

# Rum 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
- Measurement of results

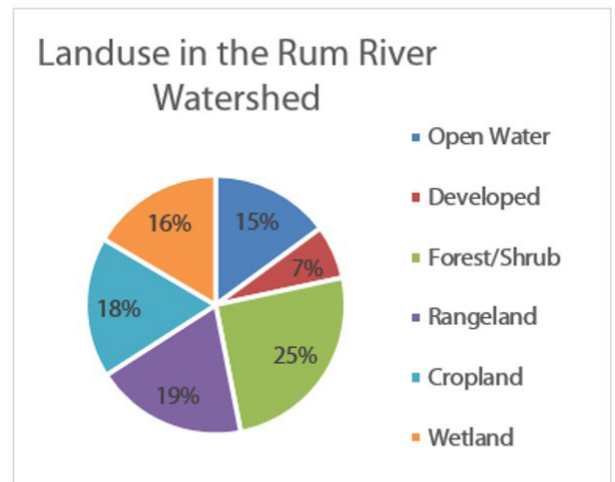
The Rum River near Highway 169, south of Onamia



The Rum River watershed process began in 2013. 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 that currently meet standards rather than focusing entirely on restoration of impaired waters.

### Watershed characteristics

- Size: 1,584 square miles.
- Counties: Aitkin, Crow Wing, Morrison, Mille Lacs, Kanabec, Benton, Isanti, Chisago, Sherburne, and Anoka.
- Ecoregions: Northern Lakes and Forests and North Central Hardwood Forests.
- Land use: Predominantly forest/shrub.
- There are 212 lakes (greater than 10 acres) and 233 stream segments.
- The 8-digit hydrologic unit code or HUC for the watershed is 07010207.

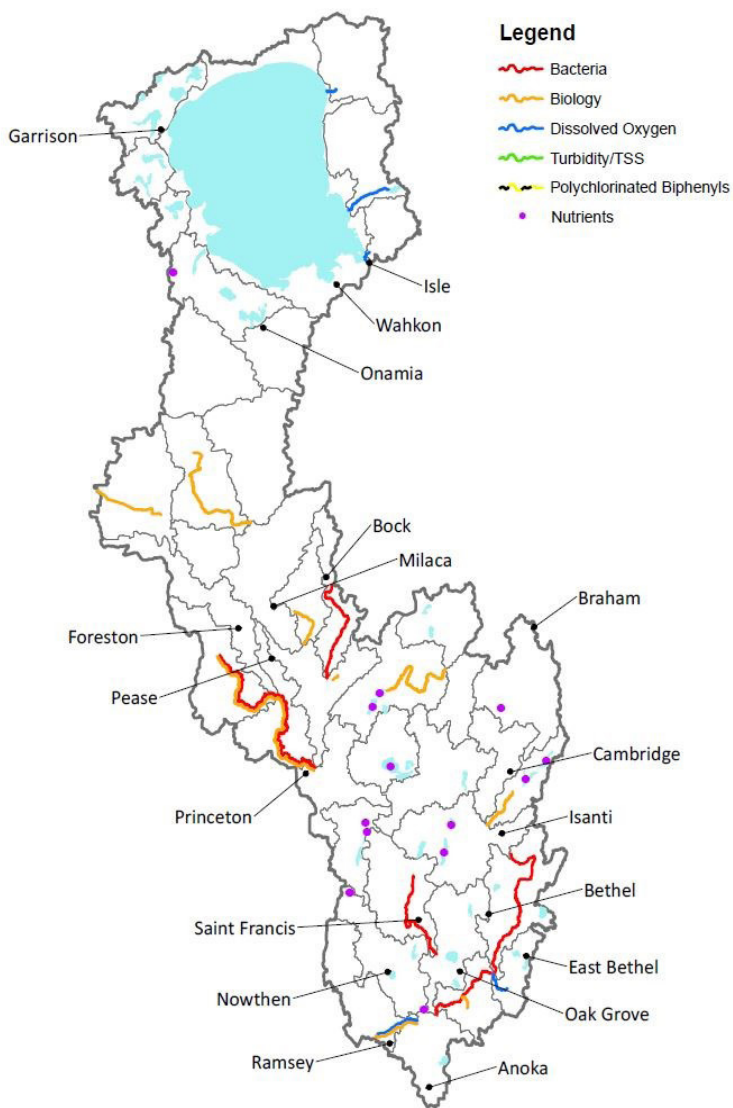


### Assessments: Are waters meeting standards and providing beneficial uses?

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 page 2 shows the impairments for streams and lakes in the Rum 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 six stream sections and ten lakes.

# Impairments in the Rum River Watershed



## Impairments:

- 10 lakes were found to be impaired in the Watershed.
- 11 stream sections were found to have impairments.
- **Bacteria:** E.coli and/or fecal coliform can indicate sewage or manure in water and makes the water unsafe for swimming.
- **Dissolved Oxygen:**
- **Biology** (fish and/or macroinvertebrates): The number and type of fish and bugs are indicators of water's health.

