



KETTLE RIVER & UPPER ST. CROIX COMPREHESIVE WATERSHED MANAGEMENT PLAN

2024-2034

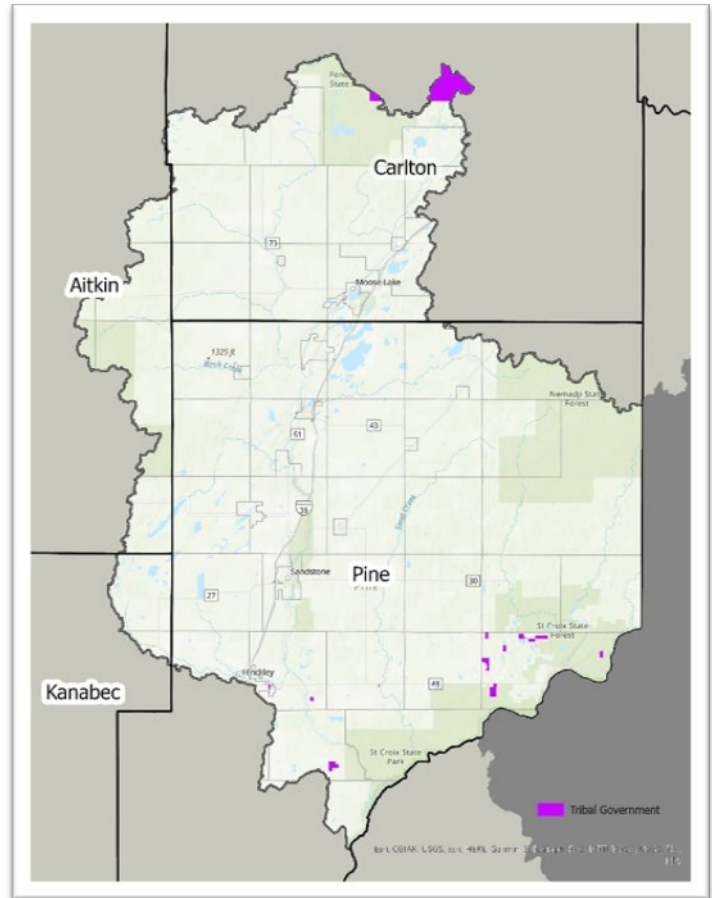


What is a Comprehensive Watershed Management Plan?

The Kettle River & Upper St. Croix Comprehensive Watershed Management Plan guides local governments on where they can complete projects to best protect and restore water resources in their communities. The purpose of this plan is to use the information we already know about the Kettle River & Upper St. Croix watershed to help us prioritize projects where they will have the biggest impact.

Watershed Highlights

The Kettle River & Upper St. Croix Watershed flows south from its headwaters in Carlton County to its confluence with the Snake River just south of St. Croix State Park. Although largely forested, the watershed is dotted with farmland and small cities including Moose Lake, Sandstone and Hinckley. The watershed is over 1500 square miles spanning 4 counties, two tribal reservations and a portion of two treaty authority areas. It includes hundreds of lakes and thousands of miles of streams, providing recreational opportunities and valuable habitat for unique plant and animal species. This watershed is lucky to have abundant healthy natural resources. The goal of the Kettle River & Upper St. Croix Comprehensive Watershed Management Plan is to protect these resources for future generations.



Lake Summary

- 126 lakes of 10 or more acres
- 17 wild rice lakes
- 2 cisco lakes
- 1 trout lake
- 13 of 31 assessed lakes do not support aquatic recreation due to high levels of phosphorous



Goal: Reduce phosphorous loading by 340 pounds in priority restoration and protection lakes

Actions

Manage septic system
 Manage stormwater
 Plant buffers along shorelines
 Restore eroding shorelines

Priorities

Focus on protecting vulnerable lakes that are recreationally, culturally, and biologically important and restoring lakes that are nearly or barely supporting aquatic recreation.

Why does phosphorus runoff matter?



1 POUND OF PHOSPHORUS = 500 POUNDS OF ALGAE



Stream Summary

- Home to rare species like wild rice, sturgeon, and freshwater mussels
- 115 miles of trout streams
- 50 culverts are barriers to fish passage
- Hundreds of stream miles were historically ditched or altered
- High levels of bacteria in some streams
- 20 of the 78 stream reaches assessed do not support aquatic life or recreation.



