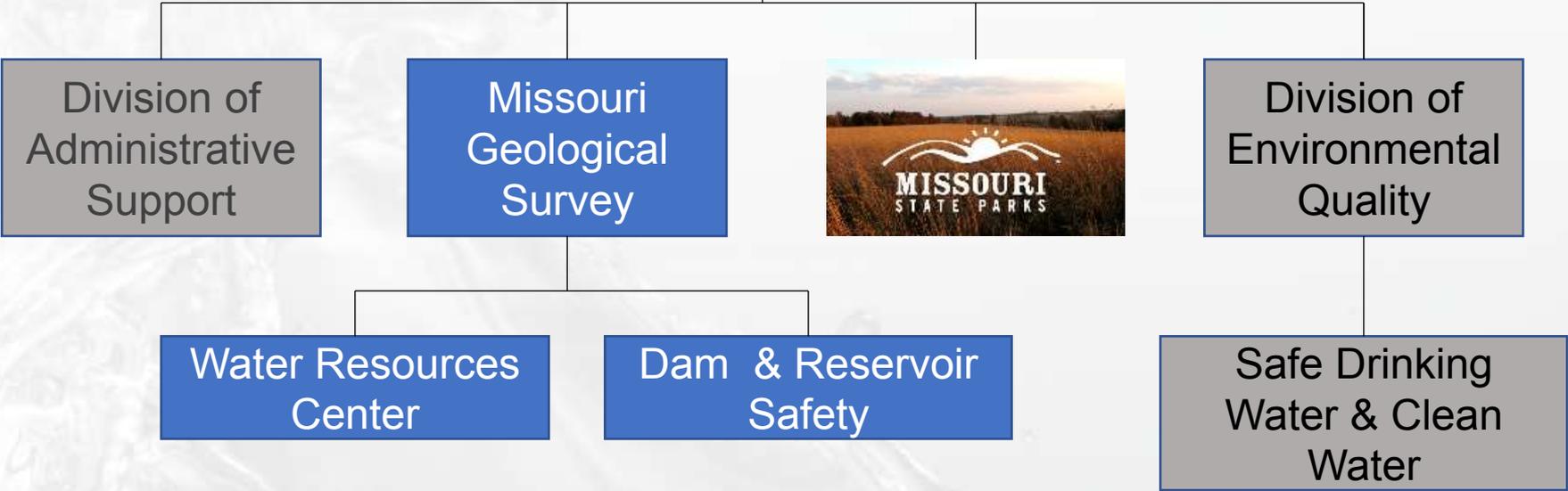




MISSOURI

WATER RESOURCES PLAN

Organization for Water Planning in Missouri



Organization for Water Planning in Missouri

- Missouri Geological Survey

RSMo 256.060

The state geologist is authorized to make a survey of the water resources of the state, including a survey of underground water supplies and the chemical composition of such waters. Gauging stations shall be established and maintained, and such other field and laboratory work shall be done as may be deemed necessary.

RSMo 640.415

The department shall develop, maintain and periodically update a state water plan for a long-range, comprehensive statewide program for the use of surface water and groundwater resources of the state, including existing and future need for drinking water supplies, agriculture, industry, recreation, environmental protection and related needs.

Missouri Water Resources Planning

- Missouri is riparian rights with no permitting requirement.
- Only reporting requirement is for major water users
 - Major water users are defined as those with a water source and equipment necessary to withdraw or divert 100,000 gallons or more per day from any stream, river, lake, well, spring or other water source.
 - Report annually, both average daily withdrawal and total withdrawn during the proceeding year

