

Summary

Upper / Lower Red Lake Watershed Monitoring and Assessment Report



Why is it important?

Upper and Lower Red Lake, two of the largest lakes in Minnesota, are located in the watershed. There are several additional major lakes as well, including Blackduck, Puposky, Barlett, Medicine, White Fish and Balm. Major rivers include Blackduck, South Cormorant, North Cormorant, Battle, Tamarac and Sandy rivers. Due to the vast surface area of Upper and Lower Red Lake, open water accounts for 25% of the watershed's surface area.

Much of the watershed lies within the Red Lake Indian Reservation. Less than 2% of the land in the watershed is considered developed. Agricultural land use, consisting mostly of pasture and hay production, occurs primarily in the southeastern portion of the watershed. Only 0.8% percent of the land is used for row crop production.

Vast expanses of wetland and forest combined with very little development results in generally good water quality across the watershed.

Key issues

Wetlands cover 48% of the watershed and play a major role in maintaining water quality, even though they can have some negative effects as well. For example, rain events can flush organic matter and water to streams which can lower dissolved oxygen (DO) concentrations, stressing fish and aquatic insects.

Wetland streams are characterized by fine sediments and slow currents which reduces stream channel development and habitat complexity, which is not necessarily good for supporting diverse communities of fish and aquatic insects.

Upper and Lower Red Lakes are relatively shallow with vast surface areas. Nutrients in the lake bottom sediments are subject to becoming resuspended during windy/choppy conditions and result in nuisance algae blooms.

Water quality and fish/aquatic insect communities are generally good due to the fact much of the area remains in a natural state with very little development.

Highlights of report

The majority of streams have biological communities (fish and aquatic insects) that are in good condition. Many of the headwater streams have excellent habitat. Most of the streams with poor biological communities are profoundly affected by wetlands.

Lake water chemistry is very good across the watershed since many lakes have little to no human impacts and are surrounded by forests and wetlands. Only five of 96 lakes were impaired for recreation (swimming.)

Fish were assessed on only seven lakes but all of had healthy fish communities.

Bacteria concentrations (*E. coli*) are a concern as 10 stream reaches exceeded thresholds set for safe swimming. With so little development, a likely cause of elevated bacteria levels could be from wildlife such as waterfowl and beavers. (In reaches inhabited by beavers, water can become stagnate from beaver dams, creating prime conditions for bacteria to proliferate.)

Some impairments are likely due to natural factors, and residents can take actions to assist in the recovery and protection of streams and lakes. These include:

- Restore riparian zones/shorelines using native vegetation, trees, and shrubs
- Protect vegetated buffer zones, shorelines, and exceptional aquatic habitats

- Adopt best management practices to improve reaches with sedimentation and erosion issues and to prevent additional sedimentation
- Restrict livestock access to streams
- Continue chemistry and biological monitoring to evaluate and document declining or improving conditions
- Continue to monitor DO on several stream reaches to determine if low DO concentrations are affecting biological communities.

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 the 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

Full report

To view the full report, visit the Upper/Lower Red Lake River Watershed page on our website.

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