## 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 of the indicated streams in the Rum River watershed.

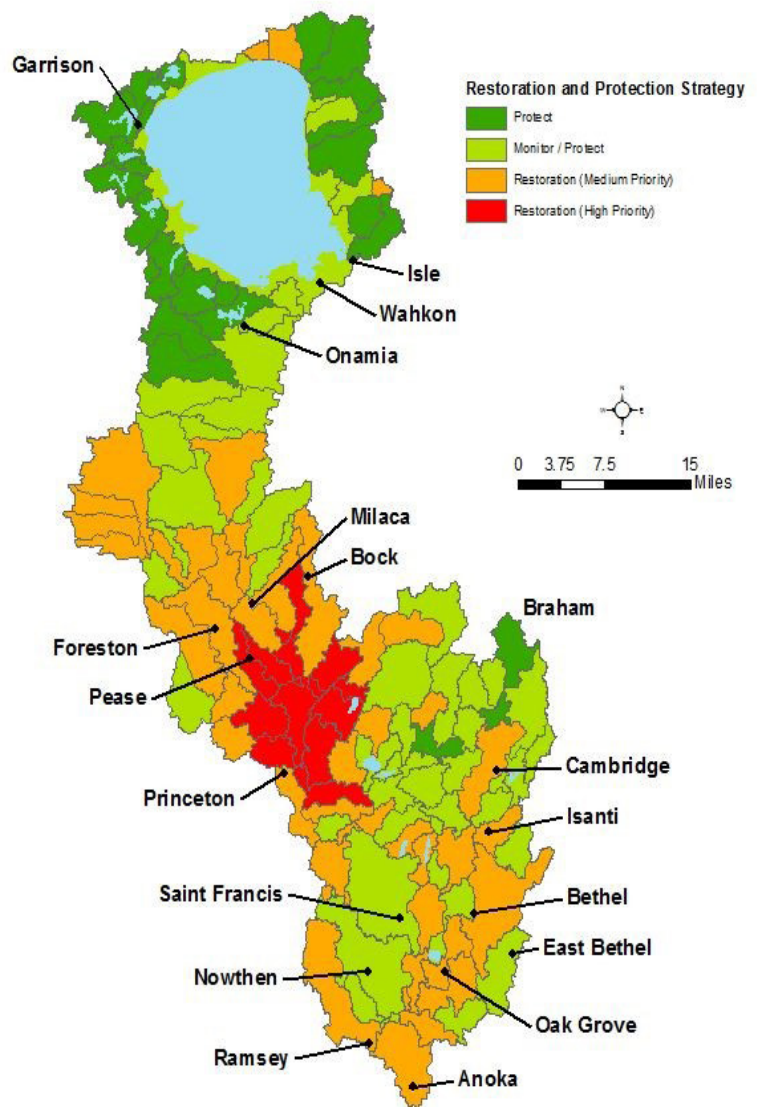
Stressors to Biological Health of Streams	Water Chemistry					
	Dissolved Oxygen	Elevated Nutrients	Total Suspended Solids	Deposited Sediment (Degrades habitat)	Lack of physical habitat	Altered Hydrology (Stream flow changed)
Estes Brook	Not a stressor	Main Stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor
Trott Brook	Main Stressor	Main Stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor
Tibbetts Brook	Not a stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor	Main Stressor
West Branch Rum River	Not a stressor	Main Stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor
Trib. to West Branch	Not a stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor	Main Stressor
Vondell Brook	Not a stressor	Main Stressor	Not a stressor	Not a stressor	Main Stressor	Main Stressor
Stanchfield Creek	Main Stressor	Main Stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor
Isanti Brook	Main Stressor	Not a stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor
Washburn Brook	Not a stressor	Not a stressor	Not a stressor	Not a stressor	Main Stressor	Main Stressor
Mahoney Brook	Main Stressor	Main Stressor	Not a stressor	Main Stressor	Not a stressor	Not a stressor

## Restoration and Protection Strategies

The MPCA created this strategy map using HUC-12 subwatersheds – drainage areas within the larger HUC-8 Rum River watershed – to help identify priority areas for targeting actions to improve water quality. Multiple sources of data, maps and analysis tools including HSPF were combined to create this map. The colors on the map indicate:

- Red – High priority restoration or protection (multiple benefits for restoration or protection)
- Orange – Medium priority restoration or protection (water is Impaired)
- Light green – Protection/monitoring (water quality is good but declining or faces threats-fewer multiple benefits)
- Dark green – Protect (water quality is good and little need of action at this time)

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 Rum 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.



## Key conclusions of first cycle

- The northern portion of the watershed near Mille Lacs Lake is currently fairly healthy but sensitive fisheries and associated macroinvertebrate communities will be negatively impacted by increased runoff and pollutant loads. Hence, protection efforts should be the primary emphasis in this portion of the watershed.
- The middle portion of the watershed has higher background levels of phosphorus and sediment and contain the majority of today's impaired waters. Restoration efforts (reducing dissolved phosphorus) is the primary focus in this area, with a secondary focus on protection of waters meeting standards.
- Buffer strips and utilizing low impact design standards are shown to reduce phosphorus and sediment throughout the watershed.
- Both protection and restoration efforts within the watershed will protect downstream lakes and Rum River reaches and the Rum River outlet into the Mississippi River at Anoka, part of the Minneapolis and St. Paul source water protection area.
- The Rum River is a State Wild & Scenic River and important to the public for fishing and recreation. The river is subject to land use change and increased drainage and protecting the corridor is both a short-term and long-term priority.



West Branch Rum River

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## Full report

Full report as well as supporting documents can be found at [www.pca.state.mn.us](http://www.pca.state.mn.us) and search "Rum River".

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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.

