

Minnesota Statewide Conservation and Preservation Plan

Shallow Lakes Forum VI

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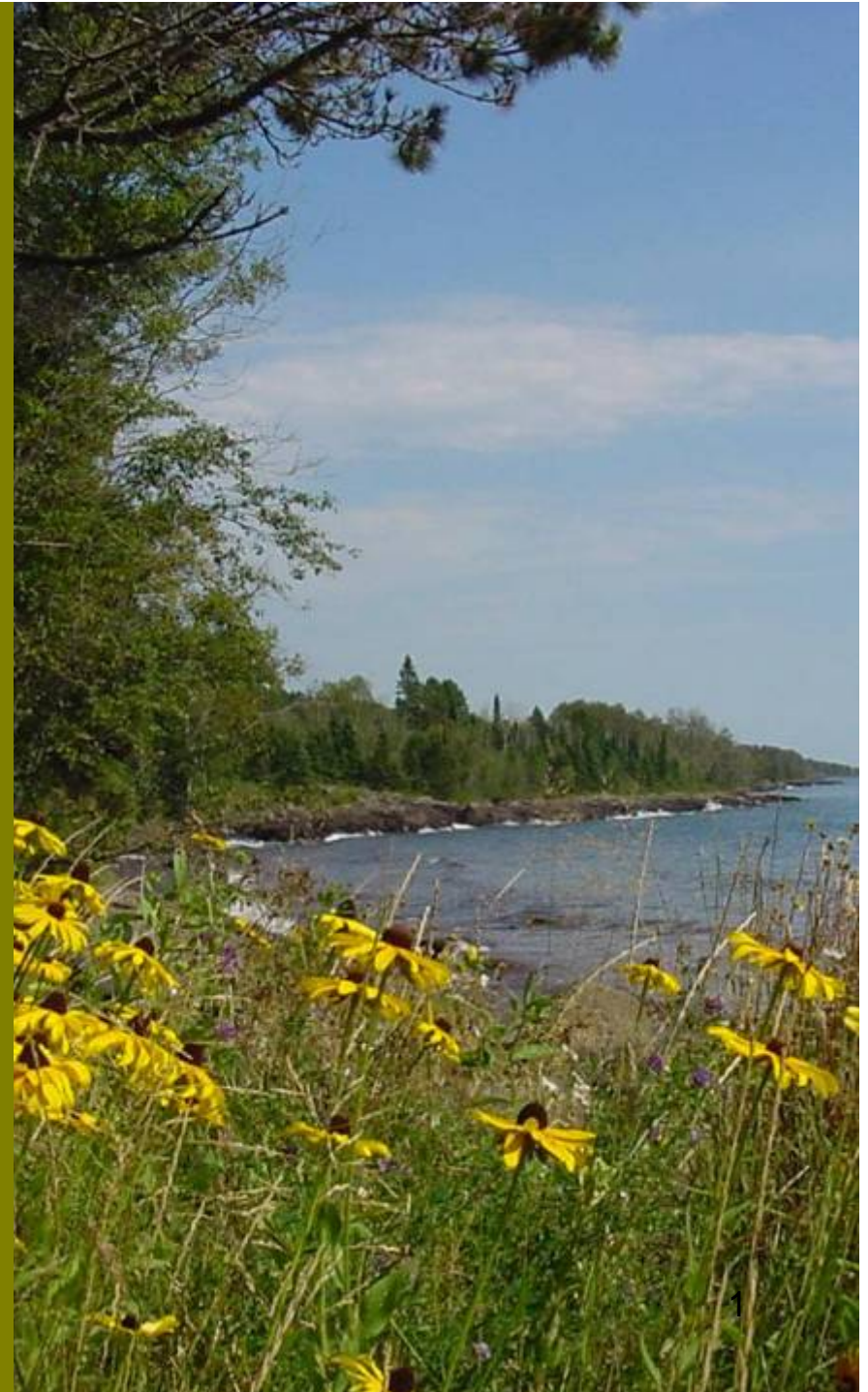
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INSTITUTE ON THE
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Presentation Goals

- Introduce the LCCMR Statewide Conservation and Preservation Plan project
 - Briefly describe the process used to develop the recommendations
 - Briefly summarize the habitat and non-point recommendations relevant to shallow lakes

