



South Fork Crow River Watershed

Watershed approach

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:

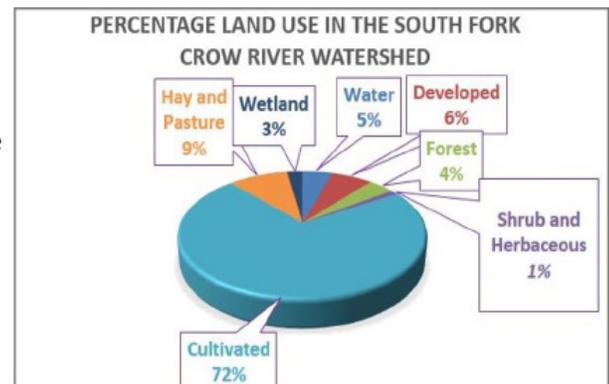
- Water quality monitoring and assessment
- Watershed analysis
- Civic engagement
- Planning
- Implementation
- Measurement of results



The South Fork Crow River Watershed process began in 2012. The 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 that currently meet standards rather than focusing entirely on restoration of impaired waters.

Watershed characteristics

- Size: 1,279 square miles or 818,560 acres.
- Water: ~179 Lakes >10 acres and 1,420 perennial river/stream miles. Most of the stream miles in the South Fork Crow River Watershed have been altered from their natural state.
- Counties: Kandiyohi, Renville, Meeker, McLeod, Sibley, Wright and Hennepin. The largest municipalities in the watershed include Willmar, Hutchinson, Delano, and Glencoe.
- Ecoregions: The western portion of the watershed is in the Western Corn Belt Plains and the eastern third lies within the North Central Hardwoods ecoregion
- Land use: 70% of the land coverage dedicated to row crop farming. Next is rangeland at 10%. The remaining land is developed lands, forest/shrub, open water, and wetlands.
- The 8 digit hydrologic Unit Code (HUC) for the South Fork Crow River Watershed is 07010205.

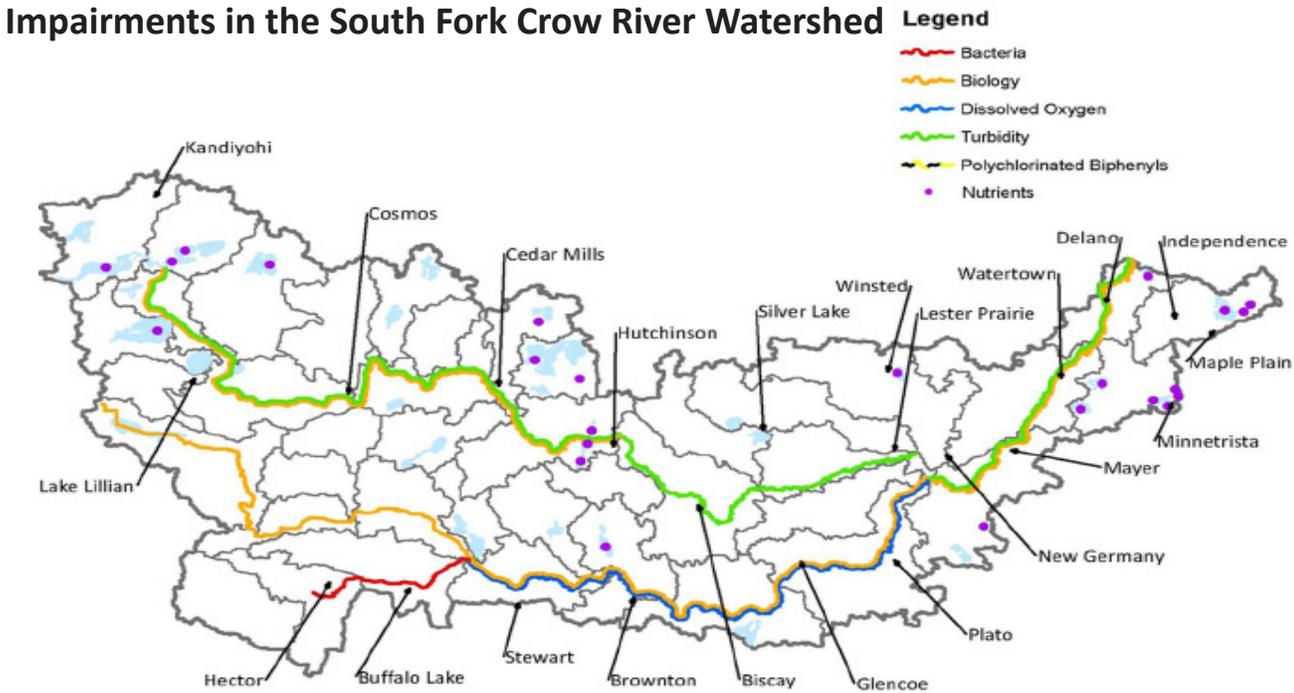


Assessments: Are waters meeting standards and providing beneficial uses?