Goal: Protect or enhance 400 acres of riparian corridor in priority streams and 2000 linear feet of priority streams to maintain healthy ecological conditions

Actions

**Restore stream reaches that were historically altered
Protect vulnerable shorelines
Restore eroding streambanks
Replace culverts and fish barriers
Plant buffers**

Priorities

Focus on protecting vulnerable streams and restoring streams where human impacts are impacting habitat.



Farm Summary

- 77 registered feedlots
- 27,000 animal units
- 13% of the watershed is hay, pasture, or cropland



Goal: Treat 1,000 farm acres with soil health practices and install 30 best management practices in priority areas to reduce nutrient runoff and protect soil health and water quality.

Actions
 Improve manure management
 Improve grazing & nutrient management
 Increase soil health
 Implement erosion reduction practices

Priorities
 Focus on implementing best management practices in areas with known agricultural stressors to surface waters, groundwater and high priority lakes and streams.



Forest Summary

- 380,000 acres of forests
- Forest composition has changed due to historic fires and logging
- Forests protect water quality for lakes, streams and groundwater



Goal: Manage 20,000 acres and protect 10,000 acres of private forests in high priority areas using easements, SFIA, land acquisition and other protection opportunities

Actions

**Complete and implement woodland stewardship plans
Enroll private forests in the Sustainable Forest Incentives Act (SFIA) program
Implement projects that improve forest health**

Priorities

Focus on protecting forests that are at risk of conversion to other land use types and that protect vulnerable lakes, streams and groundwater.



Wetland Summary

- The watershed maintains abundant wetlands
- Historic ditching of peatlands is stressing downstream lakes and streams
- Wetlands help maintain water quality, protect communities from flooding and provide habitat



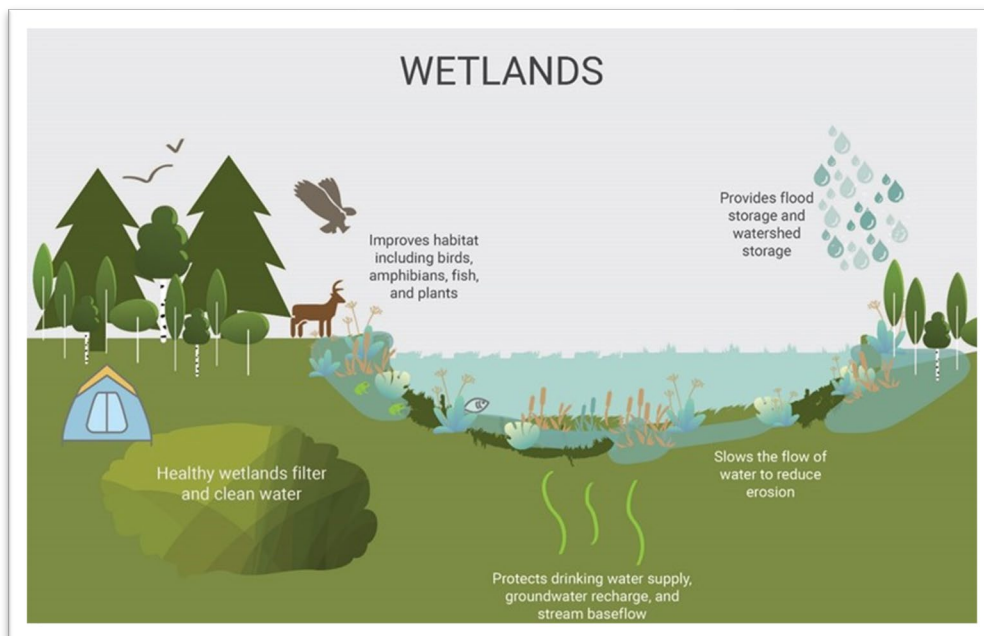
Goal: 30 acres of wetlands are protected or restored in high priority areas, maintaining 60 acre-feet of watershed storage

Actions

**Restore wetlands that were historically drained
Study ditched peatlands
Protect wetlands**

Priorities

Focus on protecting and restoring wetlands to improve water quality in downstream lakes and streams



Stormwater Summary

- 13 cities have a stream or lake within their boundaries
- Moose River subwatershed has the most impervious surface and includes the cities of Moose Lake, Barnum, and Sturgeon Lake
- No communities in the watershed are required to have a municipal stormwater permit (MS4)



Goal: Complete 4 stormwater management plans and review regulations in 4 communities. Install and maintain 20 stormwater best management practices in high priority areas.