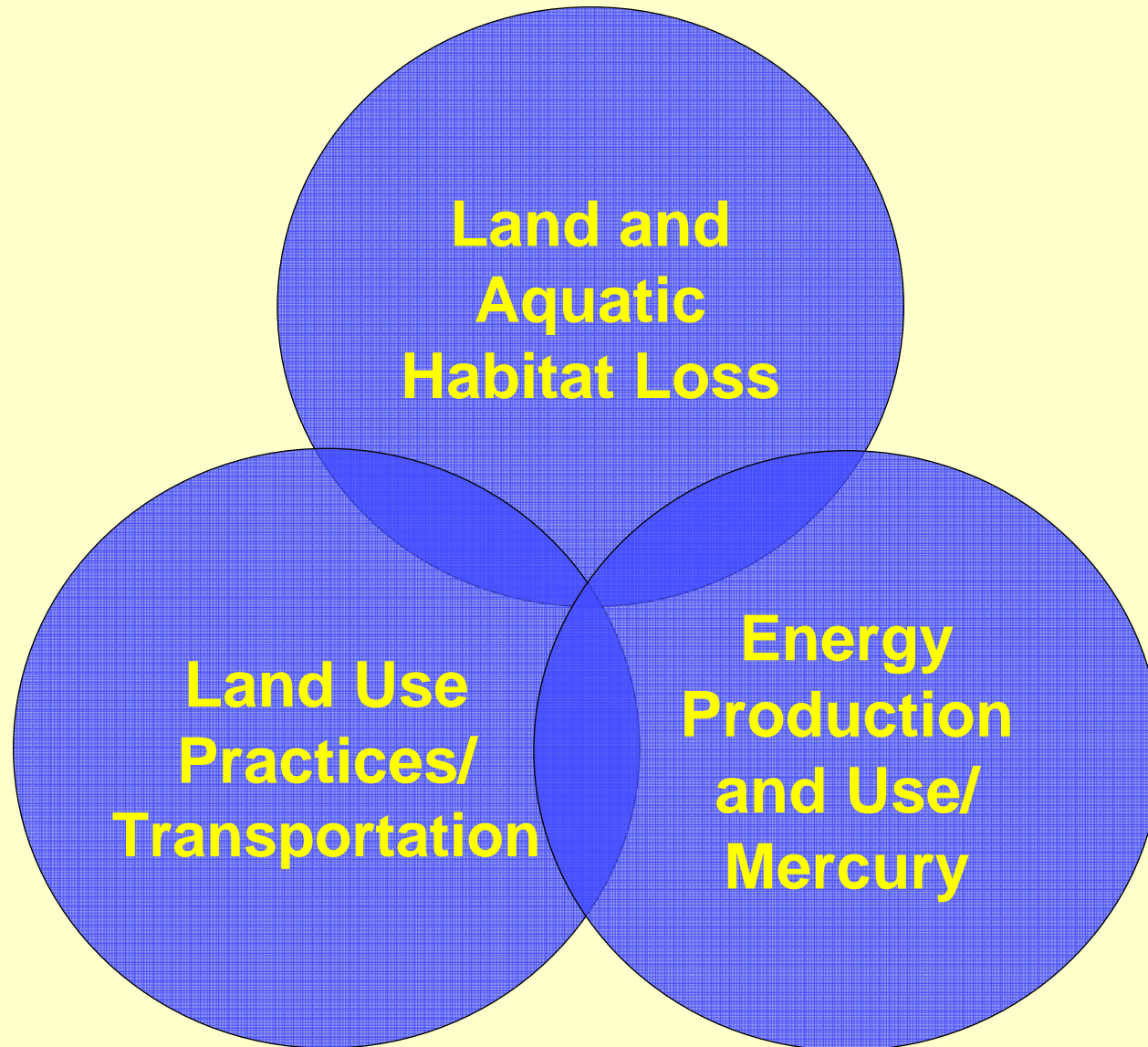


Goals of the SCPP Project



- Comprehensive inventory and assessment of Minnesota's environment and natural resources
- Review, analyze, integrate, & build on existing information and plans
- Identify & prioritize important issues and trends affecting MN's environment and natural resources
- Develop and prioritize recommended strategies to address issues and trends