During the first phase of the watershed approach – intensive watershed monitoring – the Minnesota Pollution Control Agency (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. Of 51 lakes assessed, 72.5% are impaired for aquatic recreation, 7.8 % fully support aquatic recreation, and 19.6% have insufficient data to make an assessment.

The map below shows the impairments for streams and lakes in the South Fork Crow River Watershed. Under federal and state laws, impaired waters must have Total Maximum Daily Load (TMDL) studies to determine reductions of pollutants needed to meet water quality standards. In this first WRAPS cycle, the MPCA and local partners completed TMDL studies for five river/stream TSS impairments; one river/stream dissolved oxygen (DO) impairment; two river/stream bacteria impairments; and nutrient impairments for 23 lakes. The 2016 303(d) list identified 40 lake nutrient impairments, and 4 stream reaches impaired for turbidity, 43 for fishes bioassessments, 13 for bacteria, 31 for poor aquatic macroinvertebrate populations, and 5 for low dissolved oxygen.



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 indicated streams in the South Fork Crow River Watershed.

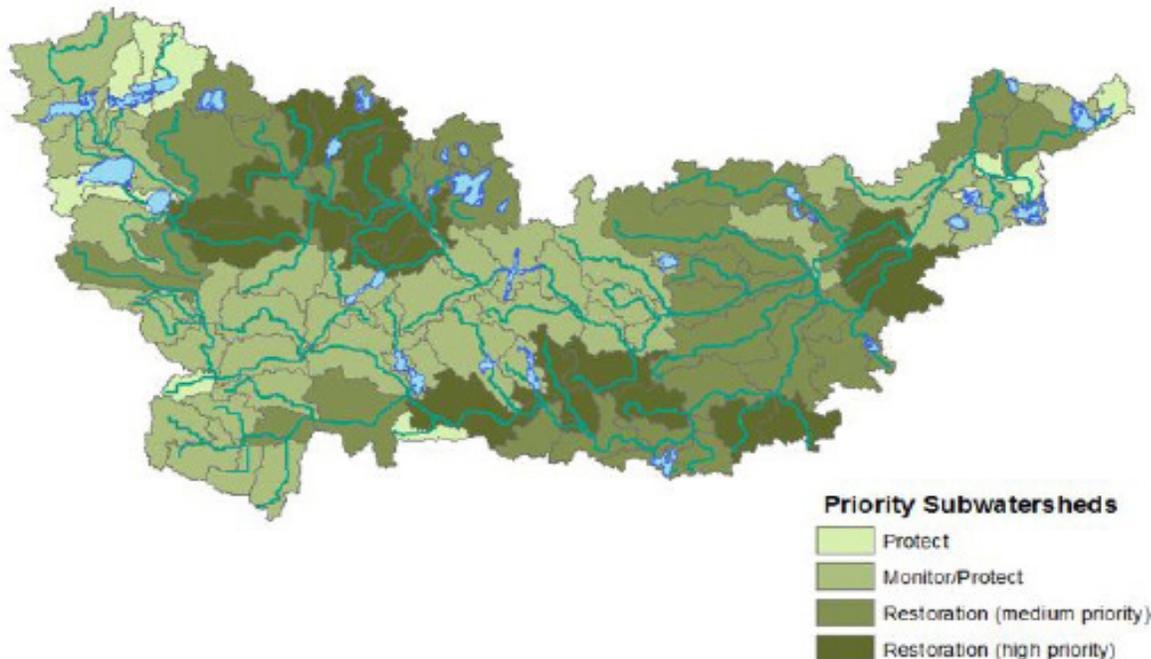
Stream name	AUI D #	10-digit HUC	Biological	Stressors							
				Eutrophication	DO	Nitrate	TSS	Habitat	Altered hydrology	Ionic strength	
South Fork Crow River	658	Headwaters South Fk Crow R	Macroinvertebrate IBI, Fish IBI							o	
South Fork Crow River	659	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI, Fish IBI							o	
South Fork Crow River	510	City of Lester Prairie South Fk Crow R	Macroinvertebrate IBI, Fish IBI								
South Fork Crow River	511	City of Lester Prairie South Fk Crow R	Macroinvertebrate IBI, Fish IBI								
South Fork Crow River	508	South Fork Crow R	Macroinvertebrate IBI, Fish IBI		o				o		
Buffalo Creek	502	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI		o					o	
Buffalo Creek	638	Buffalo Creek	Macroinvertebrate IBI, Fish IBI								
Judicial Ditch 67	504	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI							o	o
Judicial Ditch 15	509	Judicial Ditch 15	Macroinvertebrate IBI, Fish IBI			o				o	o
Bear Creek	515	City of Lester Prairie South Fk Crow R	Macroinvertebrate IBI, Fish IBI		o						
County Ditch 4	528	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI							o	o
Unnamed Creek	533	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI, Fish IBI							o	
Belle Creek	549	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI, Fish IBI							o	
Judicial Ditch 18	550	City of Hutchinson-South Fk Crow R	Fish IBI							o	
Judicial Ditch 1	572	City of Lester Prairie South Fk Crow R	Macroinvertebrate IBI, Fish IBI		o						

