MANAGING AN INVISIBLE RESOURCE:
AN ASSESSMENT OF LOCAL NEEDS FOR GROUNDWATER PROTECTION

Sarah Fellows, Amit Pradhananga, Mae Davenport

October 16, 2018

Center for Changing Landscapes

University of Minnesota

Driven to Discover™
Identify and prioritize critical capacity-building needs of LGU and SWCD staff in groundwater and drinking water protection
METHODS
Perceived expertise about groundwater

Perspectives on groundwater quantity & quality issues

Individual & organizational capacities to protect groundwater
SWCD SURVEY

- 188 responses
- 61% male
- Median age 40
- 72% bachelor’s degree or higher
- Education/outreach, conservation practice implementation, and planning
• 483 responses
  • 263 out of 700 cities
  • 70 out of 87 counties
• 72% male
• Median age 53
• 25% bachelor’s degree or higher
• Planning, land-use policy development, monitoring, administration, and conservation practice implementation
FINDINGS
Perceived expertise about groundwater

**Quality**
- 29% SWCD
- 44% LGU

**Quantity**
- 20% SWCD
- 33% LGU

**Engagement**
- 27% SWCD
- 30% LGU
Perspectives on groundwater quantity & quality issues

Groundwater quality issues are very to extremely important

- 68% (SWCD) to 88% (LGU)

Groundwater quantity issues are very to extremely important

- 56% (SWCD) to 63% (LGU)
Perspectives on groundwater quantity & quality issues

- Filling/loss of wetlands
- Conversion of natural to row crop
- Conversion from CRP to row crop
- Loss of native prairie
- Tile drainage
Perspectives on groundwater quantity & quality issues
Individual & organizational capacities to protect groundwater

- Relational Capacity
- Organizational Capacity
- Individual Capacity
- Community Capacity
- Justice capacity
- Programmatic capacity
How important/how effective at:

• Administration and grant management
• Conservation practice implementation
• Education and outreach
• Engaging local community members
• Land use policy/ordinance development
• Monitoring
• Planning

Plot of mean importance and effectiveness for each organization on a X-Y grid
PERCEIVED IMPORTANCE OF GROUNDWATER-RELATED WORK AREAS

Engaging local community members: Very important
Land use policy/ordinance development: Moderately important
Education and outreach: Very important
Monitoring: Moderately important
Planning: Moderately important
Conservation practice implementation: Moderately important
Administration and grant management: Moderately important
Engaging local community members

Land use policy/ordinance development

Education and outreach

Monitoring

Planning

Conservation practice implementation

Administration and grant management

Importance

Effectiveness

Moderately important/Neutral

Extremely important/Very effective

n ≥ 177

Statistically significant difference between ratings of importance and effectiveness
A. Concentrate Here

B. Keep Up the Good Work

C. Low Priority

D. Possible Overkill

- **Administration and grant management**
- **Conservation Practice Implementation**
- **Education and Outreach**
- **Engaging local community members**
- **Land use policy/ordinance development**
- **Monitoring**
- **Planning**
CITIES
PERCEIVED IMPORTANCE OF GROUNDWATER-RELATED WORK AREAS

- Engaging local community members
- Education and outreach
- Conservation practice implementation
- Land use policy/ordinance development
- Planning
- Administration and grant management
- Monitoring

3 = Moderately important
4 = Very important
Engaging local community members
Education and outreach
Conservation practice implementation
Land use policy/ordinance development
Planning
Administration and grant management
Monitoring

Moderately important/Neutral
Extremely important/Very effective

Importance
Effectiveness

Statistically significant difference between ratings of importance and effectiveness

n ≥ 248
A. Concentrate Here

B. Keep Up the Good Work

C. Low Priority

D. Possible Overkill

- Administration and grant management
- Conservation Practice Implementation
- Education and outreach
- Engaging local community members
- Land use policy/ordinance development
- Monitoring
- Planning

Effectiveness

Very important

Moderately important

Neutral

Very effective

Importance
COUNTY
PERCEIVED IMPORTANCE OF GROUNDWATER-RELATED WORK AREAS

- Engaging local community members: Very important
- Education and outreach: Very important
- Monitoring: Moderately important
- Conservation practice implementation: Moderately important
- Planning: Moderately important
- Land use policy/ordinance development: Moderately important
- Administration and grant management: Moderately important
Engaging local community members
Education and outreach
Monitoring
Conservation practice implementation
Planning
Land use policy/ordinance development
Administration and grant management

Statistically significant difference between ratings of importance and effectiveness

n ≥ 122

Importance
Effectiveness

Moderately important/Neutral
Extremely important/Very effective
A. Concentrate Here

B. Keep Up the Good Work

C. Low Priority

D. Possible Overkill

- Administration and grant management
- Conservation Practice implementation
- Education and Outreach
- Engaging local community members
- Land use policy/ordinance development
- Monitoring
- Planning

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral

Effectiveness

Importance

Very effective

Neutral

Very important

Moderately important

Effective

Neutral
A. Concentrate Here

B. Keep Up the Good Work

C. Low Priority

D. Possible Overkill
Defining community needs & concerns

Increase local groundwater knowledge

Effective communication TO public

Effective info gathering FROM public

Collaborative decision making & planning

Develop cultural norms
ACKNOWLEDGEMENTS

• **Collaborators:**
  • Sharon Pfeifer, MNDNR
  • LeAnn Buck, MASWCD
  • Tannie Eshenaur, MDH
  • Carrie Raber, MDH
  • Mark Hauck, MDH
  • Mark Wettlauffer, MDH
  • Carmelita Nelson, MNDNR
  • Peggy Knapp, Freshwater Society
  • Margaret Wagner, MDA
  • Craig Johnson, League of Minnesota Cities
  • Ben Baglio, Association of Minnesota Counties
  • Association of Metropolitan Municipalities (Metro Cities)

• **Study participants**
  • CCL students and staff- Vanessa Perry, Holly Meier, Emily Green, Alyssa Prokott

**Contact Information:**

Amit Pradhananga
prad0047@umn.edu
612-624-6726

Sarah Fellows
fello067@umn.edu
QUESTIONS?