Key issues investigated in Final Plan



Framework for Recommendations



**Integrated
Planning**

**Critical Land
Protection**

**Land and Water
Restoration**

**Sustainable
Practice**

**Economic
Incentives for
Sustainable
Society**

Knowledge Infrastructure

Natural Resource Values Assessment of Recommendations

LEGEND: ● = Critical Impact ○ = Significant Impact ○ = Negligible Impact

		Air Quality	Water Quality/Quantity	Terrestrial Habitat Quality	Soil/Land Quality	Human Health	Biodiversity	Community Health	Aquatic	Economic Health	Recreational/Spiritual/Aesthetic Value	Mitigation/Adaptation	Climate Change
HABITAT	Habitat 2	○	○	●	●	●	○	●	●	●	●	●	●
	Habitat 1	○	○	●	●	●	○	●	●	●	○	●	●
	Habitat 4	○	○	●	●	●	○	●	●	●	●	●	○
	Habitat 5	○	○	●	○	○	○	●	●	●	○	●	●
	Habitat 6	○	○	●	○	○	○	●	●	●	○	●	●
	Habitat 7	○	○	●	○	○	○	●	●	●	○	○	●
	Habitat 8	○	○	●	○	○	○	●	●	●	○	○	●
	Habitat 3	○	○	○	○	○	○	●	○	○	○	●	○
ENERGY	Energy 1	○	●	●	●	●	○	○	○	○	○	○	○
	Energy 13	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 17	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 2	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 18	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 16	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 21	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 19	○	○	○	○	○	○	○	○	○	○	○	○
	Energy 14	○	○	○	○	○	○	○	○	○	○	○	○
LAND USE - AG	LU Ag 1/Energy 4	○	○	○	○	○	○	○	○	○	○	○	○
	LU Ag 2	○	○	○	○	○	○	○	○	○	○	○	○
	LU Ag 3	○	○	○	○	○	○	○	○	○	○	○	○
	LU Comm 2	○	○	○	○	○	○	○	○	○	○	○	○
	LU Comm 3	○	○	○	○	○	○	○	○	○	○	○	○
TRANSPORTATION	Trans 1	●	○	○	○	○	○	○	○	○	○	○	○
	Trans 3	○	○	○	○	○	○	○	○	○	○	○	○
LAND USE - FORESTRY	LU Forest 1	○	○	○	○	○	○	○	○	○	○	○	○
	LU Forest 2	○	○	○	○	○	○	○	○	○	○	○	○

Land and Aquatic Habitat Conservation Team: Products



- **Identify/map critical land & aquatic areas** necessary to maintain/improve:
 - Water quality
 - Biodiversity
 - Sustainable outdoor recreation
 - Quality habitats of Minnesota
- **Identify strategies & policies** needed to maintain or restore critical land & water areas

Habitat Team recommendations:

- Have potential impact on multiple drivers of change
- Operate at landscape and watershed scales
- Assist in adaptation to climate change

Natural Resource Values Assessment of Recommendations

LEGEND: ● = Critical Impact ● = Significant Impact ○ = Negligible Impact

		Air Quality	Water Quality/Quantity	Wetland Quality	Terrestrial Quality	Soil Land Quality	Human Health	Biodiversity	Community Health	Aquatic Health	Estuarine Health	Recreational/Cultural/ Spiritual/ Historic Value	Mitigation/Adaptation	Climate Change
HABITAT	Number	Recommendation												
	Habitat 2	○	●	●	●	●	●	○	●	●	●	●	●	●
	Habitat 1	○	●	●	●	●	●	○	●	●	●	○	●	●
	Habitat 4	○	●	●	●	●	○	○	●	●	●	●	●	○
	Habitat 5	○	●	●	●	●	○	○	●	●	●	○	●	●
	Habitat 6	○	●	●	●	○	○	○	●	●	●	○	●	●
	Habitat 7	○	●	○	●	●	●	○	●	●	●	○	○	●
	Habitat 8	○	●	●	●	●	●	○	○	○	●	○	○	●
	Habitat 3	○	○	○	○	○	○	●	○	○	○	●	●	○

Mapping habitat quality: Methods and results



- Goal: to map important areas for conservation
 - Statewide
 - Use existing information
 - Integrative – analyzes both positive (resources) and negative (threats to resources) information

Aquatic data – Resources



- Key rivers
- Wetland communities and habitat analysis
- Trout streams and trout lakes
- TNC portfolio lakes
- Sturgeon, walleye, cisco lakes
- Open water and wetlands
- Shallow, wildlife, waterfowl, and wild rice lakes

Aquatic data – Threats to resources

- Population density
- Road density
- Percent agriculture and urban lands in lakesheds
- Percent invasives in lakes



