

# Crow Wing River

## Watershed Restoration and Protection Strategies (WRAPS) Report Summary



Minnesota has adopted a “watershed approach” to address the state’s 80 “major” watersheds (denoted by 8-digit hydrologic unit code or HUC). This approach looks at the drainage area as a whole instead of focusing on lakes and stream sections one at a time, thus increasing effectiveness and efficiency. This watershed approach incorporates the following activities into a 10-year cycle:

- Water quality monitoring and assessment;
- Watershed analysis;
- Civic engagement;
- Planning;
- Implementation; and
- Measurement of results.



**Straight River, Becker County**

The Crow Wing River watershed process began in 2010. It was the first time watershed assessments incorporated biology (fish and macroinvertebrates) along with the traditional chemistry and flow for a comprehensive watershed health assessment. The watershed approach adds a protection component for water resources meeting standards rather than focusing entirely on restoration of impaired waters. This is a summary of the Crow Wing WRAPS report.

### Watershed characteristics

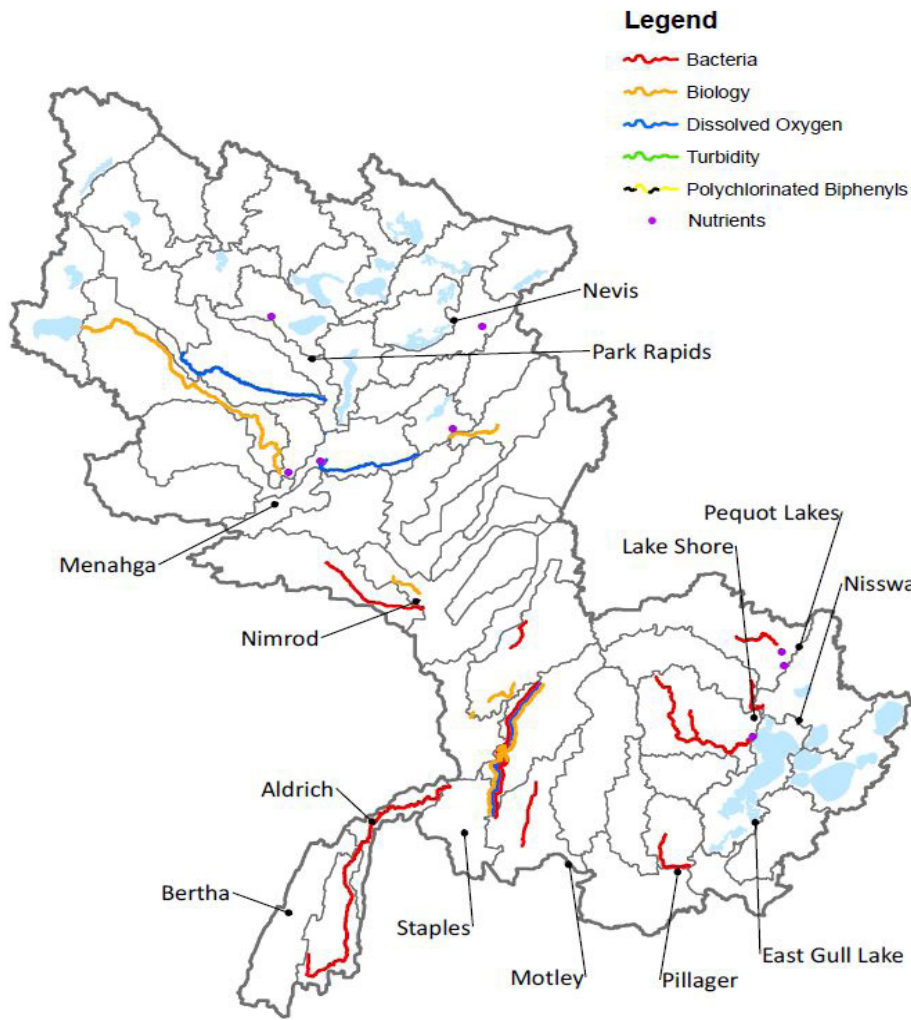
- Size: 1,946 square miles or 1,245,755 acres.
- Counties: Becker, Cass, Clearwater, Crow Wing, Hubbard, Morrison, Otter Tail, Todd and Wadena.
- Ecoregion(s): North Central Hardwood Forests and Northern Lakes and Forests.
- Land use: Predominantly forested and agriculture with wetland, row crops and open water.
- The 8-digit hydrologic unit code or HUC for the North Fork Crow is 07010206.

