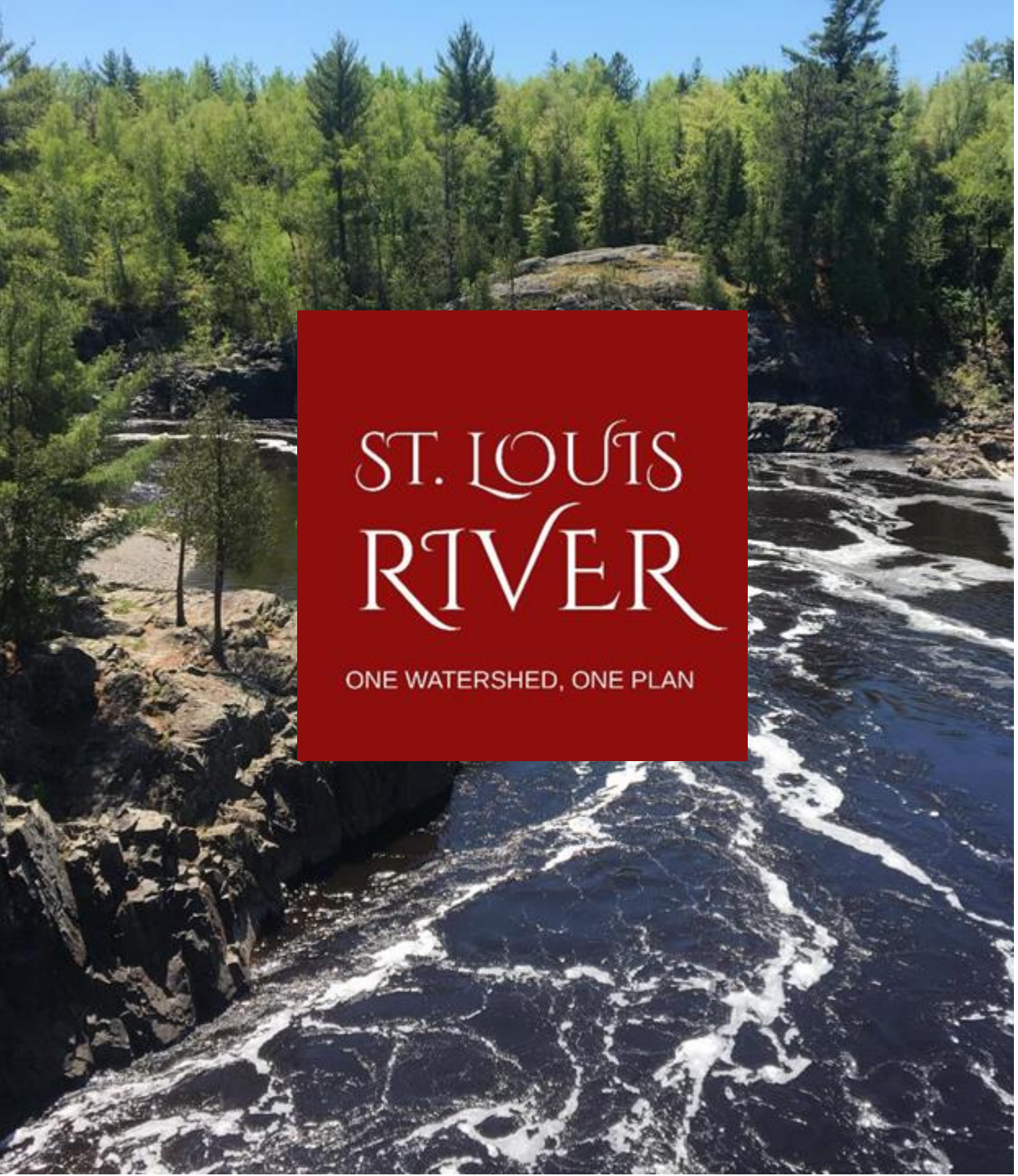

St. Louis River
One Watershed, One Plan

Advisory Committee Meeting

1/19/2021

TETRA TECH

EOR water ecology community

FRESHWATER

Where we are in the process

- Phase One—set the context for the work
  - Aggregate Watershed Information
  - Host Public Kickoff Meetings
  - Write the Land and Water Resources Narrative
- Phase Two—uncover where we're going
  - Identify and Prioritize Resources and Issues
  - Establish Measurable Goals
- Phase Three—figure out how we'll get there
  - Develop a Targeted Implementation Schedule
  - Describe Implementation Programs
  - Determine Organizational Arrangement
- Then! Write Plan Final Review Draft

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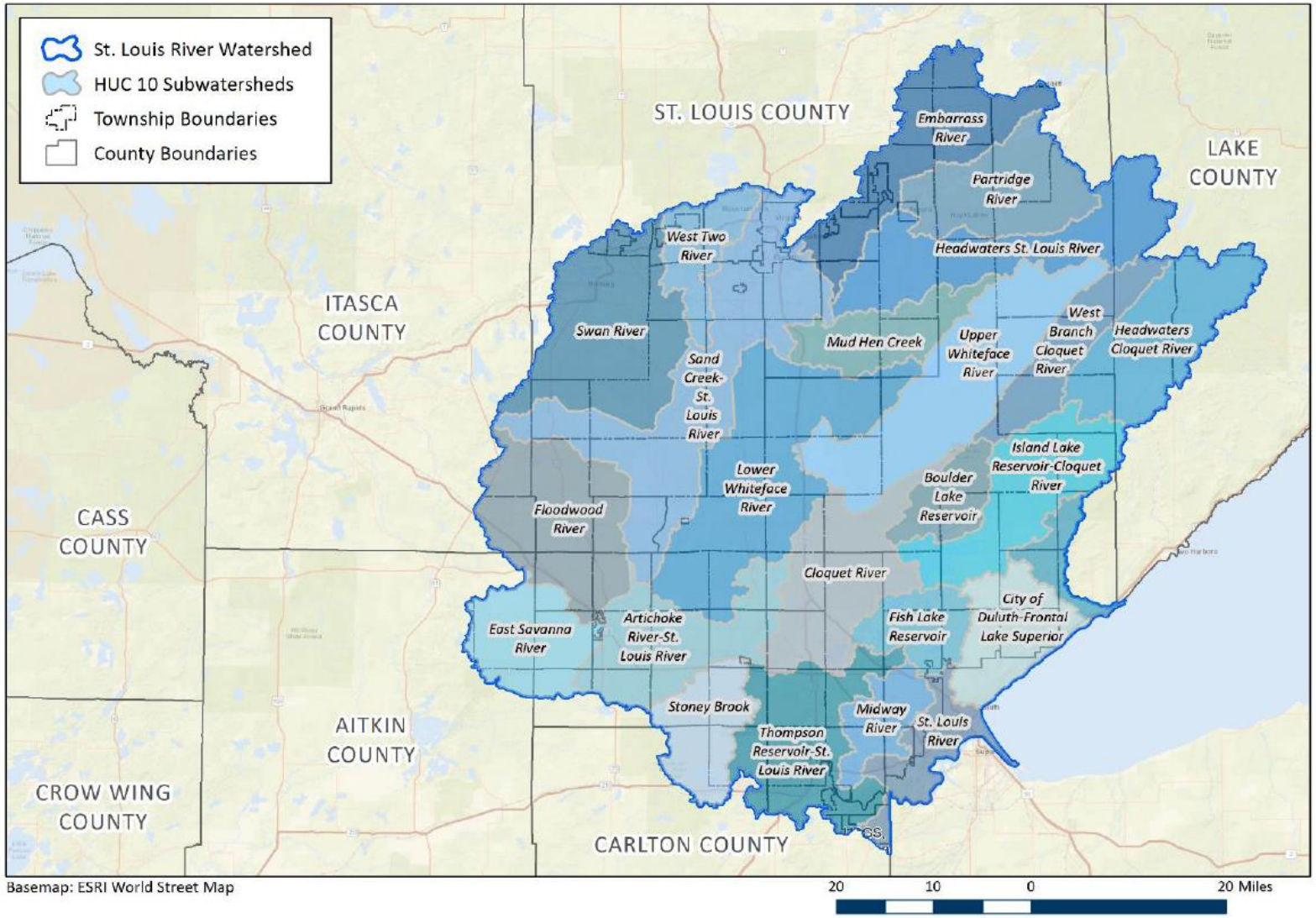
Overview



- Public survey kickoff
- Introductions to the issue statements
- Issue statements review-Round 1
- Issue statements review-Round 2
- Next steps

Survey Engagement Process

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- Online and paper survey with 48 questions on the watershed
- Outreach: Steering committee- and Advisory committee-led. Among methods included were:
    - Google sheet list of local stakeholders
    - Social media (e.g., Facebook)
    - 1W1P website
- Successful strategies:
    - Reminders to reach out to people in the watershed
    - Encouraged people to forward survey to their networks
    - Outreach to youth

Survey Engagement Process (cont.)

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- Survey period open 11/12/20 – 12/10/20
  - 1 late respondent in 2021
- 224 respondents
  - All but 1 online
- Successful outreach in total number
  - Especially since COVID-19 meant surveys couldn't be distributed in person at libraries etc.