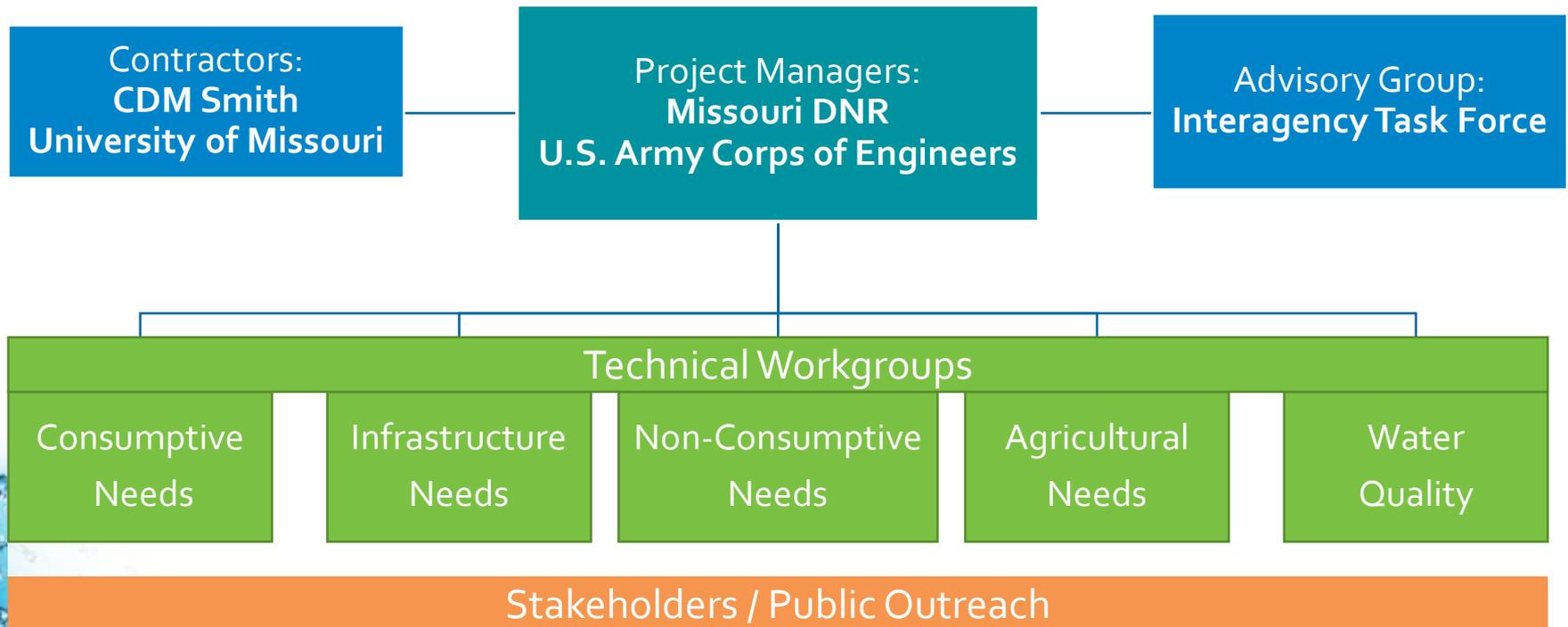
Funding for Water Resources Planning

- General Revenue funds the Center
- Planning Assistance to States
- Grants
- ***New*** State Water Plan Implementation (\$1 million per FY)
 - Drought Planning
 - Watershed Studies
 - Updated Bathymetric Surveys

Types of Water Planning in Missouri

- State Water Resource Plan
- Regional Water Development Projects
- Investigations