### Assessments: Are waters meeting standards and providing beneficial uses?

During the first phase of the watershed approach – intensive watershed monitoring – the MPCA and local partners collect data about biology such as fish populations, chemistry such as pollutant levels, and flow to determine if lakes and streams are meeting water quality standards.

Waters are “impaired” if they fail to meet standards. The map on the next page shows the impairments for streams and lakes in the Crow Wing River watershed. Under federal and state laws, impaired waters must have Total Maximum Daily Load (TMDL) studies to determine reductions of pollutants needed to again meet water quality standards. In this first WRAPS cycle, the MPCA and local partners completed TMDL studies for 7 lakes and 10 stream sections.

# Impairments in the Crow Wing River Watershed



Impaired Waterbody	Pollutant Type
Blueberry Lake	Excess Nutrients (Phosphorus)
8 <sup>th</sup> Crow Wing Lake	
1 <sup>st</sup> Crow Wing Lake	
Lower Twin Lake	
Mayo Lake	
Sibley Lake	E. Coli Bacteria
Partridge River	
Home Brook	
Swan Creek	
Cat River	
Pillager Creek	
Mayo Creek	
Unnamed Creek	
Stoney Brook	
Corey Brook	
Farnham Creek	Low Dissolved Oxygen
Swan Creek	
Shell River	

## Stressors: What factors are affecting fish and bugs?

To develop strategies for restoring or protecting water bodies with biological impairments, agencies and local partners must first identify the possible causes, or stressors, of the impairments. The table below summarizes the predominant stressors in the Crow Wing River watershed.

	Water Chemistry	Connectivity	Habitat	Geomorphology
<b>Stressors to Biological Health of Streams</b>	<b>Dissolved Oxygen</b>	Problem Culverts, beaver dams	Missing diverse habitat features	Altered channel shape, sedimentation
Bender Cr.	Not a stressor	Main Stressor (natural - beaver dams)	Naturally lacking	Not a stressor
Farnham Cr.	Possibly natural*	Not a stressor	Not a stressor	Lesser stressor
Swan Cr.	Lesser stressor	Not a stressor	Not a stressor	Possibly main stressor*
Tower Cr.	Possibly natural*	Not a stressor	Naturally lacking	Not a stressor
Unnamed Trib. to Crow Wing R.	Not a stressor	Main stressor	Not a stressor	Lesser stressor
Unnamed Trib. to Shell R.	Natural	Not a stressor	Not a stressor	Not a stressor
Upper Shell R.	Not a stressor	Main stressor	Naturally lacking	Lesser stressor