Survey Respondents' Demographic by 1/05/21

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- 12% identified as Black, Indigenous, and people of color (BIPOC)
- Even distribution between 35-54 (21.88%) and 55+ (28.13%)
- Most respondents
  - Live in St. Louis Watershed (55%) with Cloquet River (25%) being a distant second
  - Are white (78%)
  - Either attended:
    - College or at least some graduate school (46%)
    - Were under 18 & still in grade school (6%) or high school (33%)
  - Are year-round residents and/or recreate in the planning area

Survey Respondents' Demographic by 1/05/21

- Gaps
  - Watershed regions: Fond du Lac (4%) and Duluth Urban Area (16%)
  - BIPOC representation
    - 4% Indigenous Americans
    - 3% Hispanic/Latinx
    - Less than 1% for both Black and Black and Native
  - 25- to 34-year-old adults (especially with a high school diploma)
  - People (i.e., 55) working in the watershed but especially in
    - Timber (11)
    - Farming (16)
    - Mining (7)

Survey Topics

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- Natural environment
- Lakes
- Forests
- Streams & rivers
- Wetlands
- Urban stormwater management
- Drinking water
- Wastewater treatment
- 50-year vision
- Water quality
- Wildlife
- Swimming beaches
- Wild rice
- Fish & fishing
- Farming
- Lake Superior
- St. Louis River Estuary
- Cultural and/or family ties
- Industry
- Land use change/ development

Respondents' answers feeding into current list

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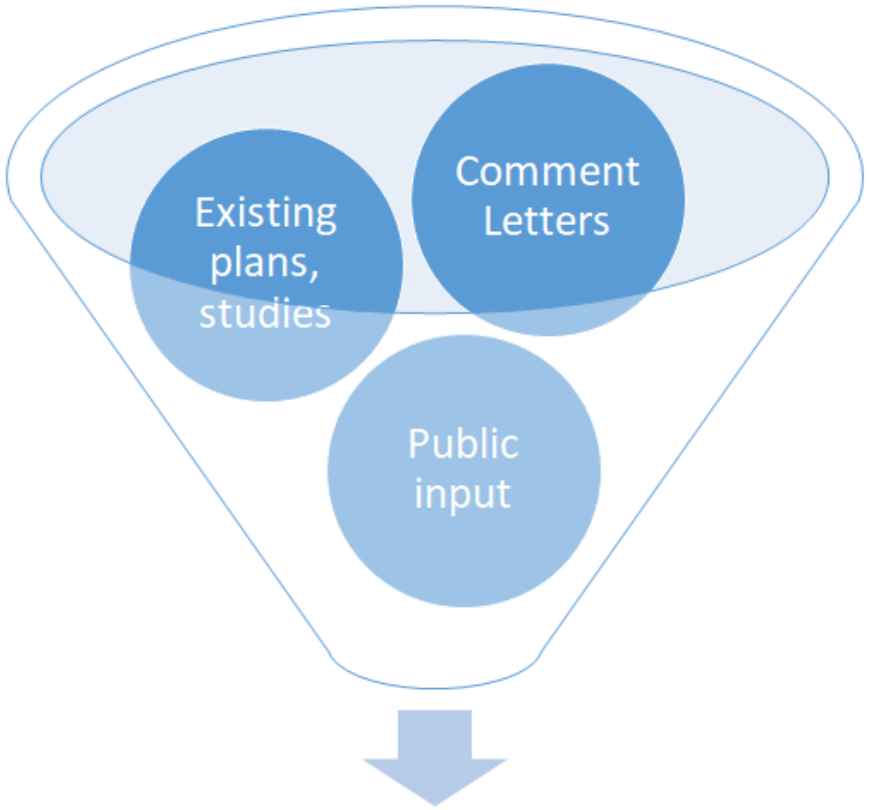
- **Surface water quality:** water quality, drinking water, lakes, forest, swimming beaches, streams & rivers, shoreline, wetlands, wastewater treatment, urban stormwater management, wildlife, legacy pollution, human health, & land use change
- **Altered hydrology:** water quality, climate change, streams & rivers, wetlands, wildlife, land use change/ development, flooding/flashiness, erosion, aging infrastructure, dams, & stormwater management (not just urban)
- **Social capacity:** stewardship (e.g., recreation) & governing
- **Lake Superior**: Lake Superior
- **Groundwater**: drinking water (wells vs. Lake Superior)
- **Climate change and community resilience:** climate change, equity, & flooding/flashiness
- **Habitat:** climate change, water quality, wildlife, natural environment, streams & rivers, fish & fishing, wild rice, biodiversity, estuary, shoreline, governing, recreation, & sensitive or threatened species
- **Land use:** water quality, natural environment, land use change/ development, climate change, governing, stormwater management, wastewater treatment, farming, industry (mining and paper), forest, recreation, habitat, lakes, & shoreline
- **Wild rice :** Indigenous Americans, wild rice, habitat, water quality, & cultural and/or family ties
- **Equity :** Indigenous Americans, economic inequities, environmental justice (i.e., meaningful stakeholder involvement), equity, cultural and/or family ties, human health, governing, & wild rice

Issue identification



Issue descriptions & lenses

(These will be broad due to attempt to capture all info)

Terminology: Issues and Lenses

- **Issues** – problems, risks, or opportunities for your watershed's priority resources (e.g. flood damage, groundwater contamination, protect unimpaired waters, etc.) that will be addressed in the Comprehensive Watershed Management Plan
- **Lenses** – problems, risks, or opportunities that are broader than a single issue and require consideration across the board in order to be accounted for and integrated into plan development and implementation

Breakdown: Issues and Lenses

- **Issues**
  - **Surface water quality**
  - **Altered hydrology**
  - **Groundwater**
  - **Habitat**
  - **Land use**
  - **Social capacity**
- **Lenses**
  - **Climate change and community resilience**
  - **Equity**
  - **Wild rice**
  - **Lake Superior**

Breakdown: Issues and Lenses

ST. LOUIS RIVER
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- **Issues**
  - Surface water quality
  - Altered hydrology
  - Groundwater
  - Habitat
  - Land use
  - Social capacity

These will be discussed today

- **Lenses/cross-cutting**
  - Climate change and community resilience
  - Equity
  - Wild rice
  - Lake Superior

Recommendation based on Steering Committee discussion: Weave these into each of the issue statements (e.g. call out boxes), and consider for targeting and prioritization criteria.

Review of Issue Statements

- General description of the issue category
- Draft Issue Statement

- Review 3 issue categories at a time and then break for small group discussion

Discussion #1	Discussion #2
•Surface Water Quality	•Habitat
•Altered Hydrology	•Land Use
•Groundwater	•Social Capacity

Review of Issue Statements

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- Take notes during the presentation to help you remember for your small group discussion
- Small groups will not be formally led
- Plan to report back to the large group after each round

- What we'll ask you to talk about in small groups:
  - What you like, dislike, or think might be missing from the issue statements

Surface Water Quality

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- 522 lakes over 10 acres in size and approximately 2,433 miles of streams
- Drinking water obtained from Lake Superior and several lakes along the Iron Range
- High quality (protection) resources existing throughout the project area
  - 744 miles of designated trout streams and 14 trout lakes
  - Many wild rice lakes (>74) and streams of varying quality
  - Greater than 80% of natural wetlands remain
- Wastewater treatment – municipal, regional, and individual systems
- Numerous impaired streams and lakes