Missouri Water Resources Plan Team

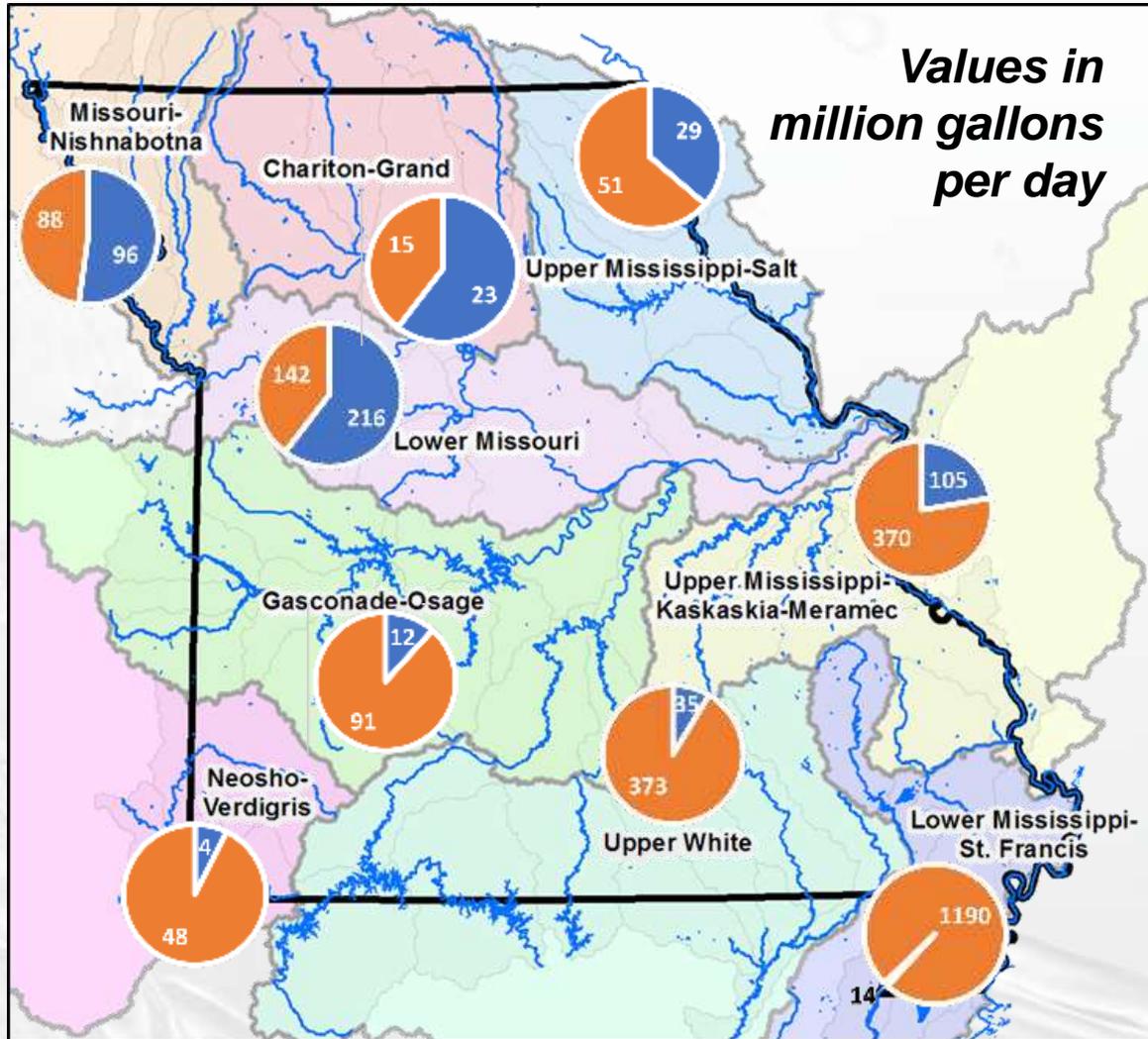


Water Plan Goals

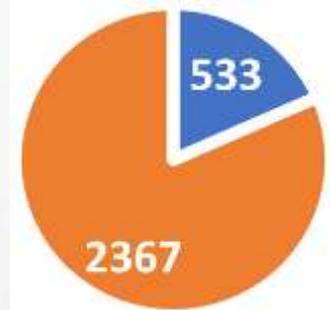
- Evaluation of current and future water use needs.
- Evaluation of current and future water supply and availability.
- Identify shortfalls in water supply or infrastructure needs.
- Identify areas where source development, infrastructure development, and/or integration is needed to provide adequate supply.



Current Consumptive Water Demands by Source – Draft Results



State Total



- Groundwater
- Surface Water

Regional Water Development

- The Water Resources Center acts as a technical and financial resource for various development projects. Projects are locally organized and administered.
 - Currently, there are two source development projects, one infrastructure project, and one reallocation project.



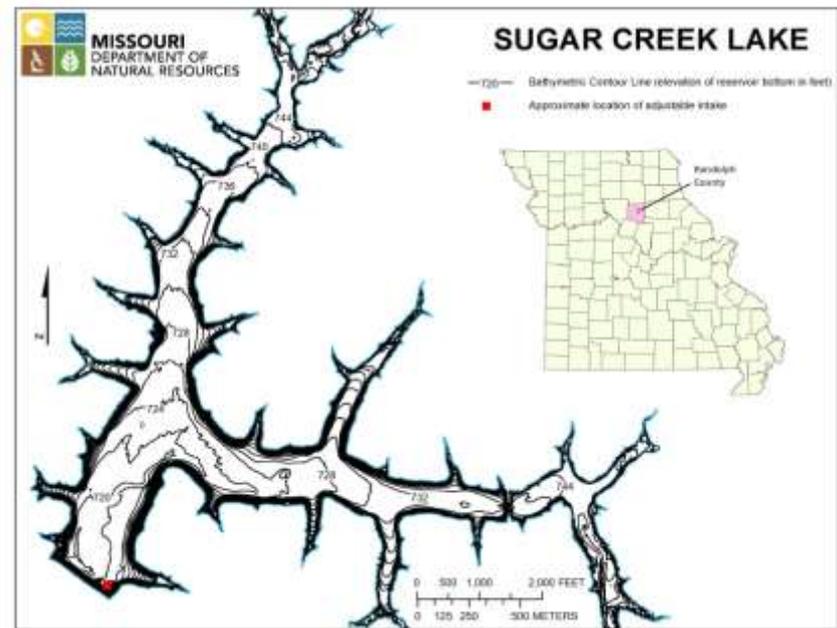
Investigations

FIRM YIELD ASSESSMENT: SUGAR CREEK LAKE

FIRM YIELD ASSESSMENT: SUGAR CREEK LAKE, REYNOLDS COUNTY, MISSOURI

By Karen Rouse, Emma Schneider

- Bathymetry/yield assessment for small drinking water supply reservoirs
- Characterization of both surface and groundwater availability in local areas
- Flood/drought planning