Actions

**Develop stormwater management plans
Implement enhanced street sweeping
Install stormwater best management practices (catch basins, retention ponds, raingardens, swales, etc.)**

Priorities

Focus on stormwater planning and best management practice implementation in communities with priority lakes and streams



Groundwater Summary

- All residents get their drinking water from groundwater supplies
- Karst geology is found in parts of the watershed; karst geology is at the highest risk for groundwater contamination
- Less than 1% of wells tested had high nitrate concentrations and less than 3% had high arsenic concentrations



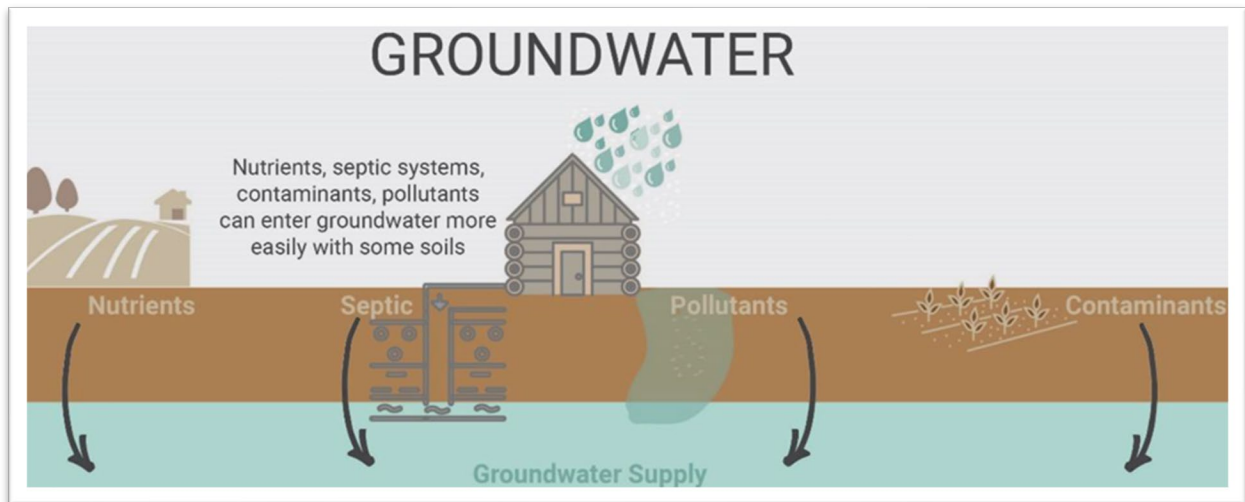
Goal: Complete Update 10 septic systems. Seal 20 wells. Update two ordinances.

Actions

Seal unused wells
Assess septic system
Mitigate risks from karst geology

Priorities

Focus on protecting groundwater where it is most vulnerable to contamination



Recreation Summary

- The Kettle River is a state water trail; there are 14 snowmobile trails and 3 state trails
- There are 2 state parks, 1 scientific and natural area, 7 aquatic management areas, 8 state forests and 20 wildlife management areas
- There are 45 public boat launches at many of the watershed's lakes and rivers



Goal: Increase opportunities, investment and accessibility of public recreation throughout the basin

Actions

**Build new fishing piers
Add new educational signs
Increase trail opportunities**

Priorities

Focus on promoting and investing in recreational opportunities





Vision:

Protect this wild and pristine watershed to support resilient communities, sustainable natural resources, and abundant recreational opportunities.

Plan Partners:



Pine County
Soil & Water
CONSERVATION DISTRICT



For a full copy of the plan, visit the planning website:
<https://www.pineswcd.com/?SEC=9557DF63-76DD-4D16-9743-C6B068F21EE5>

Further comments or questions?
Please contact Melanie Bomier, Carlton SWCD
Phone: 218-384-3891, Email: melanie.bomier@carltonswcd.org