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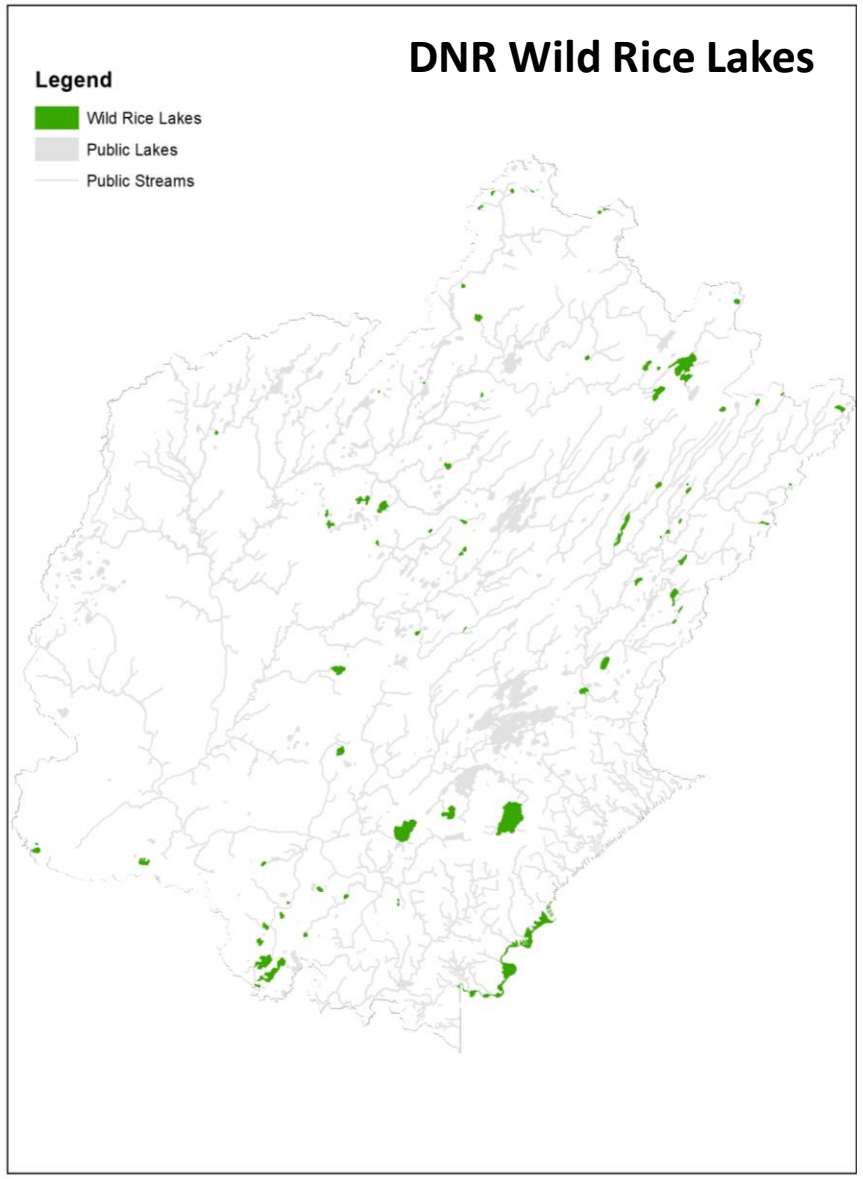
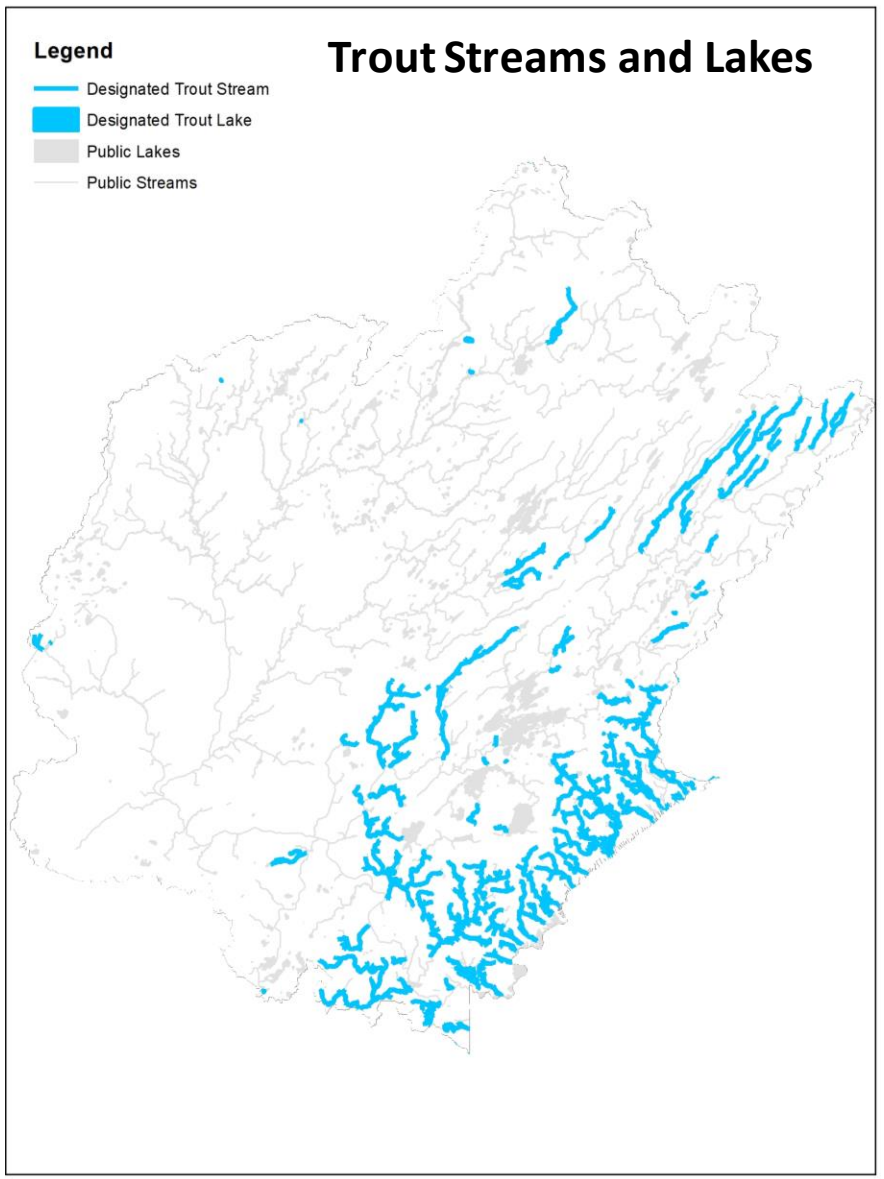
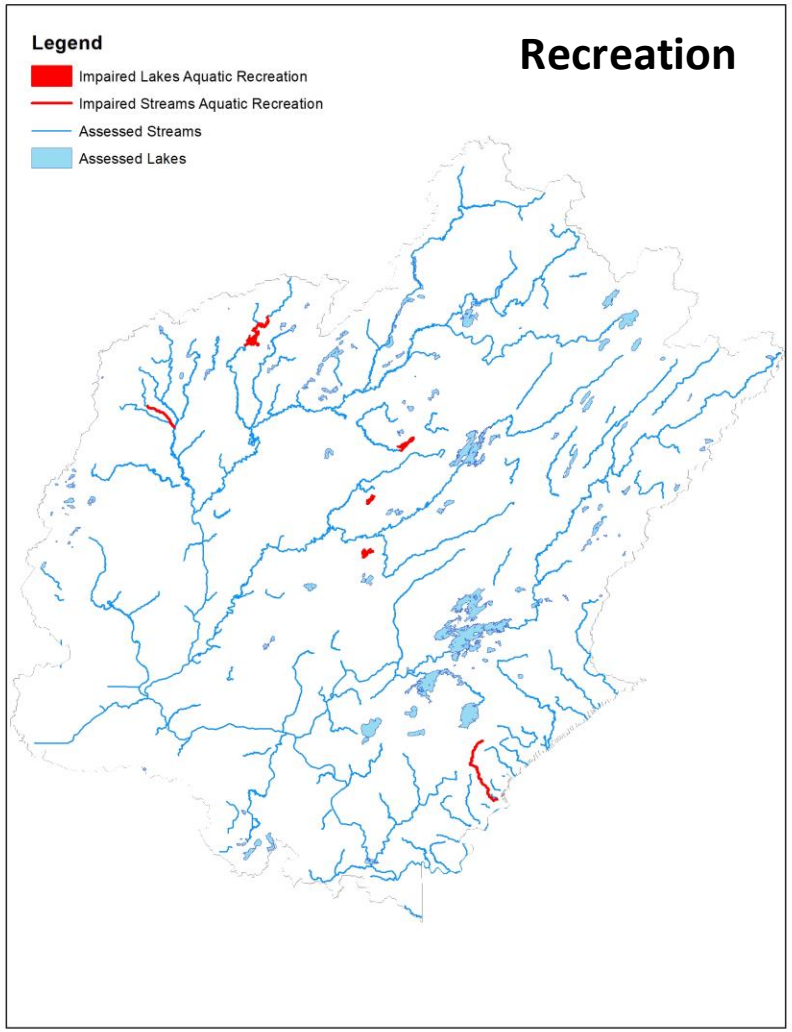
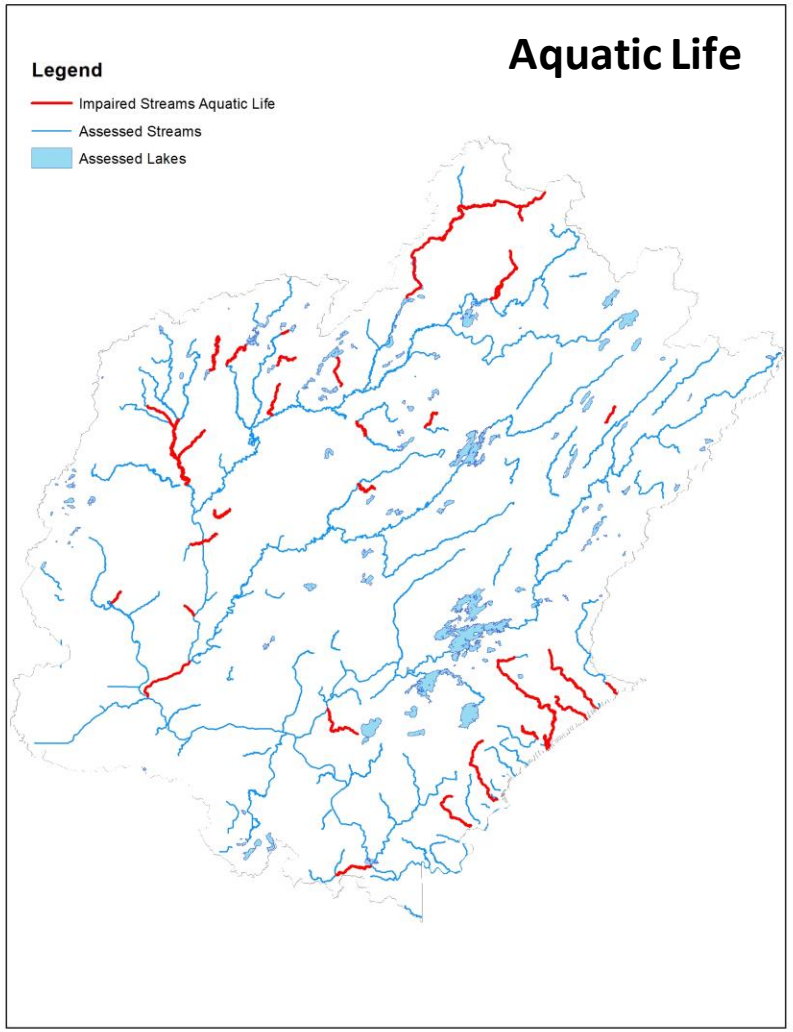
Surface Water Quality – Special Designations