Thank You





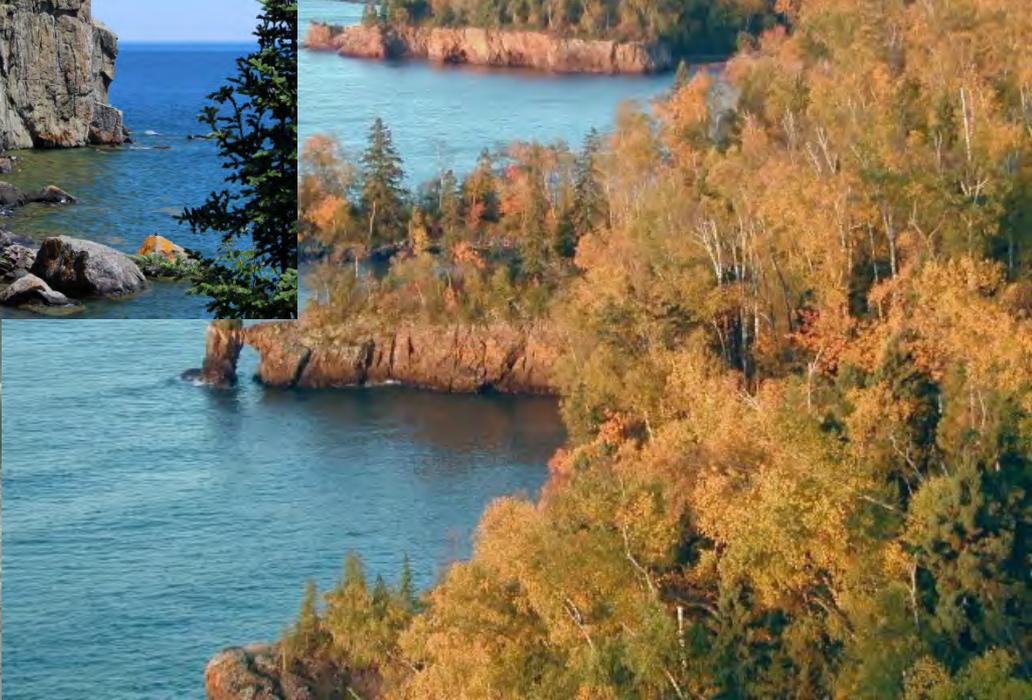
Water Planning in Minnesota

Pooja Kanwar, PhD

Water Policy Consultant, Ecological and Water Resources Division

Minnesota Department of Natural Resources







-  Mississippi River Basin
-  Red River Basin
-  Great Lakes Basin – St. Lawrence Seaway