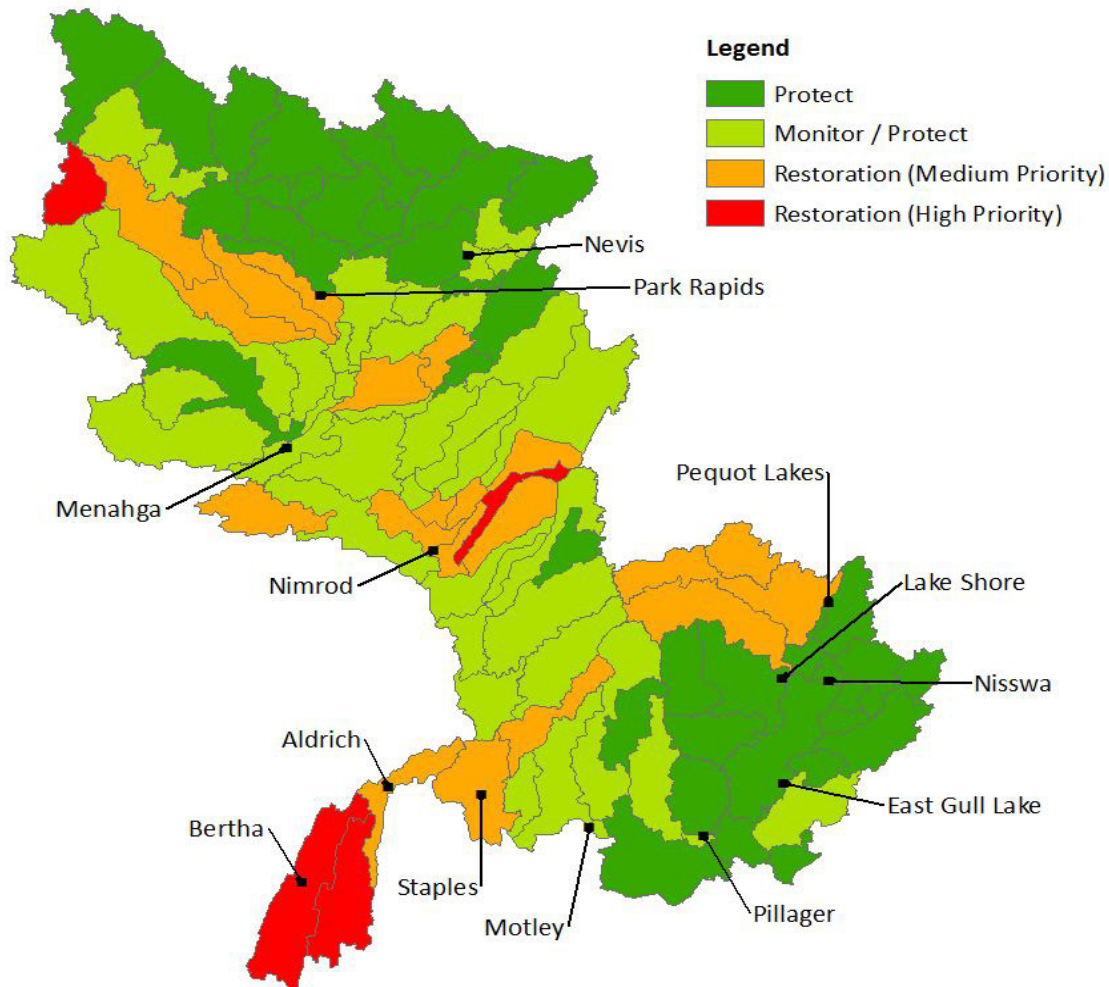
\*Newer data has been collected and is being reviewed for better stressor determination.

## Restoration and Protection Strategies

The MPCA created the strategy map below for subwatersheds – drainage areas within the larger watershed – to help identify general priority areas for targeting actions to improve water quality. Multiple sources of data, maps and analysis tools were combined to create this map. The colors on the map indicate:

- Red – High priority restoration (water is Impaired, needs highest attention)
- Orange – Medium priority restoration (water is Impaired)
- Light green – Protection/monitoring (water quality is good but declining or faces threats)
- Dark green – Protect (water quality is good)

### Crow Wing River Watershed: Areas for restoration and protection



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## Next steps and measuring results

The restoration and protection strategies listed in the WRAPS report will be the basis for developing local implementation plans to restore and protect water resources. The report lays out goals, milestones and responsible entities to address protection and restoration priorities in the Crow Wing River watershed. The targets are intended to provide guidance and “measuring sticks” to assess the watershed’s health and success of actions taken.

Water quality in Minnesota has declined over many decades. While restoration activities continue, new problems develop, such as converting land to intensive cropping that negatively impacts water quality. The perpetual challenge is to make improvements and keep up with new problems. Impacts from other factors such as climate change are still not completely understood. Consequently, it may take decades to fully restore impaired waters.



## Key conclusions of first cycle

- This watershed is considered mostly a protection watershed with some areas identified as areas that need restoration work.
- Protecting large tracts of forest land in the watershed is vital to protect water quality in lakes, streams and groundwater.
- The WRAPS report data and findings provide a base for developing strategies and priorities to be used in local comprehensive and water plans.
- The watershed model was used to link land use changes to watershed responses in water quality, hydrology, hydrogeology and natural features.
- Both long term and interim goals need to be tracked to measure effectiveness.
- Lakes in the watershed are impaired due to excessive nutrients that cause algal blooms and other problems.
- Primary impairments to streams are low dissolved oxygen and excess bacteria, all which hurt aquatic life and recreation.
- Stewardship/education programs and activities for restoration and protection efforts in the watershed should be continued.
- The next WRAPS project cycle for the Crow Wing Watershed is expected to begin in 2020.



Much of the Crow Wing River watershed is in good shape. Stretches like these (south of Pillager, above, and near Motley, below) offer great recreation opportunities



## Full report

Full report at <https://www.pca.state.mn.us/sites/default/files/wq-ws4-09a.pdf>

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## Minnesota Pollution Control Agency

The Clean Water, Land and Legacy Amendment is funding a large part of the MPCA's watershed approach.