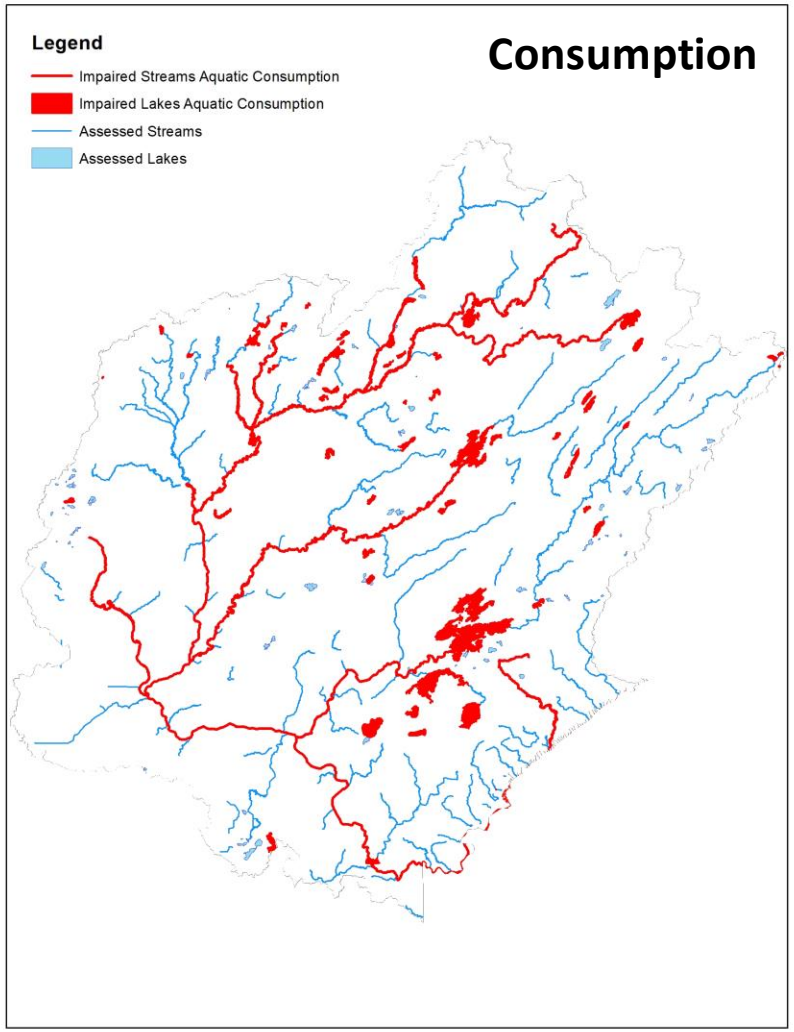




Surface Water Quality – Impairments







Surface Water Quality Issue Statement

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The quality of water in the lakes, wetlands, streams, and rivers in the St. Louis River Planning Area is threatened by a wide variety of pollutants that impact ecosystem health as well as human health. Concerns include legacy contaminants, current pollution, as well as emerging or potential future pollution. Protection of high quality waters as well as restoration where degradation has taken place is needed.

Altered Hydrology

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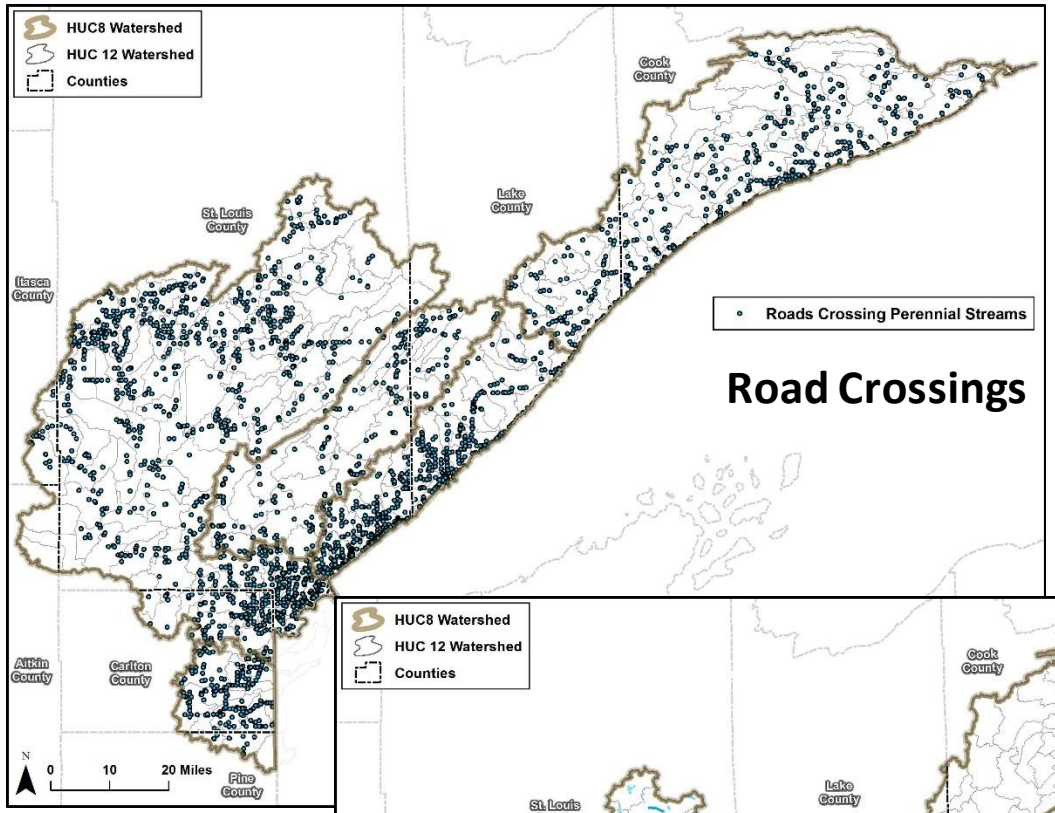
- Hydro-electric dams: Knife Falls, Scanlon, Thompson, and Fond du Lac
- Impounded reservoirs:
  - Industrial supply: Colby Lake, Whitewater Lake, West Two Rivers Reservoir
  - Hydroelectric Power: Whiteface River, Boulder, Fish, Island Lake and Wild Rice Lake Reservoirs
- Smaller dams, channelized streams/rivers
- Ditched peatlands and wetlands
- Developed land covers --> stormwater
- Changing weather patterns --> flooding
- Stream connectivity and fish passage challenges


