Landowner perspectives about water resource protection in the Vermillion River Watershed Amit K Pradhananga, Ph.D. Mae A. Davenport, Ph.D. Sarah Roth, M.S. Amelia Kreiter, M.S.

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Project partners and collaborators

• Mark Zabel

- UMN Researchers and Students
 - Ziyue Zhang
 - Laura Stamnes
- Survey respondents

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The University of Minnesota Twin Cities is located on the Dakota Oyate, the sacred ancestral lands of the Očéti Šakówiŋ, (Seven Council Fires). These lands are the traditional, historical, and contemporary lands of the Dakota People.

Multiple stretches of the Vermillion River are impaired



Conservation practices have several benefits to water quality and soil health



How do we increase landowner engagement in conservation?

Study Purpose

Understand landowner beliefs, norms, and behaviors associated with water resource conservation Research Questions What are landowner values and attitudes associated with water resources and water resource management?

What are differences in perceptions between
2011 and 2021 survey respondents?

WHAT drives conservation behavior?

Not solely driven by knowledge and selfinterest



2 Behaviors are an expression of values



Triggered by beliefs and norms



Study Methodology

Your Perspectives on Local Water Resources

2021 survey of landowners in the Vermillion River Watershed



Genter for Changing Landscapes UNIVERSITY OF MINNESOTA Driven to Discover"

Thank you for taking the time to answer questions about your community and your watershed. The purpose of this survey is to learn more about the perspectives of landowners on their community and water resources. The findings from this study will be used to help resource managers improve conservation programs and communication with their community.

Your opinions are very valuable to us. This survey is <u>voluntary and completely confidential</u>. Please answer the questions as completely as possible. It should take you about 15 minutes to complete the survey. <u>Please complete the survey</u>, fold it in thirds, and mail it back in the <u>enclosed self-addressed stamped envelope</u>.





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- Self-administered mail survey
- 1000 landowners in the Vermillion River Watershed
- 3-wave mailing
- February to May 2021
- 25% response rate (n = 253)

Survey Questionnaire







Beliefs about water resource protection

Perspectives about conservation practices

Current and future conservation actions

Study Findings

Q2

Q3

Q3

Respondent Profile

	2021 Survey	2011 Survey
No. of respondents	253	318
Gender: Male	59%	67%
Race/Ethnicity: White	90%	95%
Median age	60	52
Education: Bachelor's degree of higher	50%	47%
Household income: \$75,000 or more	62%	49%

Property Characteristics

	2021 Survey	2011 Survey
Own and manage land	79%	77%
Use land for agricultural production	20%	39%
Property borders streams/ditches or has streams/ditches running through it	59%	76%
Own 20 or fewer acres	82%	68%

What are landowner values and attitudes associated with water resources and water resource management?

2021 Survey

What conservation practices do landowners use?



Minimizing use of fertilizers/pesticides is the most widely used practice among respondents



Planting trees as windbreak and conservation tillage are the most widely used practices among agricultural landowners



There is a gap between intentions to take individual vs. civic actions to protect water



How engaged are landowners in their community?



Most landowners have not taken civic actions in the last 12 months

Read any newsletters, magazines or other publications written by environmental groups

Discussed water quality issues with a neighbor or other community member

Given money to an environmental group

Joined or been a member of any group whose main aim is to protect the environment



Never

Written a letter or called a government official to support environmental protection





Once to every few months

What water values and uses are important to landowners?



Respondents value a range of water uses

Drinking water that is safe and clean

Future generations

Equitable access to clean drinking water

Beaches and lakes that are safe for swimming and playing

Habitat for native fish and wildlife to survive

Access to public waters for all Minnesotans

The heritage and identity of Minnesota

Consistent water supply for water watering vegetable gardens

Ricers to be able to harvest in historically abundant wild rice waters

Lakeshore landowners to maintain their property values

Consistent water supply for watering lawns and landscaping around my neighborhood

For cultural or religious practices

0%



What are landowners' beliefs about water and water protection?



Respondents believe that water resources in Minnesota need better protection



Respondents believe that conservation practices provide ecological and community benefits



Landowners believe that it is their personal and community responsibility to protect water



It is my personal responsibility to help protect water quality. It is my personal responsibility to help protect that what I do on my land does not contribute to water resource problems. Landowners/property owners in my community should be responsible for protecting water quality. Local government (i.e. county, city/township) should be responsible for protecting water quality.

Most respondents feel a personal obligation to take actions to protect water



Agricultural landowners agree to a greater extent than non-agricultural landowners

Who do landowners trust to help them make decisions about conservation?



Respondents trust multiple individuals and organizations to help them make decisions about conservation on their land



Agricultural landowners more likely to trust than non-agricultural landowners

Which factors are related to landowners' intentions to use conservation practices?



	Intentions to use conservation practices in the future
Belief about ecological benefit of conservation practices (Conservation practices protect aquatic life)	Higher (+)
Personal responsibility for water protection It is my personal responsibility to help protect water quality)	Higher (+)
Feelings of personal obligation (I feel a personal obligation to use conservation practices on my land)	Higher (+)

What are differences in perceptions between 2011 and 2021 survey respondents?

2021 vs. 2011 Survey Respondents

2021 respondents rated the water quality in the stream/ditch that borders or runs through their property higher than 2011 respondents

There were differences between 2021 and 2011 respondents in their perceptions about water pollution and water protection

A greater proportion of 2021 respondents reported taking civic actions than 2011 respondents

Conclusions and recommendations

Landowners value water

Value clean water

Concerned about water pollution

Believe it is personal responsibility and obligation to protect water

1. Encourage personal commitment to conservation, and engage landowners

Benchmarking

Goal setting

Commitment

Landowners perceive benefits of conservation

Connection between water and community issues

Perceive ecological and community benefits of conservation

Knowing more about practice benefits likely to motivate adoption

2. Emphasize ecological and community benefits of conservation

Link conservation to community benefits

Tailored information

Landowners trust multiple individuals and organizations

Soil and Water Conservation District Local Watershed Management Organization

3. Engage trusted individuals and organizations

Outreach through trusted groups

Consistent messaging

Build trust

Questions?