Minnesota State Agency Roles in Groundwater

Quality

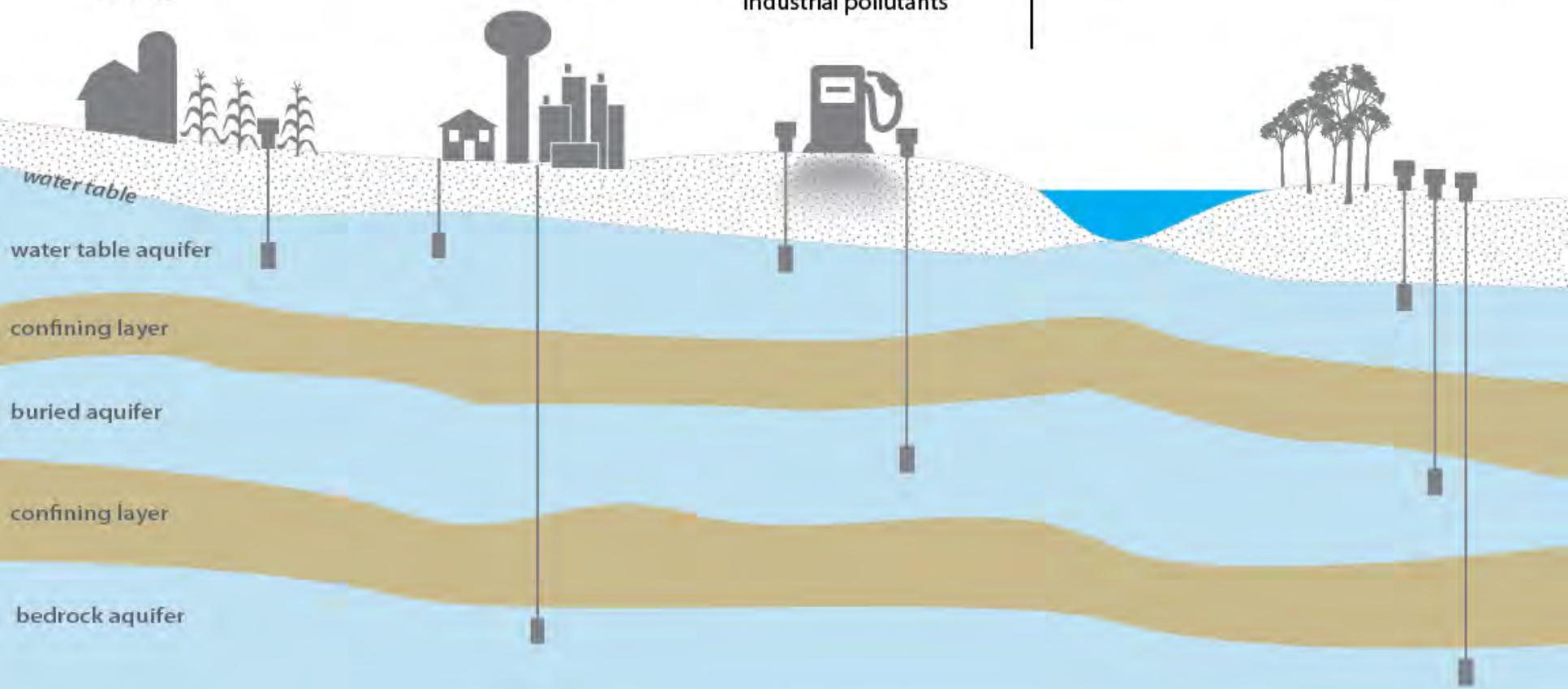
Quantity

MDA
Pesticides
Fertilizer

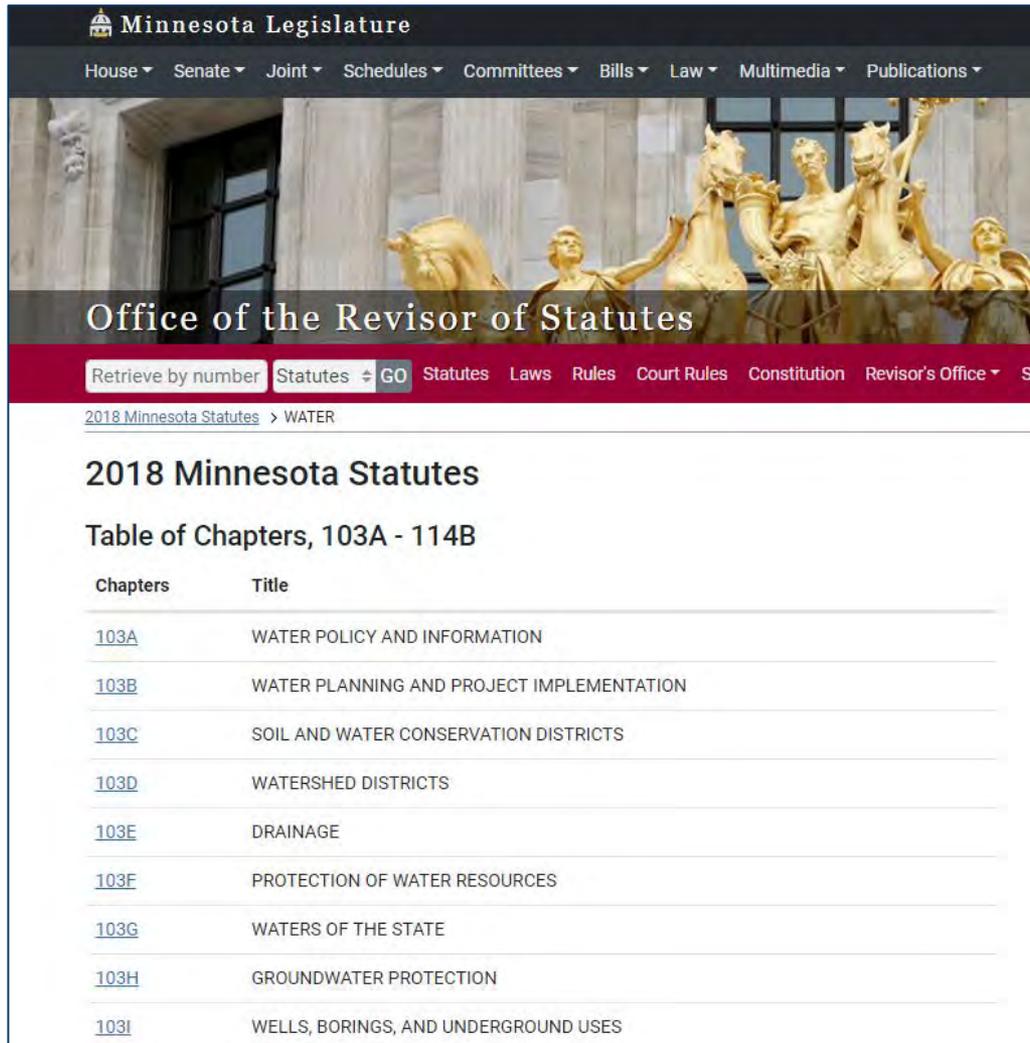
MDH
Public Water Supply
Well Construction
Health Risk Assessment

MPCA
Chemical releases
Industrial pollutants

DNR
Water supply/availability
Natural resource/ecosystem function



Minnesota State Legislature



The screenshot displays the Minnesota State Legislature website. At the top, there is a navigation menu with links for House, Senate, Joint, Schedules, Committees, Bills, Law, Multimedia, and Publications. Below the menu is a banner image of the Minnesota State Capitol building with the text "Office of the Revisor of Statutes". A search bar is present with the text "Retrieve by number" and "Statutes" selected, followed by a "GO" button. Below the search bar, there are links for "Statutes", "Laws", "Rules", "Court Rules", "Constitution", "Revisor's Office", and "Se". The main content area shows the "2018 Minnesota Statutes" and a "Table of Chapters, 103A - 114B".

Chapters	Title
103A	WATER POLICY AND INFORMATION
103B	WATER PLANNING AND PROJECT IMPLEMENTATION
103C	SOIL AND WATER CONSERVATION DISTRICTS
103D	WATERSHED DISTRICTS
103E	DRAINAGE
103F	PROTECTION OF WATER RESOURCES
103G	WATERS OF THE STATE
103H	GROUNDWATER PROTECTION
103I	WELLS, BORINGS, AND UNDERGROUND USES

<https://www.revisor.mn.gov/statutes/>

Minnesota Water Law

- Public Trust Doctrine
- Riparian Rights
- Permit System



Water Allocation Priorities

1.



Domestic water supply

2.



Consumptive uses
<10,000 gallons/day

3.



Agricultural
irrigation &
processing

4.



Power production

5.



Consumptive uses
>10,000 gallons/day

6.