HUC8 Watershed
HUC 12 Watershed
Counties
Roads Crossing Perennial Streams
Road Crossings
Cook County
Lake County
St. Louis County
Itasca County
Aitkin County
Carlton County
Pine County
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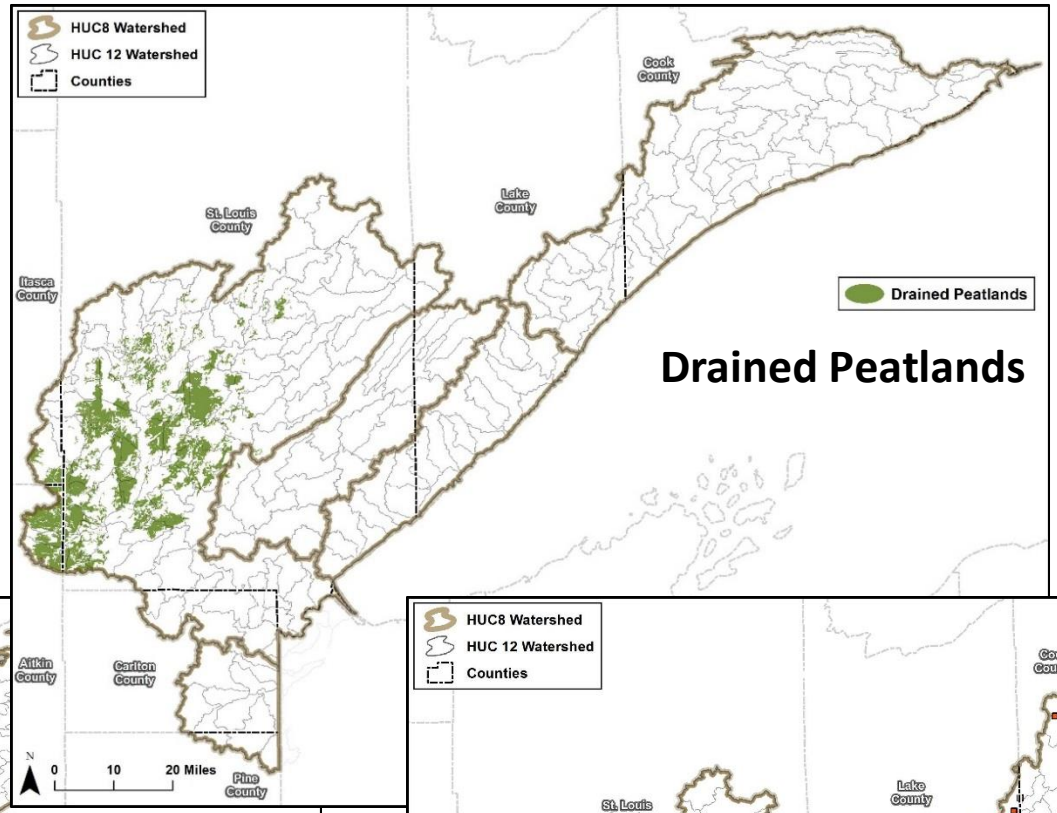
HUC8 Watershed
HUC 12 Watershed
Counties
Drained Peatlands
Drained Peatlands
Cook County
Lake County
St. Louis County
Itasca County
Aitkin County
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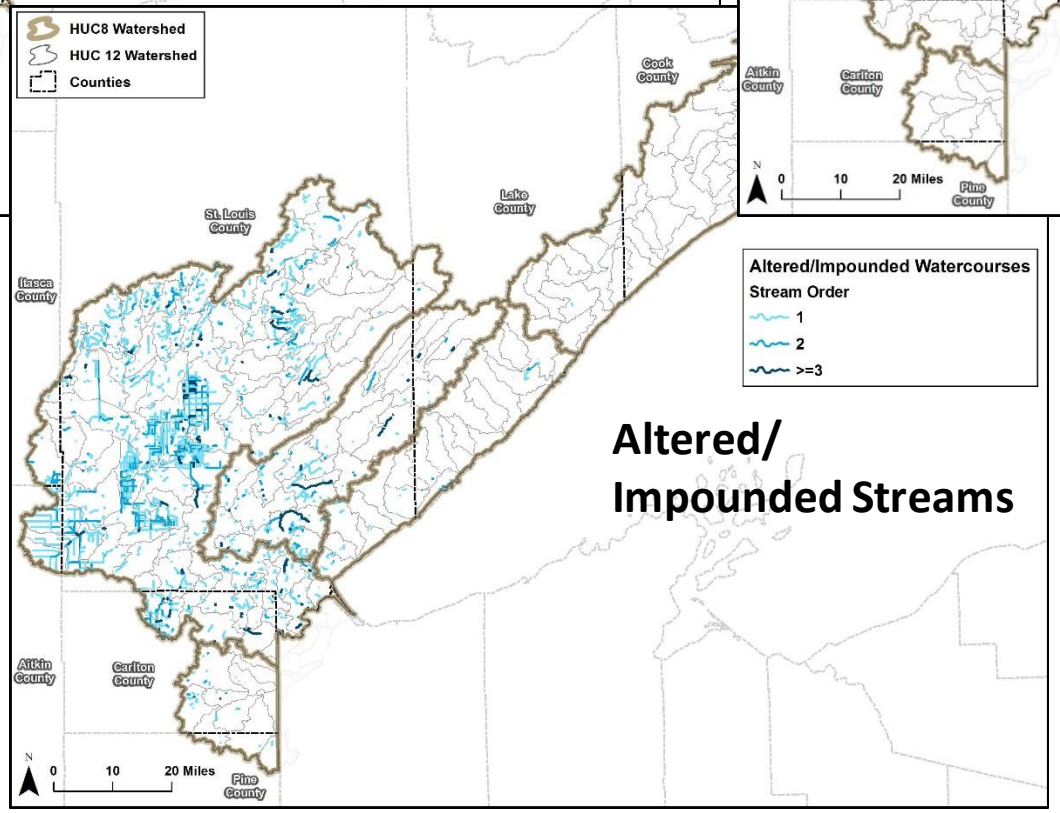
HUC8 Watershed
HUC 12 Watershed
Counties
Altered/Impounded Watercourses
Stream Order
1
2
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Altered/
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Cook County
Lake County
St. Louis County
Itasca County
Aitkin County
Carlton County
Pine County
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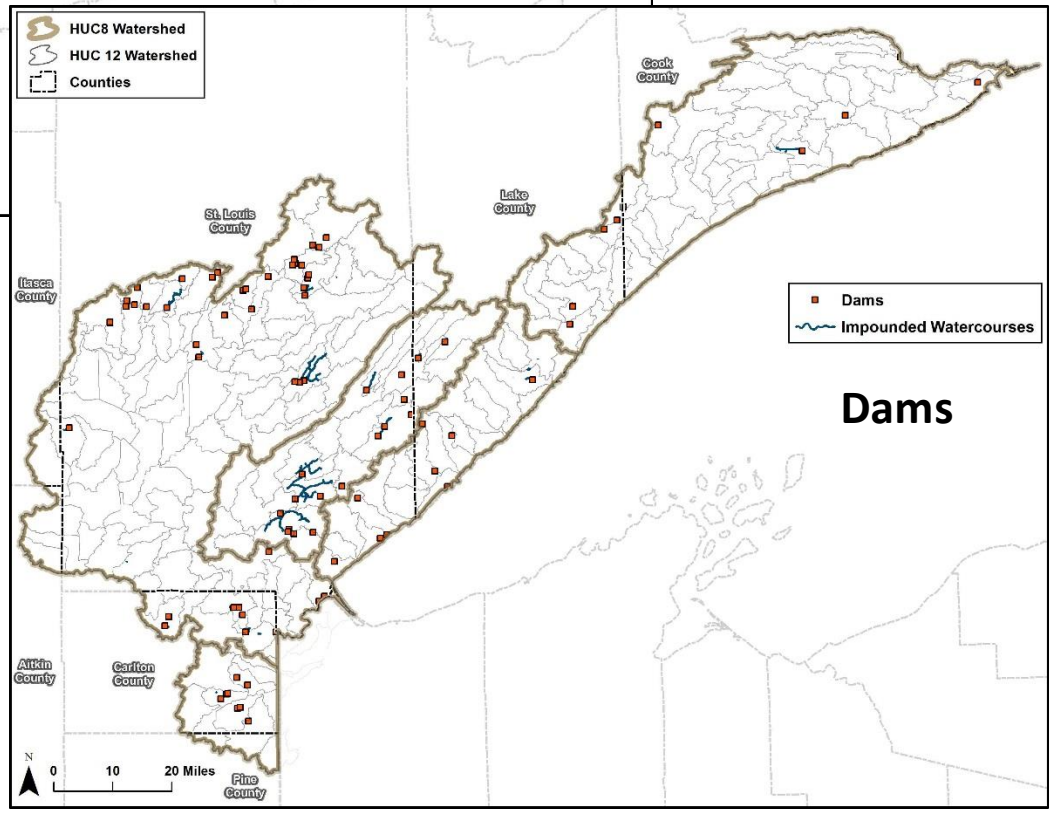
HUC8 Watershed
HUC 12 Watershed
Counties
Dams
Impounded Watercourses
Dams
Cook County
Lake County
St. Louis County
Itasca County
Aitkin County
Carlton County
Pine County
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10
20 Miles

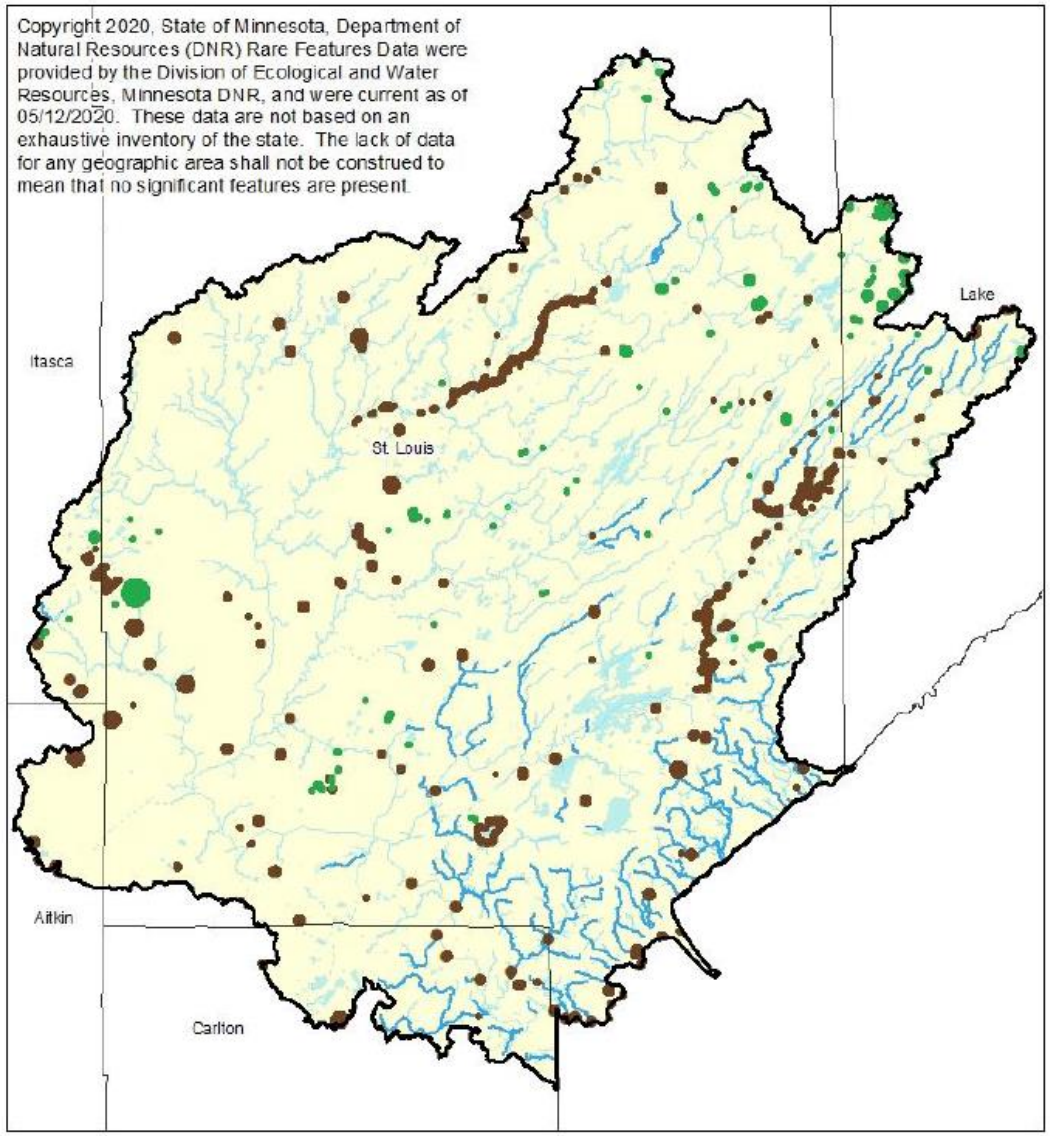
Altered Hydrology Issue Statement

Climate change, land development, ditched streams, drained wetlands and peatlands (and other loss of water storage), and land uses that increase or change patterns of runoff are contributing to flooding, changes in flow regime, increased flashiness, and higher peak flows. These changes in turn lead to increased in-stream erosion, destabilization of streambanks, degraded water quality, reduced baseflow, and stress on aging infrastructure and failure of infrastructure not designed for the extreme weather events associated with a changing climate. There is a need to protect natural features such as wetlands that preserve water storage while also working to restore the altered hydrology in the St. Louis River Planning Area. Additionally, impoundments, dams, and reservoirs designed to provide flood management and energy generation may also impact stream connectivity, fish passage, erosion, and water quality.