Integration of aquatic habitat quality and environmental stress

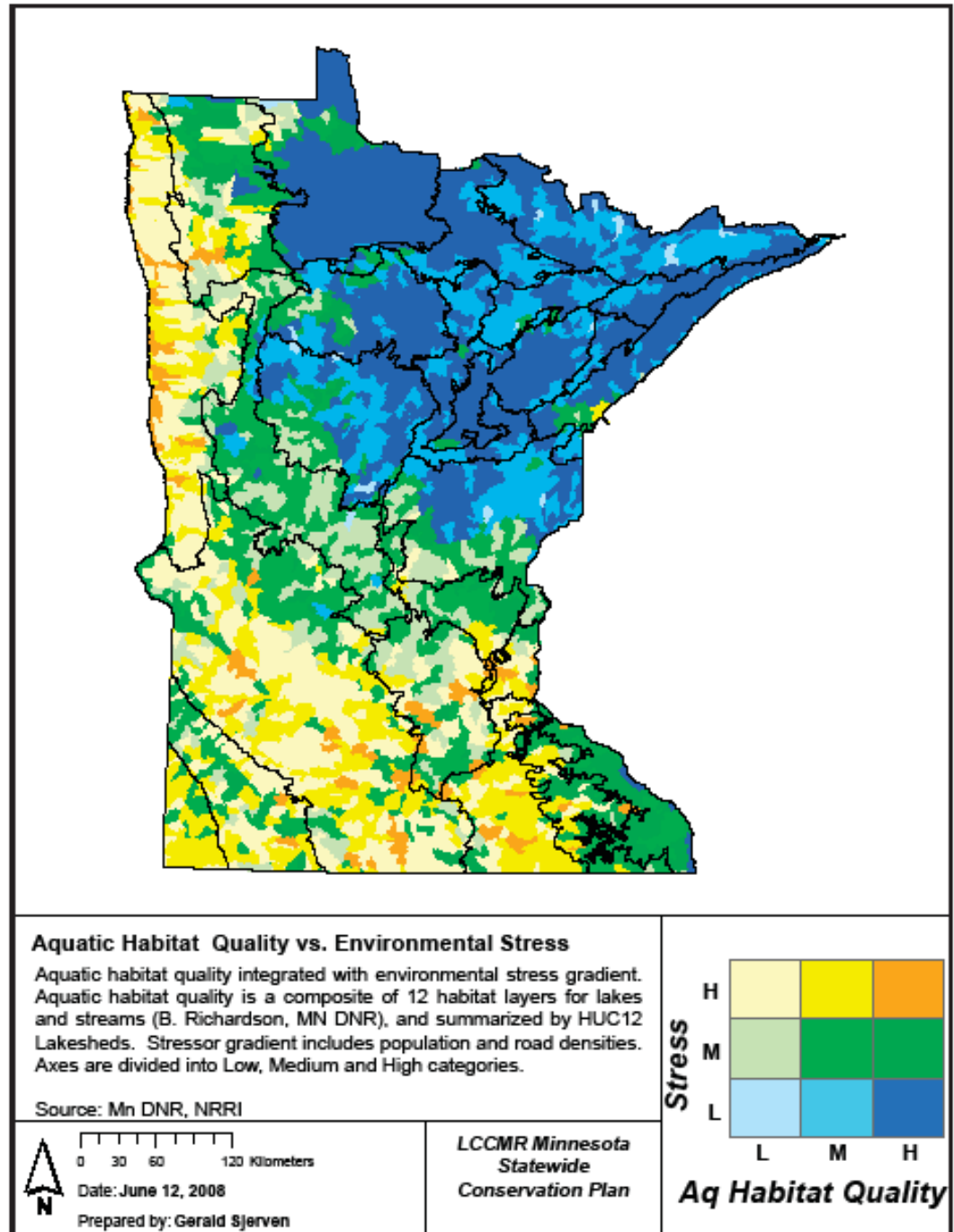


Figure H15. Aquatic habitat Quality vs. Environmental Stress. Credit: Gerald Sjerven, Natural Resources Research Institute.

Habitat 2: Protect critical shorelands of streams & lakes
(*Shoreline buffers provide multiple benefits*)



Habitat 2: Protect critical shorelands of streams and lakes

2A. Acquire high-priority shorelands

- *Permanent protection of highest priority shorelands within each ecological subsection*

2B. Protect private shoreland via economic incentives and other tools

- *Greatly increased and combined use of diverse incentives:*
 - Conservation easements
 - BMPs and technical guidance
 - Shoreland regulations
 - Zoning ordinances
 - Conservation income tax credits