Non-essential uses

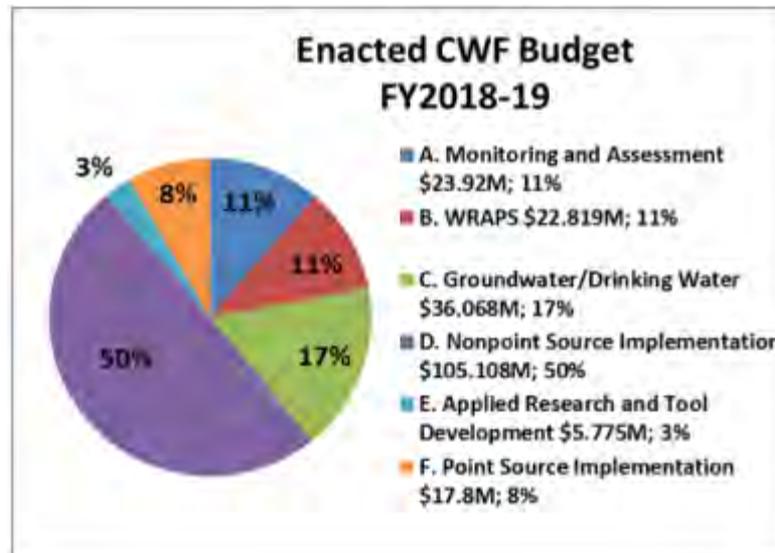
Funding: Ballot Measures

1) Clean Water, Land and Legacy Amendment

- Increased state sales tax by 3/8 of 1% from 2009 – 2034
- 1/3 of this additional sales tax revenue is given to the Clean Water Fund

2) Environmental and Natural Resources Trust Fund

- 1988 MN voters approved constitutional amendment to establish the fund
- 40% of net proceeds from Minnesota State Lottery and any private donations



MN Water Management Framework





Funding and technical assistance for locally implemented watershed restoration and protection projects	Monitor progress of local implementation goals	Conservation targeting tools (e.g., Environmental Benefits Index) BMP guidance (e.g., drainage water management)	Participate on interagency watershed teams developing WRAPS (with all agencies)	Comprehensive Watershed Management Planning (One Watershed, One Plan) Local water and watershed plans
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Appropriations and Public Waters Permitting Shoreland and floodplain management Technical assistance for projects	Stream flow Fish and plants (lakes) Mercury in fish tissue Aquifer levels (with Met Council)	Stream hydrology and geomorphology (support MPCA) Small scale watershed modeling and groundwater level modeling County Geologic Atlas	Advise on conservation actions based on holistic view of watershed health (hydrology, geomorphology, connectivity, biology, water quality)	Input on local conservation actions informed by statewide plans for prairies, forests, etc. Water supply planning and groundwater management areas (with Met Council)
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Funding for source water protection, contaminants of emerging concern Well sealing cost share	Source water and finished drinking water Bacteria monitoring on Lake Superior beaches	Guidance for contaminants of emerging concern Data analysis and modeling to support WHPA delineation and vulnerability assessments for public water supplies	Source water protection planning (identification of problems, issues, and opportunities) Well construction management	Guidance for infiltration in DWSMAs Source water protection planning (local measures and strategies)
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Loans and grants for water infrastructure projects based on priorities set by MDH and PCA