Groundwater

- Approximately 44% of consumers depend on groundwater for drinking water
- Surface water use is 15-20 times greater than groundwater use in the watershed
- 92% of permitted groundwater withdrawn in 2018 was for public water supply use (primarily for the cities of Hibbing, Mountain Iron, Virginia, and Cloquet), 7% for power supply
- 15 approved Drinking Water Supply Areas (DWSMAs) in the watershed
- 12,441 private wells, arsenic is a notable pollutant
- Baseflow contribution of streams, wetlands, lakes critical to thermal regimes and resource quality --> groundwater dependent resources

Source: St. Louis River GRAPS 2021

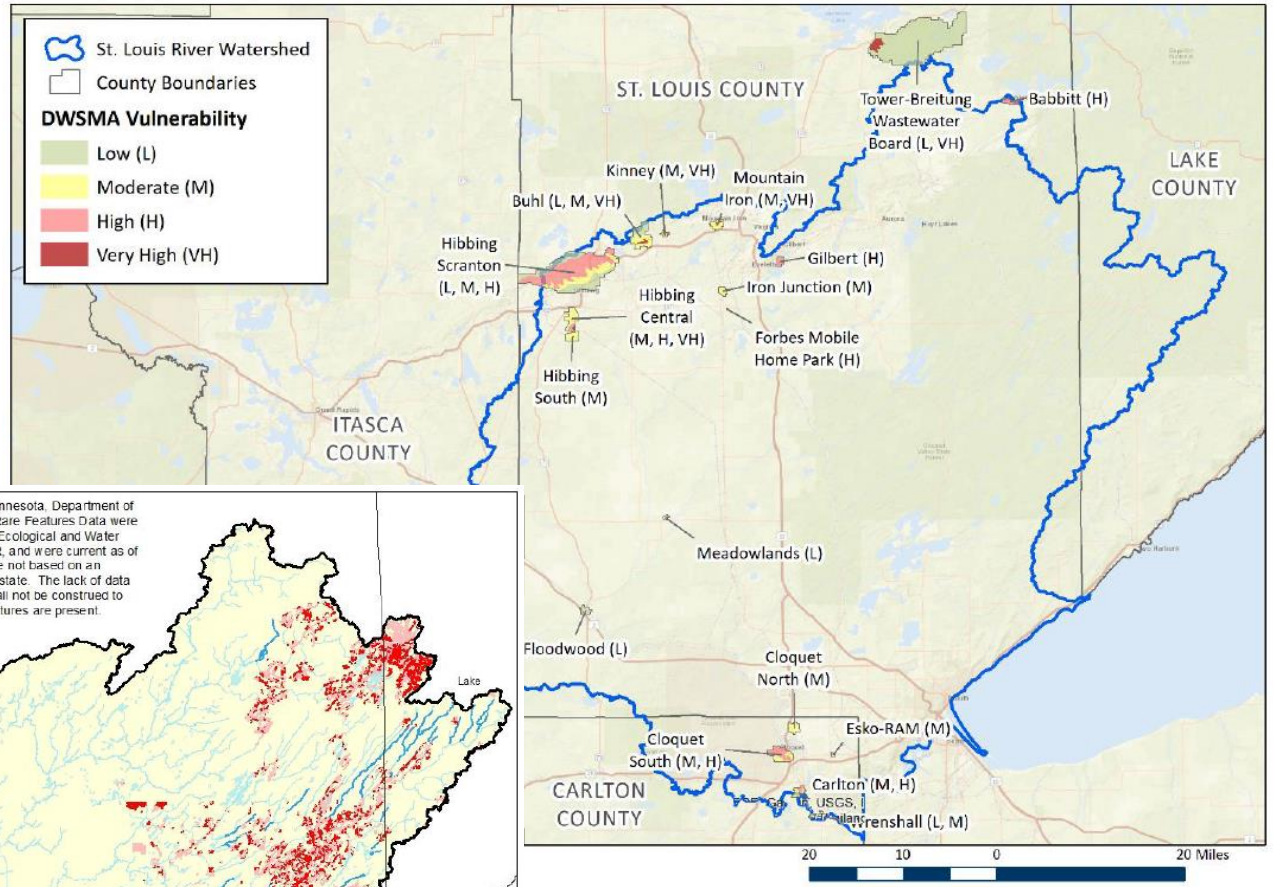


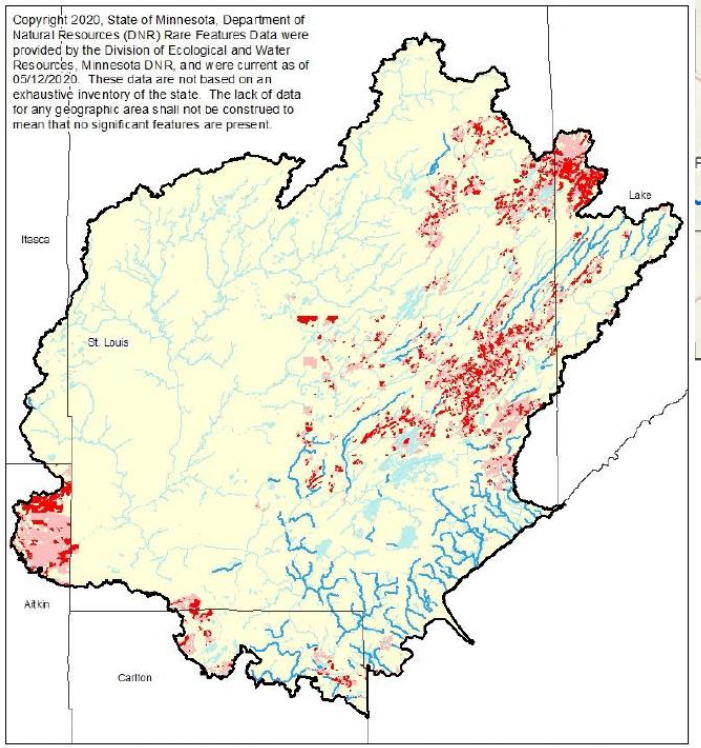
Mapped Rare Plants and Animals Connected with Groundwater in the St. Louis River Watershed

Rare Plants
Rare Animals
St. Louis River Watershed Boundary
Designated Trout Stream
Public Waters
Lakes/Wetlands

DEPARTMENT OF NATURAL RESOURCES

0 5 10 20 Miles





Rarity of Mapped Native Plant Communities Connected with Groundwater in the St. Louis River Watershed

Note: Native Plant Communities have not yet been mapped entirely in St. Louis County, MN

Most Rare Native Plant Communities [Status Ranks: S1, S2, S3]
Least Rare Native Plant Communities [Status Ranks: S4, S5]
St. Louis River Watershed Boundary
Designated Trout Stream
Public Waters
Lakes/Wetlands

DEPARTMENT OF NATURAL RESOURCES

0 5 10 20 Miles

Source: St. Louis River GRAPS 2021

Groundwater Issue Statement

Groundwater varies in quality throughout the St. Louis River Planning Area. Potential risks include: unused and unsealed wells, composition of aquifers surrounding wells, urban pollutants, density of private wells, arsenic, agricultural and lawn care nutrients, hazardous wastes and chemicals, human and animal waste, and alteration of land through development. For groundwater-sourced drinking water, people are not always aware of testing opportunities or results for private wells, support of systematized testing is needed, and treatment options or alternative supplies can be expensive or non-existent.

Groundwater quantity is also of concern as it relates to ecosystem health. The overall health of the St. Louis River Planning Area relies on the interaction between groundwater and surface water, which is especially true for cold-water habitats for trout and other critical species. Ecosystem health can be impacted by changes in biology, connectivity, geomorphology, hydrology, and water quality that result from development, mine related activities, and climate change. There is a need for more information to better protect and restore that interaction.

Small group discussions

- 4-5 people per room
- Choose a note taker and someone to report out to the large group
- 3 issues, 15 min = 5 minutes/issue

- 15 minutes total for reporting out afterwards

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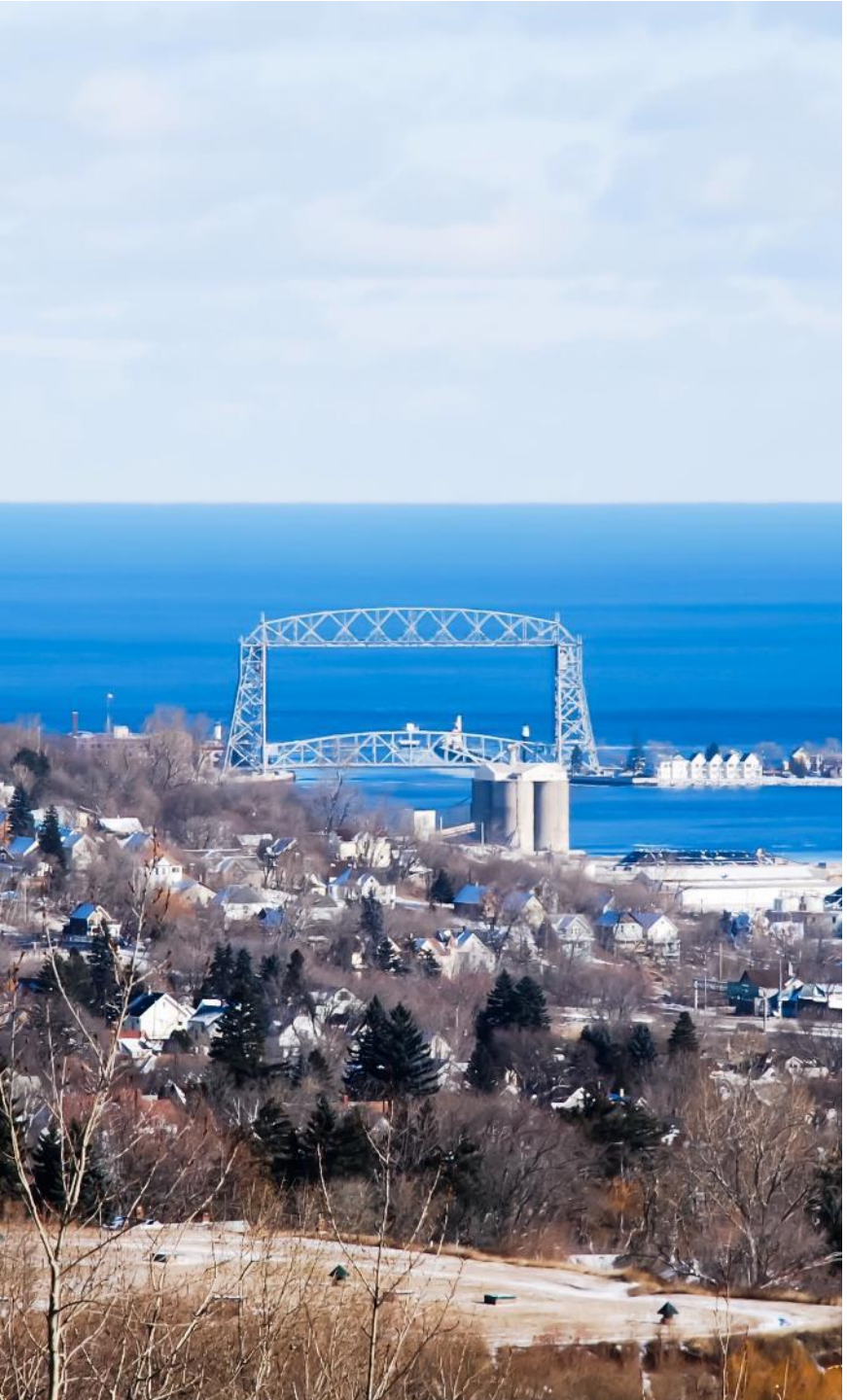
Round 1 Small Group Breakout