Stream name	AUI D #	10-digit HUC	Biological	Stressors						
				Eutrophication	DO	Nitrate	TSS	Habitat	Altered hydrology	Ionic strength
Unnamed Creek	585	City of Lester Prairie South Fk Crow R	Fish IBI		o					
Judicial Ditch 8	591	Buffalo Creek	Macroinvertebrate IBI, Fish IBI						o	
State Ditch Branch 2	608	Headwaters South Fk Crow R	Macroinvertebrate IBI, Fish IBI						o	
County Ditch 18	609	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI, Fish IBI						o	
County Ditch 24A	610	Headwaters South Fk Crow R	Fish IBI						o	
County Ditch 26/27	611	City of Lester Prairie South Fk Crow R	Macroinvertebrate IBI, Fish IBI		o					
King Creek	613	City of Hutchinson-South Fk Crow R	Fish IBI						o	
Unnamed Creek	614	Buffalo Creek	Fish IBI						o	
Unnamed Creek	615	Buffalo Creek	Fish IBI						o	
Unnamed Creek	617	City of Lester Prairie South Fk Crow R	Fish IBI		o					
Unnamed Creek	618	South Fork Crow R	Macroinvertebrate IBI, Fish IBI						o	
Unnamed Creek	621	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI						o	
Unnamed Creek	622	City of Lester Prairie South Fk Crow R	Fish IBI		o					
Unnamed Creek	623	City of Hutchinson-South Fk Crow R	Macroinvertebrate IBI, Fish IBI						o	
Unnamed Creek	624	South Fork Crow R	Macroinvertebrate IBI, Fish IBI						o	
Judicial Ditch 9	625	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI						o	o
Judicial Ditch 15 Branch	626	Judicial Ditch 15	Fish IBI			o			o	o
Judicial Ditch 15 Branch	627	Judicial Ditch 15	Fish IBI			o			o	o
Judicial Ditch 15 Branch	628	Judicial Ditch 15	Macroinvertebrate IBI, Fish IBI			o			o	o
Unnamed Ditch	630	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI						o	o
County Ditch 7A	631	Judicial Ditch 28A	Macroinvertebrate IBI, Fish IBI						o	o

Restoration and Protection Strategies

The MPCA created the strategy map below using HUC-12 subwatersheds – drainage areas within the larger HUC-8 South Fork Crow River Watershed – to help identify priority areas for targeting actions to protect or restore water quality. Outputs from the Hydrologic Simulation Program Fortran (HSPF) were used to create this map.

The degree of effort needed to protect or restore the waters in each HUC 12 increases as the shades of green become darker. Other maps of individual pollutants, such as phosphorus and nitrogen, can be found in the full report.



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 South Fork Crow 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 some areas 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. For these reasons, it is much more cost-effective to protect clean waters while we can. For waters that are impaired, such as in the South Fork Crow River Watershed, it is likely that success is better measured not only by delisting of impaired waters, but against projections of where the water quality will be in the future if action is not taken. If trends toward degradation can be slowed or even turned, we have made progress.

Key conclusions of first cycle

- The WRAPS report data and findings provide a base for developing the One Watershed One Plan.
- The South Fork Crow River Watershed overall has poor water quality and will require changes in land use practices
- There are many opportunities for conservation easement purchase, and significant amounts of state owned land that can be used to protect surface and ground water.
- Because it flows eventually to the Mississippi, the South Fork Crow River Watershed is a source of drinking water for municipalities downstream, including the Twin Cities.
- Primary impairments to streams are biological; lack of fish or bugs that one would expect to find in clean waters. Habitat restoration is key to improving biology in streams.
- Groundwater in the South Fork Crow River Watershed is largely vulnerable and consideration must be given to ground water protection as well as surface water protection when choosing Best Management Practices for implementation.
- The next WRAPS project cycle for the South Fork Crow River Watershed is expected to begin in 2021.



Example of a healthy buffer along a stream

Full report

Full report as well as supporting documents can be found at:
<https://www.pca.state.mn.us/water/watersheds/south-fork-crow-river>

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