NPDES permit programs, SSTS compliance Grants for Clean Water Partnership, Great Lakes Restoration, stormwater and wastewater treatment (PFA)	Water chemistry (surface and groundwater) Fish and macroinvertebrates (streams) Surface water assessment grants	Stressor Identification for biological impairments Watershed Modeling (8-HUC) TMDLs Civic engagement	Stakeholder agreement on broad watershed restoration and protection strategies (WRAPS) WRAPS report – includes implementation table TMDLs to EPA	Provide WRAPS for incorporation into local plans Input on management strategies informed by statewide nutrient plan
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Ag BMP loans MN Agricultural Water Quality Certification Program Implement Pesticide and Nitrogen Fertilizer Management Plans	Pesticides in surface and groundwater Nitrate in groundwater	Research/evaluation on ag sources, practices and solutions Technical assistance on ag sources and practices, BMP demonstration/evaluation sites Stressor ID for pesticides	Ag practices and management options, nitrogen fertilizer and pesticide use Participate on interagency teams developing WRAPS Vegetative cover	Input on management strategies informed by pesticide and nitrogen fertilizer management plans
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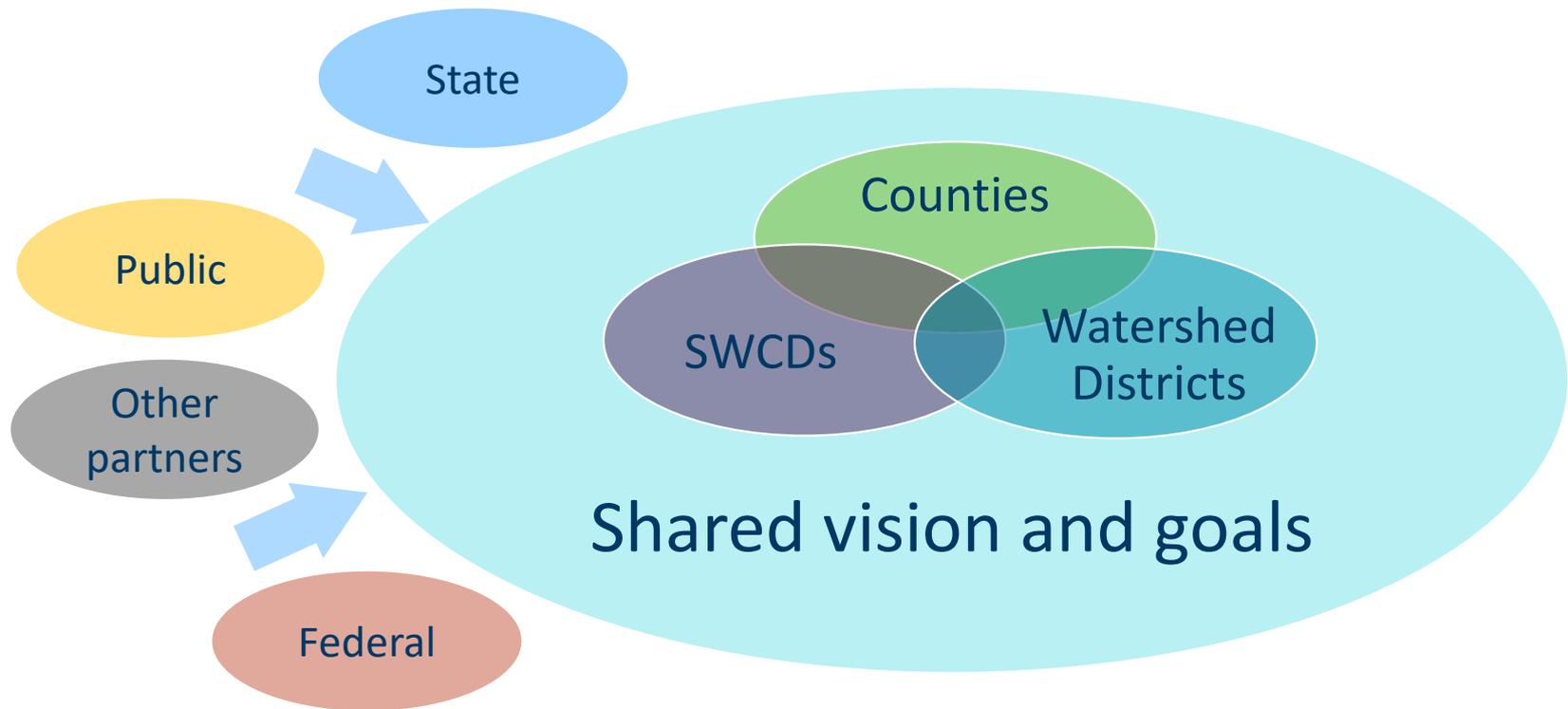
Technical assistance and demonstration projects	Lake, stream, river monitoring: flow, chemistry, biology Effluent monitoring (WWTPs) Impervious surface and land cover assessments	Modeling and trend assessments (surface water) Pollutant load calculations Groundwater mapping and characterization	Participate in WRAPS and local water planning teams Master water supply plan Groundwater management areas (with DNR)	Participate in review of local water and watershed plans (metro area); local water supply plans; and comprehensive land use plans (metro area)
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Program Vision



Develop prioritized, targeted and measurable local implementation plans aligned with state strategies on major watershed boundaries.

Planning Concept



More Information on 1W1P

mn BOARD OF WATER
AND SOIL RESOURCES

One Watershed, One Plan Guidebook



Purpose:

The *One Watershed, One Plan Guidebook* is a series of supporting information documents for the *One Watershed, One Plan - Plan Content Requirements*. The documents contain definitions, examples, and considerations to help stimulate discussions and provide direction as planning groups move through each phase of the planning process. The following is not program policy, but rather, is intended to serve as a resource and point of reference for developing comprehensive watershed management plans.

For program policy, please see:

- One Watershed, One Plan – Plan Content Requirements
- One Watershed, One Plan Operating Procedures
- One Watershed, One Plan Guiding Principles



www.bwsr.state.mn.us

www.bwsr.state.mn.us/one-watershed-one-plan

mn BOARD OF WATER
AND SOIL RESOURCES

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Buffers Wetlands

Resources

Water Planning

Operational Resources

One Watershed, One Plan

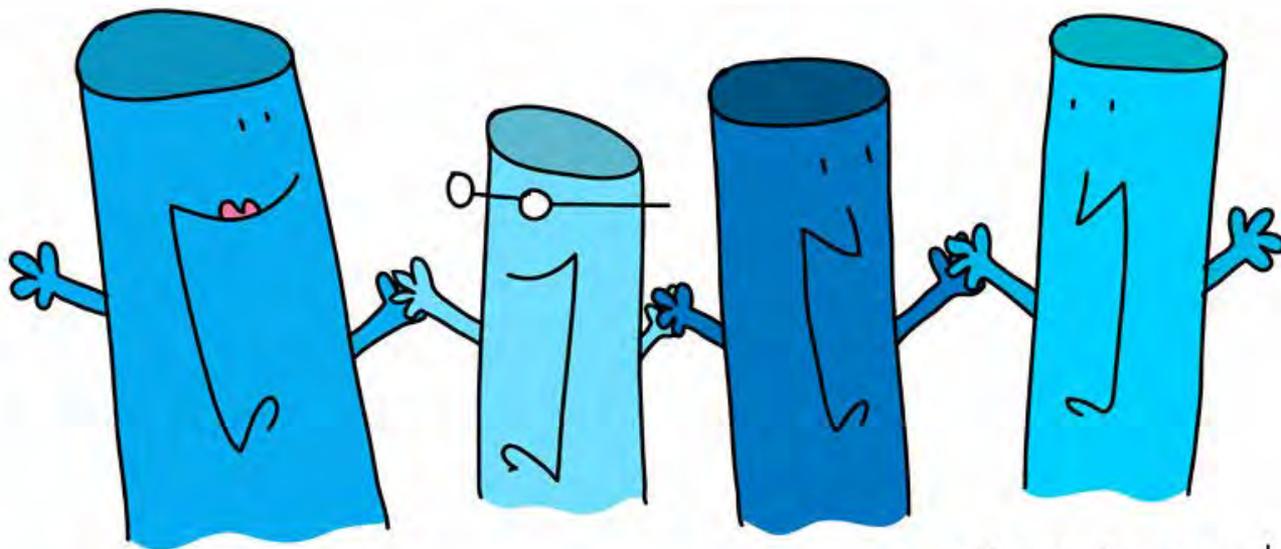
<http://www.bwsr.state.mn.us/planning/1W1P/index.html>