Habitat

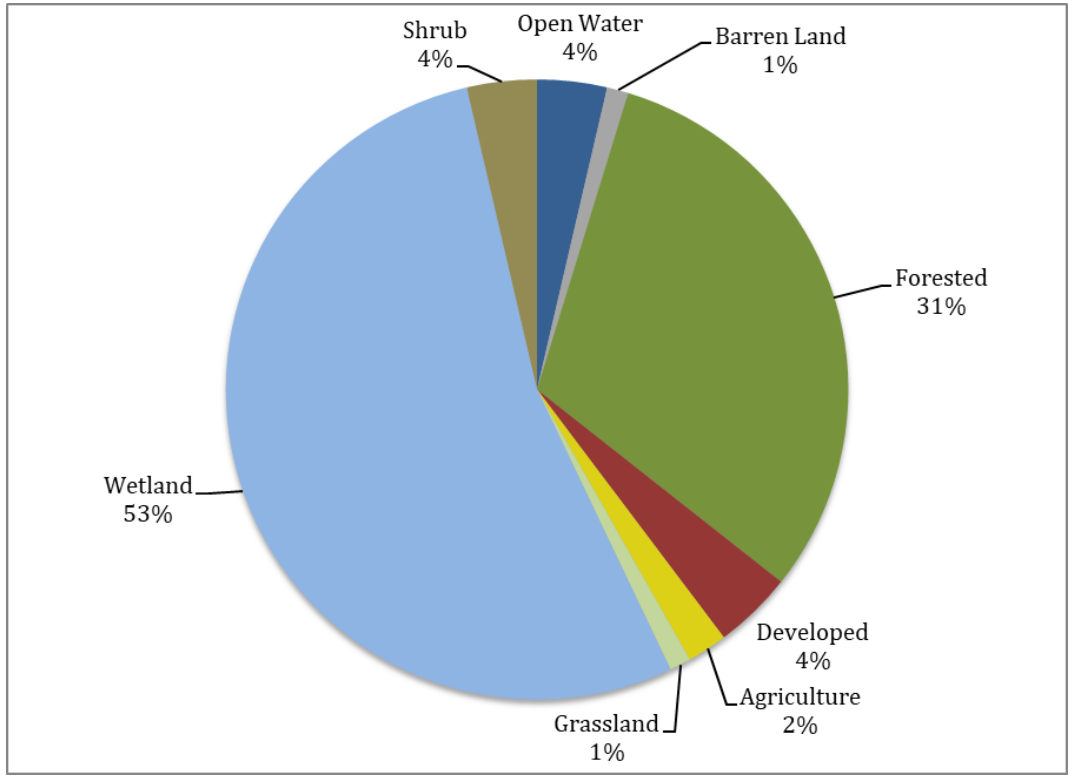
- Many rare plants and animals throughout the project area (rare, threatened, and endangered)
- Diverse range of habitats supporting wolves, moose, lynx, fishers, martens, and other native animals and plants
- 35 especially sensitive and threatened species within the watershed including wild rice and trout
- Aquatic and terrestrial invasive species present include common carp, emerald ash borer, and gypsy moths, amongst others

Habitat Issue Statement

Land use change, existing uses, climate change, invasive species, stream connectivity challenges, and sources of pollution can stress, reduce, or fragment ecosystems and threaten water quality. There is general concern about loss of biodiversity and impacts on whole ecosystems. **Non-native plants disrupt where natives were once balanced and contributed to the ecosystem.** There is a need to protect unique, high quality terrestrial and aquatic habitat and connectivity—especially for sensitive or threatened species. Restoration, along with proper management of working lands, is also needed to support healthy and functioning ecosystems.



Land Use



- Historical land use primarily wetlands/marshlands and forest
- Agriculture, forest, and mining land uses are large contributors to the area's economy
- Increase in development and intensity of land use near lakes, rivers, and streams in recent decades
- 46% of land is publicly-owned

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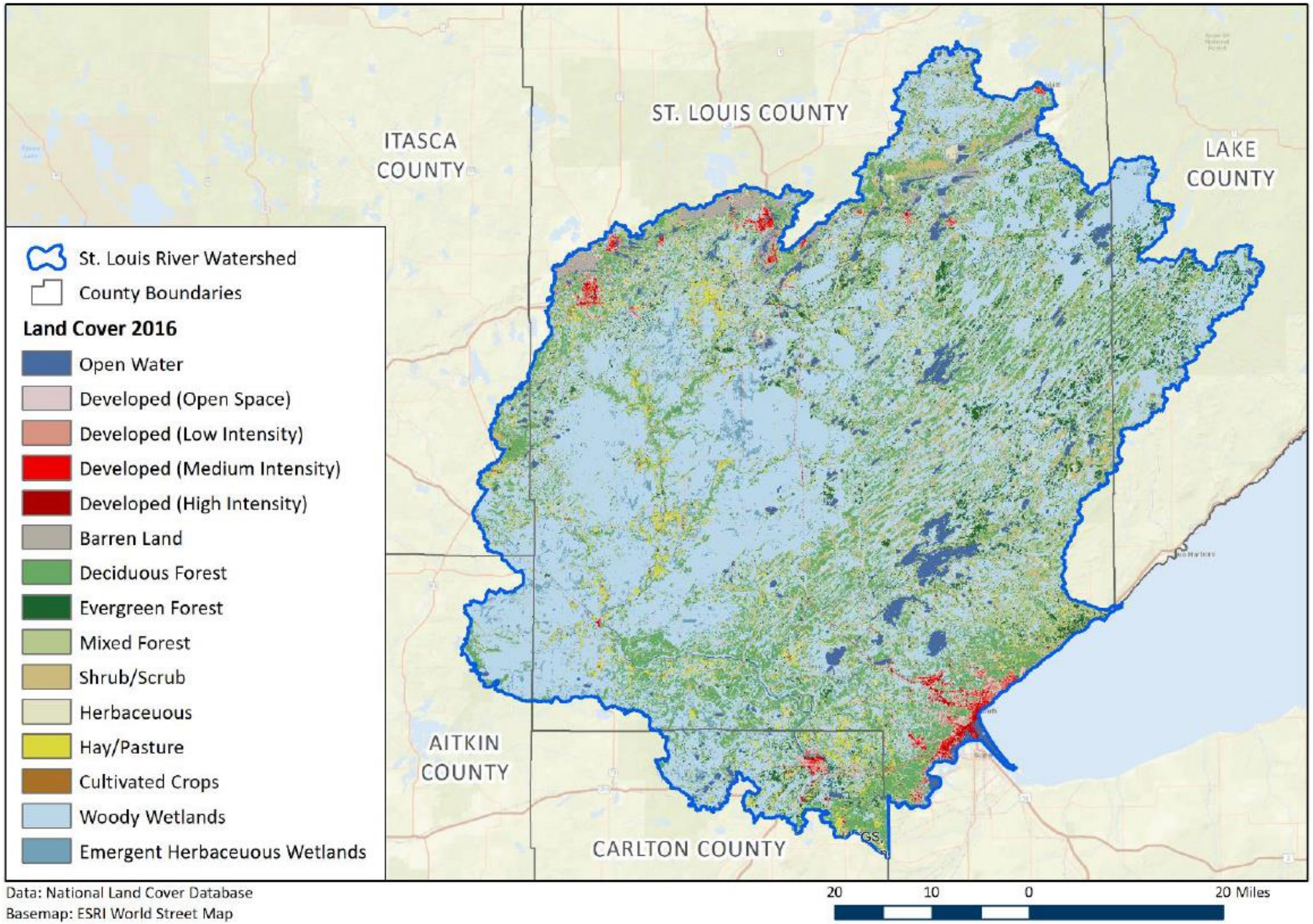