Habitat 4: Restore and protect shallow lakes



Habitat 4: Restore and protect shallow lakes



- Accelerate restoration & improvement of shallow lake habitat to reduce number of lakes in turbid water state
- Restore some of the 1000+ drained shallow lakes
- Funding needed for:
 - Conservation easements to restore lakesheds
 - Fish barriers to keep out invasive species
 - Water control structures to enable Adaptive Management (e.g. temporary draw-downs)
- Support active, on-going management to maintain water quality and habitat

Habitat 5: Restore land, wetlands, and wetland-associated watersheds



- Major wetlands focus in southern & western Minnesota
- Increased restoration of wetlands in forested areas and wild rice lakes
- Multiple benefits to water quality, wildlife, outdoor recreation, etc.
- Public and especially private land

Habitat 6: Protect and restore critical in-water habitat of lakes and streams



- 6A. Restore habitat structure within lakes
 - Appropriate downed woody habitat
 - Restore emergent & floating vegetation
 - Work with lake-home owners & lake associations
- 6B. Protect and restore in-stream habitat
 - Rivers - reduce negative effects of recreational boat traffic as well as effects of built structures
 - Streams - reverse negative effects of channelization

Habitat 7: Keep water on the landscape

Retain water over broader areas and slow down its movement across the landscape to return to more natural conditions.

- a) Enhance and expand perennial vegetation, preferably with native plants
- b) Storm water controls to infiltrate most of the rainwater
- c) Maintain and restore riparian buffers
 - Encourage wider vegetated buffers
 - Discourage new drainage tile



Habitat 8: Review and analyze drainage policy

- Invest in comprehensive review and analysis of MN statutes relating to drainage, including chapter 103E on drainage
- Make recommendations to legislature for removing barriers to and better facilitate restoration of critical wetlands



Habitat 9: Research needs on land and aquatic habitats



- Research and action are both vitally important
- How much land or aquatic habitat is necessary to maintain or improve MN's native natural resources?
- For credible & defensible use of state resources
- Establish a proportion of budget to research

Habitat 10: Research near-shore habitat vulnerability



- Map aquatic species richness
- Identify sensitive lakeshore areas statewide
- Further investigate economic benefits of preserving undeveloped shoreline and trails
- Determine barriers to and benefits of good near-shore stewardship by lake-home owners
- Initiate pilot program to change behavior or limit choices on near-shore habitat alteration

Habitat 12: Improve understanding of watershed responses to multiple drivers of change



- Monitoring, research & evaluation of land use, climate, invasive species, and other changes
- Need improved knowledge in decision-making and management
- Leverage other state, federal, & private funds (e.g. Clean Water Legacy, NSF, EPA, etc.)
- May require large-scale experimental design

Habitat 13: Habitat and landscape conservation education and training for all citizens



- Public needs better understanding – e.g. erosion, watershed, landscape, ‘decision & resulting impact’
- Population demography – disconnect with natural resources
- Leverage excellent on-going programs – MN Master Naturalist Program, WOW, River Friendly Farmers, Healthy Rivers: A Water Course, etc.
- Dedicate a proportion of the budget to education

Land Use Practices: Products



- Identify public/private land use choices needed to:
 - Improve environmental quality
 - Anticipate and adapt to environmental changes in Minnesota
- Identify land use practices & policies to best support these choices

Land Use Practices Team



- Focus is on how land is used on a particular parcel or site
- Three major types of land uses in Minnesota
 - Urban/Community
 - Agriculture
 - Forest

Community Land Use



- *Land Use 2:* Support local and regional conservation-based planning
 - 2A. Demonstrate conservation-based planning through pilot projects
 - 2B. Provide incentives to local governments and conservation organizations for conservation-based planning and implementation
 - 2C. Provide tools and technical assistance for conservation-based planning
 - Invest in building state agency assistance capabilities

Community Land Use



- *Land Use 3:* Ensure protection of water resources in urban areas by evaluating and improving current programs
 - Impaired waters and TMDL
 - NPDES stormwater permitting
 - Nondegradation for all waters
 - Shoreland management

Protect water resources in urban areas



3A. Credit system for stormwater and low-impact development (LID) best management practices (BMPs)

- Good scientific and research support
- Specific and detailed design guidelines
- Quantification of benefits
- Integration into all levels of stormwater regulations – State, city, watershed, etc.

