recreation (swimming), and fish consumption. While impairments were found, it was also found there is an abundance and diversity of aquatic life in the Marsh River, due in part to the river's close connection with the Red River. These good aspects need to be protected while correcting the impairments.

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## Key issues

Extensive drainage networks contribute to a number of problems in the watershed. Culverts and ditches pose a barrier to fish passage and their ability to access prime spawning areas.

Drainage also contributes to a lack of sustained/consistent stream flow which is a major stressor to fish and aquatic insects. Crucial habitat may not be available and dissolved oxygen and water temperatures can have large fluctuations.

The clay-dominated fine soils in and near streams are highly erodible. Extensive draining causes extremely high flows during spring runoff and summer rain events, resulting in bank erosion and increased sediment loading in streams.

While there are several impairments in the watershed, there are also areas where fish and aquatic insect communities are doing well. These areas need to be protected at the same time impairments are being addressed.

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## Highlights of report

The loss of consistent flows in the watershed has been detrimental to habitat for fish and aquatic insects, but data suggests restoring flows has the potential for correcting this problem. Heavy silt deposits and poorly formed streams were noted at each monitoring station.

Although impairments have been identified throughout the watershed, the Marsh and its tributaries do in some places support extensive fish and aquatic insect populations.

Additional protections should be considered for groundwater to improve/protect both the quantity and quality of groundwater in the watershed.

Excessive sedimentation exists in areas used by gravel-spawning fish and aquatic insects. Turbidity and habitat loss are driving impairments for aquatic life.

The Marsh River will be listed as impaired for swimming due to *E. coli* bacteria. Levels are sometimes very high and indicate a risk to human health.

Sixty-seven percent of assessed streams (four of six) support aquatic life. The Marsh River is currently listed for four aquatic life impairments and County Ditch 11 is listed for one aquatic life impairment.

The main contributors to aquatic life impairments include degraded habitat, lack of flow, and high turbidity/suspended solids.

Finding ways to better control drainage, while allowing the stream to retain water and not impede fish passage, and creating buffers around all streams, rivers, and ditches would help protect and restore aquatic habitat for a greater diversity of aquatic life.

Actions to protect/promote higher species diversity in the watershed might include:

- Create or strengthen vegetated buffers along streams and ditches using native perennial vegetation and trees.
- Use practices that reduce flooding and increase drainage without compromising hydrologic connectivity, the ability of fish to move upstream for spawning, etc.

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## About this report

Minnesota has adopted a “watershed approach” to address the state’s 80 major watersheds. This approach incorporates water quality assessment, watershed analysis, civic engagement, planning, implementation, and measuring results into a 10-year cycle that addresses both restoration and protection.

Waters not meeting state standards are still listed as impaired and Total Maximum Daily Load studies are performed as they have been in the past, but in addition the watershed approach includes a more cost-effective and comprehensive assessment of the watershed’s overall health. A key aspect of this effort is to develop and utilize watershed-scale models and other tools to help state agencies, local governments and other watershed stakeholders determine how to best proceed with restoring and protecting lakes and streams. This report summarizes past assessment and diagnostic work and outlines ways to prioritize actions and implement strategies. This is phase one of a four-phase process outlined at right.

### Watershed Approach

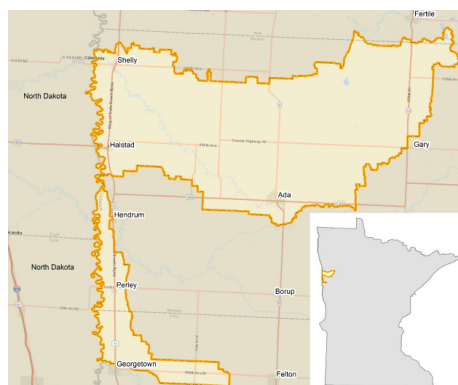
**Phase 1:** Monitor and assess health of waters

**Phase 2:** Identify conditions stressing biological life

**Phase 3:** Determine maximum pollutant loads

**Phase 4:** Determine Watershed Restoration and Protection Strategies

Start process over every 10 years



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## Full report

To view the full report visit the Marsh River Watershed page on our website.

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