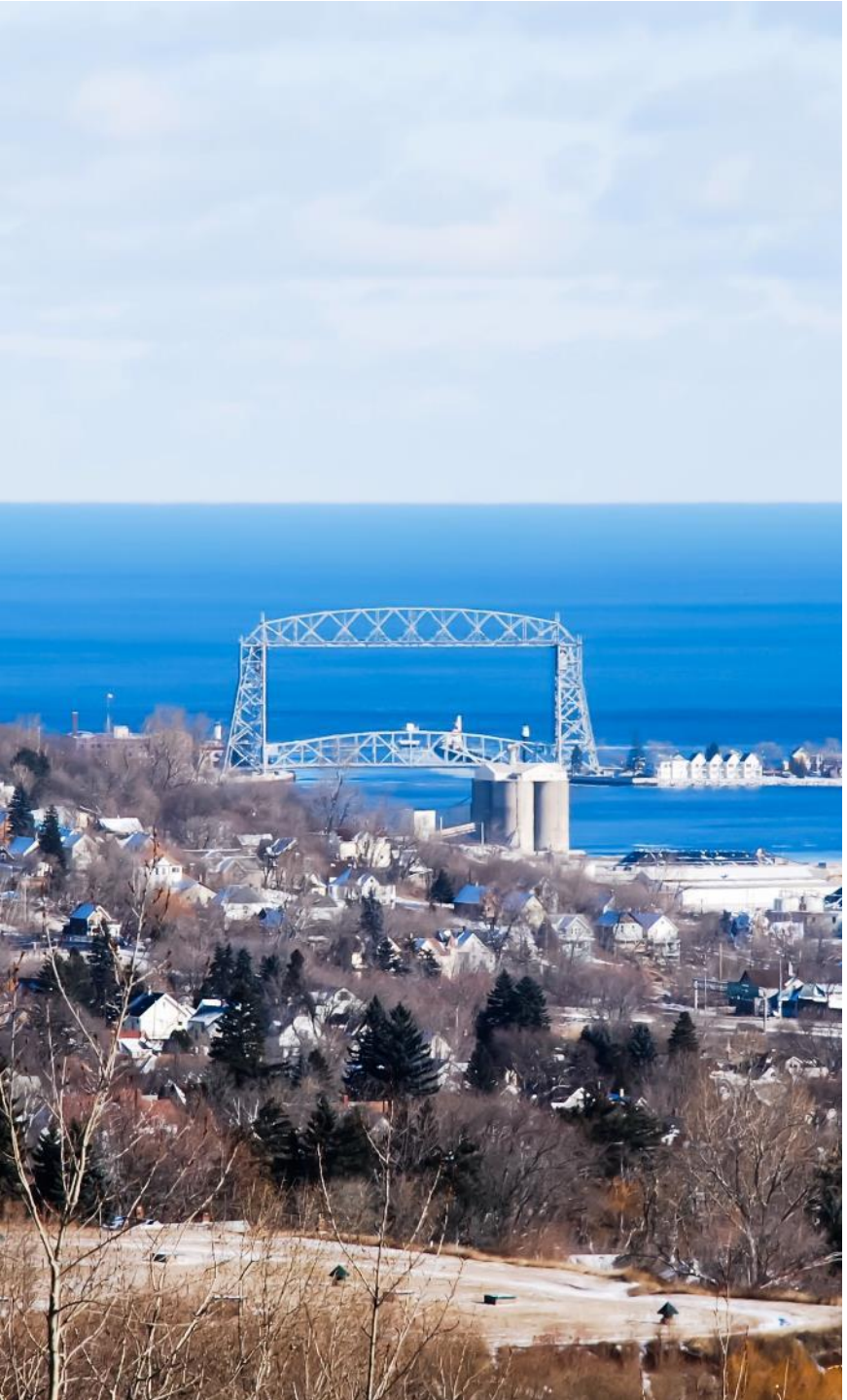

Land Use Issue Statement

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Everything that happens on land impacts water. To different extents, historic and current land uses have altered hydrology, degraded habitat, impacted groundwater resources, and degraded water quality, in addition to other impacts. Mitigating the extent to which current land uses contribute to challenges, while preemptively providing protection or guidance for future land use changes affecting water, is needed.

- Development
- Ore/taconite and copper-nickel mining
- Aggregate mining
- Forests
- Agriculture
- Recreation and tourism

Social Capacity

ST. LOUIS RIVER
ONE WATERSHED, ONE PLAN

- Population of ~200,000
- Scattered small cities and townships including Duluth, Hermantown, Cloquet, and Hibbing
- **Stewardship:**
  - Traditional Ojibwe understanding:
    - "Take only what you need and leave the rest"
    - Decision-making for the "seventh generation" so today's actions do not have negative consequences for future generations
    - "A spiritual and practical relationship of reciprocity exists between manoomin [wild rice] and Anishinaabeg [tribal community members], where each takes care of each other" (Schuldt et al., 2018)
  - Western understanding: We all have a role to play in the "responsible management of human activity affecting the natural environment […] for the sake of future generations" (Welchman, 2012)

Social Capacity Issue Statement

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Everyone in the Planning Area has a role they can play in the protection and stewardship of the environment around them. On the individual level, there is a need for increased awareness, financial and technical support for behavior change, empowerment, and opportunities to be involved in restoration as well as monitoring and evaluation. Additionally, protection of habitats and recreational spaces that can inspire a conservation ethic are needed in order to truly support increased stewardship of the watershed.

At the governmental level, collaboration and consistency (in standards and enforcement of standards and regulations) across different units of government is needed. This is challenged by barriers around communication, planning, data collection (and sharing), monitoring, outreach, and educational activities. There is also a need for funding as well as technical and capacity support for local governments. Current efforts are already constrained, and new responsibilities will require additional support. The impacts of political polarization and the pitting of environmental concerns against industry also need to be acknowledged and addressed.

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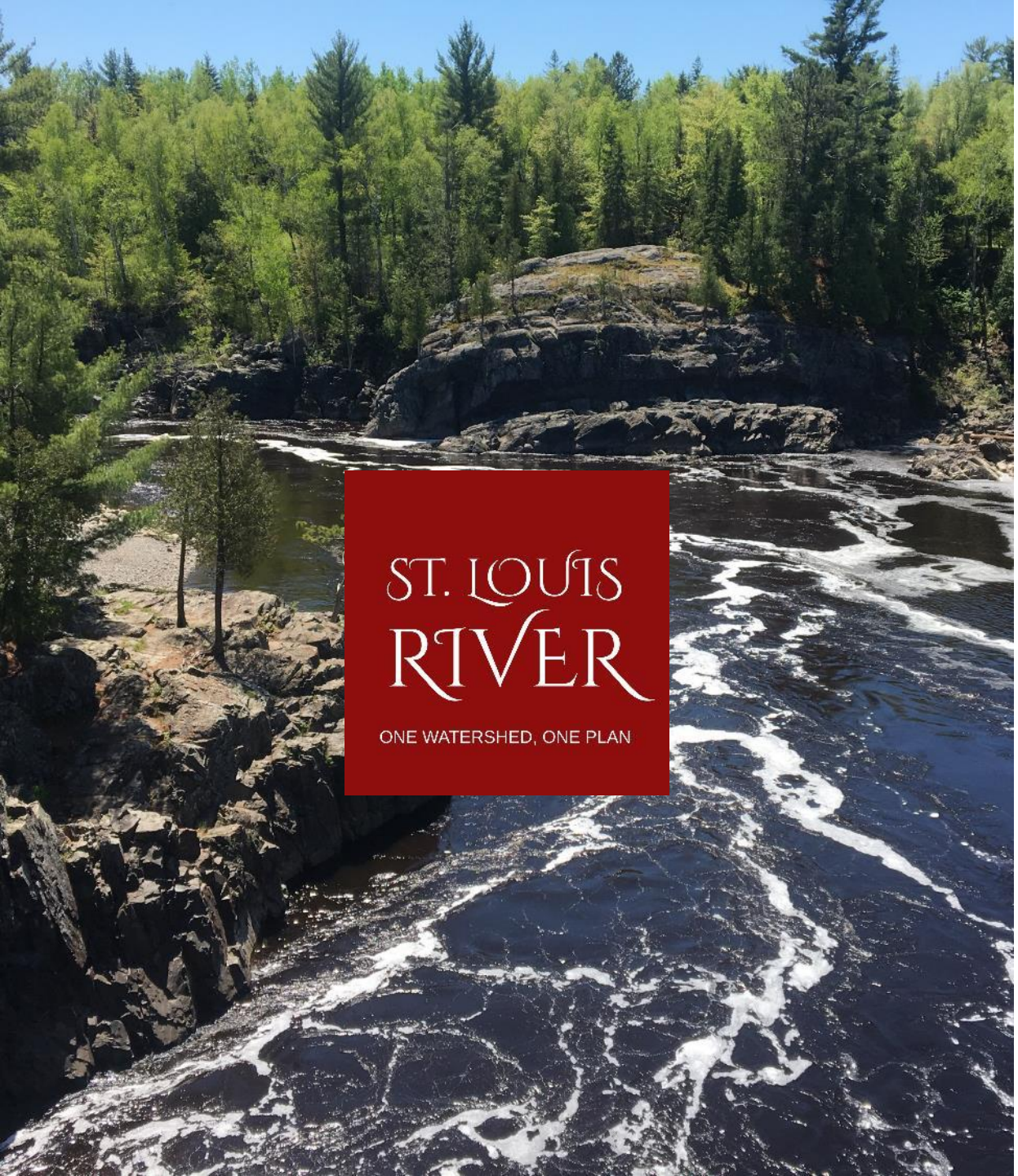
Round 2 Small Group Breakout



Next Steps

- We'll take your notes and use them to:
  - Refine the issue statements
  - Populate the issue area descriptions
- We'll also get you prepped for what's next in our process
  - Mapping where issues are issues
  - Considerations for prioritization at the issue level

References

Schuldt, N., J. Ballinger, N. Crowe, W. Dupuis, K. Emmons, C. Greensky, E. Onello, K. Raab, and M. Walls. (2018). Expanding the Narrative of Tribal Health: The Effects of Wild Rice Water Quality Rule Changes on Tribal Health Fond du Lac Band of Lake Superior Chippewa Health Impact Assessment. *Fond du Lac Band of Lake Superior Chippewa, http://www. fdlrez. com/RM/downloads/WQSHIA. pdf*.

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