Protect water resources in urban areas



3B. Simple modeling for TMDL compliance

- Review current model
- Integrate with the credit system for stormwater and LID BMPs
- Develop an integrated loading rate and total load reduction model
- Prepare guidance documents
- Integrate model into TMDL protocols and implementation plans
- Develop and implement outreach and training

Protect water resources in urban areas

3C. TMDL BMP implementation monitoring

- Draft and implement a program of detailed BMP monitoring
- Selected representative watersheds
- Monitoring beyond the waterbody; monitor the watershed





Protect water resources in urban areas

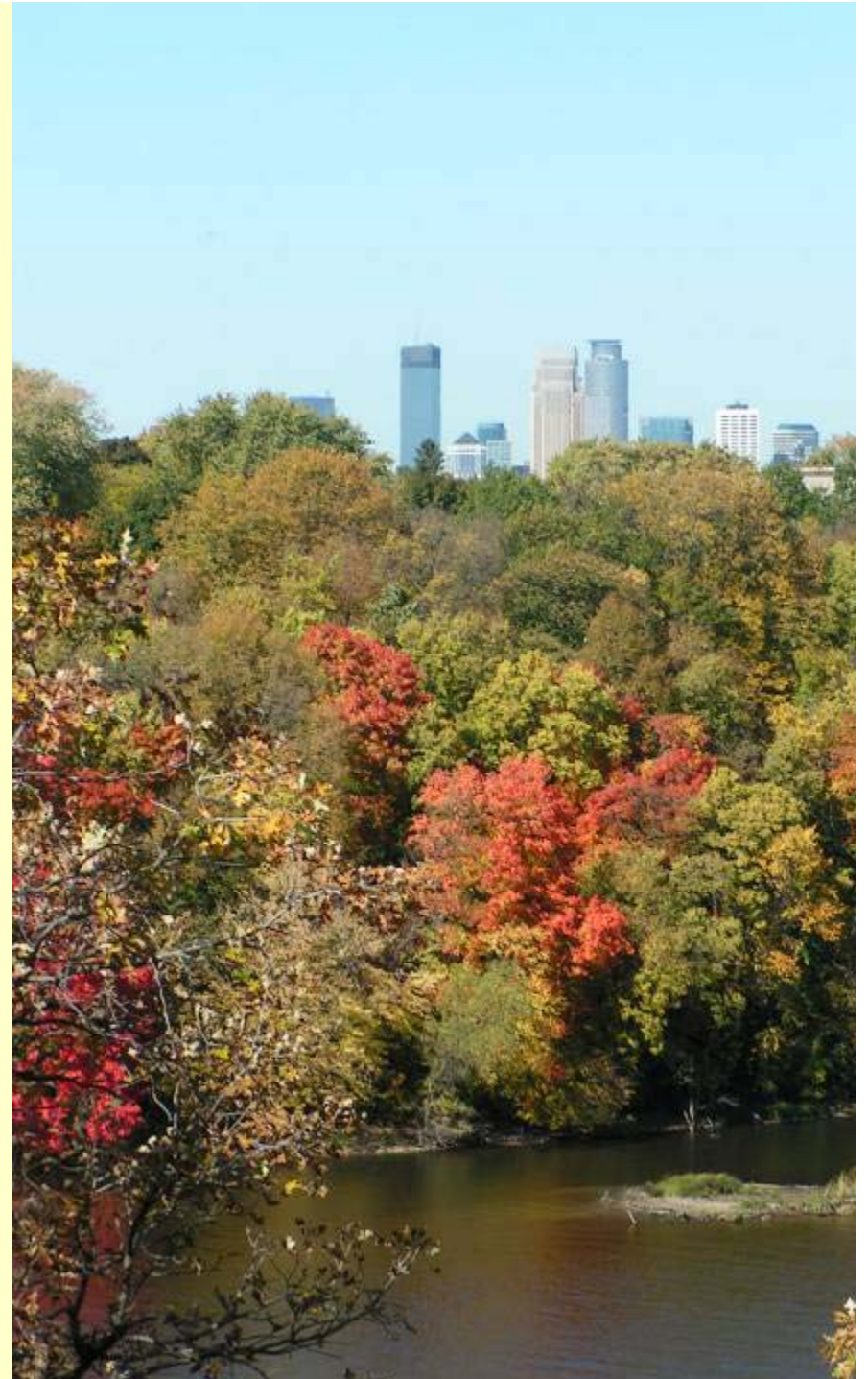


3D. Water quality media campaign

- Build on existing program to enhance public education and awareness of stormwater pollution prevention strategies
- Further develop and expand the “*Minnesota Water – Let’s Keep It Clean!*” campaign
- Mass media
- Materials for educators and municipal staff

Project Goal

To achieve a
better future for
Minnesota's
natural resources



Thank you!

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