MENU



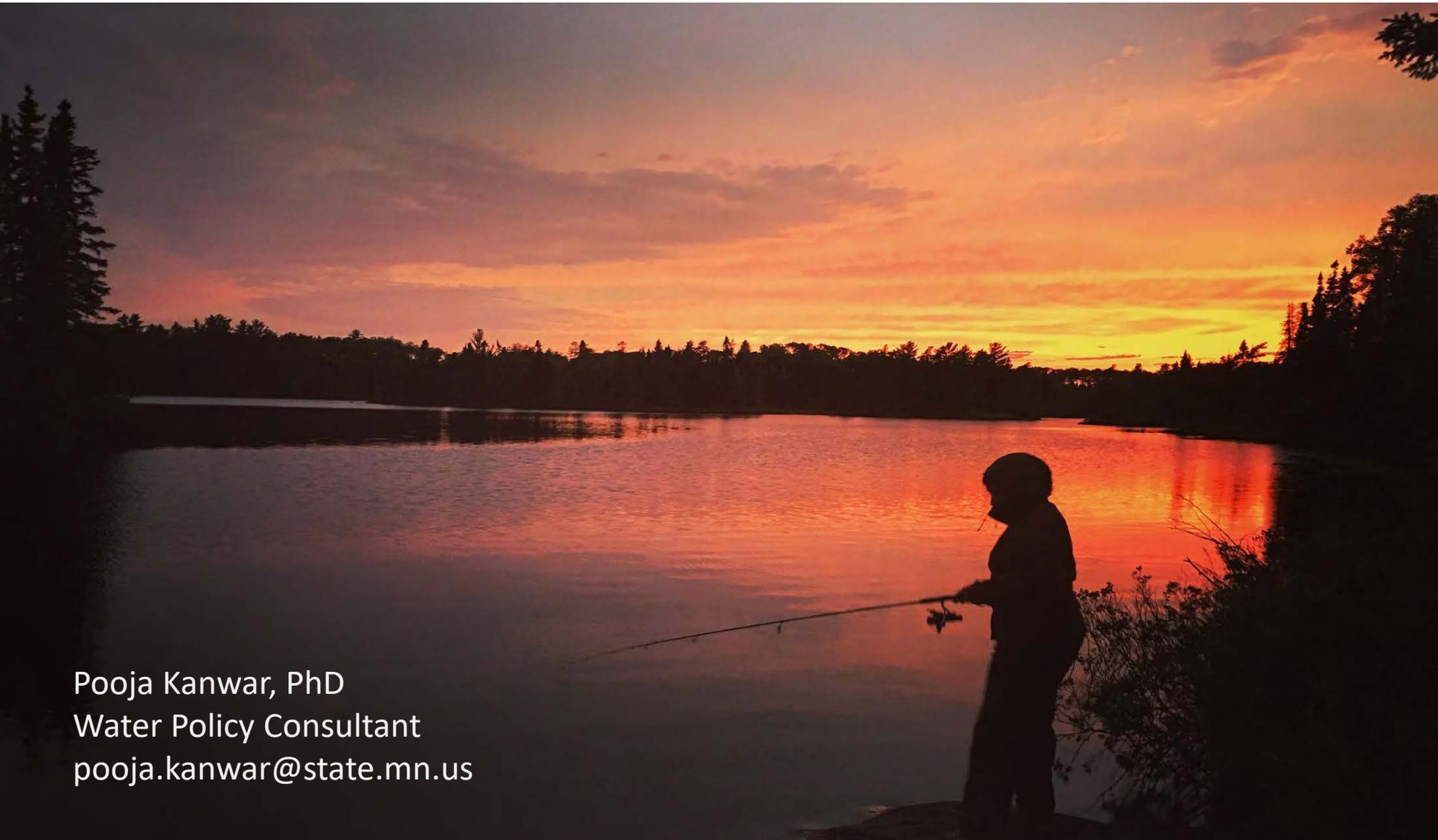
Priority Area: Water Governance

Silos collaborating!



@gapingvoid

Thank You

A silhouette of a person fishing with a rod and reel on the shore of a lake at sunset. The sky is filled with vibrant orange and red clouds, which are reflected in the calm water. The background shows a dense line of trees under the twilight sky.

Pooja Kanwar, PhD
Water Policy Consultant
pooja.kanwar@state.mn.us