Collaborative Conservation and Impacts on Water Quality

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Environmental Policy Innovation Center

Northeast-Midwest Institute Congressional Briefing
July 23, 2019
Nutrients and Algal Blooms
Conservation: Questions

• Tackling problems upstream is appealing, but Qs remain
  • Extent of nutrient loss/WQ improvement
  • Impact of voluntary programs
  • Moderate compensation to make long-lasting changes
  • Scaling up from farm- to watershed-scale

Images courtesy Minnesota Department of Agriculture
Why RCPP?

• A structure for collaborative engagement

• Stakeholders with divergent interests come together

• Monitoring is emphasized

• Potential to form community bonds that outlast program length
RCPP Locations

Map showing locations in Minnesota, Wisconsin, Iowa, and Illinois.
## Project Attributes

<table>
<thead>
<tr>
<th>Project Location</th>
<th>State</th>
<th>Fiscal Year (FY)</th>
<th>NRCS Funding ($ million)</th>
<th>Project Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baraboo River</td>
<td>WI</td>
<td>2014-2015</td>
<td>1.3</td>
<td>Sauk County Conservation, Planning, &amp; Zoning Department</td>
</tr>
<tr>
<td>Middle Cedar River</td>
<td>IA</td>
<td>2014-2015</td>
<td>2.1</td>
<td>City of Cedar Rapids</td>
</tr>
<tr>
<td>Minnesota, <em>with emphasis on</em> Middle Cannon River</td>
<td>MN</td>
<td>2014-2015</td>
<td>9.0</td>
<td>Minnesota Department of Agriculture</td>
</tr>
<tr>
<td>Oconomowoc River Watershed</td>
<td>WI</td>
<td>2014-2015</td>
<td>0.5</td>
<td>Tall Pines Conservancy; City of Oconomowoc</td>
</tr>
<tr>
<td>Upper Macoupin Creek</td>
<td>IL</td>
<td>2017</td>
<td>1.0</td>
<td>American Farmland Trust</td>
</tr>
<tr>
<td>Otter Lake</td>
<td>IL</td>
<td>2018</td>
<td>0.8</td>
<td>Otter Lake Water Commission; Illinois Corn Growers Association</td>
</tr>
</tbody>
</table>
Evaluation Criteria

- Review of project background
- Objectives and progress achieved
- Monitoring plan and observed improvements
- Economic benefits and project viability
- HAWQS model – historical and projected WQ data

Image courtesy Sauk County, WI
Middle Cedar Watershed

Middle Cedar River Watershed, as visualized in HAWQS
HAWQS Model – Middle Cedar Watershed

**Average Yearly Flow**

- Historical Data
- Modeled Data

**Average Monthly Water Yield**

- **Middle Cedar**
  - 1980-2010
  - 2011-2040
  - 2041-2070

<table>
<thead>
<tr>
<th>Time-period</th>
<th>Near-term</th>
<th>Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>3%</td>
<td>18%</td>
</tr>
<tr>
<td>Winter (Dec-Feb)</td>
<td>32%</td>
<td>27%</td>
</tr>
<tr>
<td>Spring (Mar-Jun)</td>
<td>25%</td>
<td>44%</td>
</tr>
</tbody>
</table>
HAWQS Model – Conservation Scenarios

Control
Simple projection of current conditions; no RCPP

Continued
RCPP in current form; no scale-up

Expanded
BMPs implemented in current ratio; 10x expansion

Full implementation
BMPs implemented in all farmland in the watershed
HAWQS Model – Load Reductions
Discussion

• Role of federal funding
• Diversity of institutions
• RCPP in response to WQ issues
  • P major concern
• Cover crops are a popular conservation practice
• Producer outreach and engagement
  • Underserved communities – beginning, Black, women, NOL
• Project viability
Discussion

- Unique elements
  - Computer models to target priority farms
  - State programs – Oconomowoc and Minnesota
  - Targeting NOL/women through learning circles – Upper Macoupin
  - Industry and landowner synergies – Middle Cedar and Minnesota

- All projects validate RCPP approach
- Climate change is a major variable
Annual Water Yield Increase

![Chart showing annual water yield increase for different locations.]

- Baraboo River
- Middle Cannon River
- Middle Cedar River
- Oconomowoc River
- Upper Macoupin Creek
- Otter Lake

- Annual water yield (near-term)
- Annual water yield (long-term)
Contaminant Loading Reduction

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Reduction range (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continued</td>
<td>3 – 6</td>
</tr>
<tr>
<td>Expanded</td>
<td>17 – 27</td>
</tr>
<tr>
<td>Full Implementation</td>
<td>55 – 66</td>
</tr>
</tbody>
</table>

**Reduction in Phosphorus Loading under Conservation Scenarios**
(Baseline scenario is 'Control')

**Reduction in Nitrogen Loading under Conservation Scenarios**
(Baseline scenario is 'Control')
Policy Implications

• Expand conservation funding
  • Expand select projects 5-10x on pilot basis
• Incorporate climate change projections
• State efforts to complement federal support
• Streamline monitoring standards
• Address long-term viability
• Enable limited transfer of funds
• Citizen activism
Thank You

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Improving Conservation Program Effectiveness and Water Quality Outcomes

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July 23, 2019
Scale of Problem

- We have a serious water quality crisis
  - Harmful Algal Outbreaks
  - Dead zone in the Gulf of Mexico
  - Unsafe drinking water
- Agricultural non-point source pollution is the leading source of water quality degradation in rivers and streams
Iowa could need hundreds, potentially thousands of years to reach nutrient goals under current approach

Des Moines Register (7-17-19)

Nitrates in drinking water may be tied to 300 cases of cancer in Iowa each year, study shows

Des Moines Register (6-20-19)

Near-record dead zones forecast for Chesapeake Bay, Gulf of Mexico

Daily Press (6-27-19)

There’s an environmental disaster unfolding in the Gulf of Mexico

Huffington Post (7-11-2019)

Nitrates in drinking water may be tied to 300 cases of cancer in Iowa each year, study shows

Des Moines Register (6-20-19)

Every Mississippi Beach Is Closed Due to Toxic Algae

EcoWatch (7-8-19)
Major steps forward

- Growing concern and awareness about agricultural water pollution
- States have been stepping up with nutrient reduction strategies, state laws and actions
- Private sector initiatives – supply chain driving change
- 2018 Farm Bill took significant steps forward for water quality:
  - Maintains conservation title funding
  - New incentives for cover crops, other practices
  - Increased funding and significant changes to the Regional Conservation Partnership Program (RCPP)
  - Increased funding for easements
  - Source water protection provisions
  - New CLEAR initiative in the Conservation Reserve Program
But not enough

- Despite billions of dollars invested in conservation practices on working lands, we still face significant water quality challenges
- Need to scale up, be creative to drive more conservation
- No one silver bullet solution

Report: “The funding allocated for conservation is not enough to meet the scale and severity of the water quality challenge facing the Mississippi River Basin and the nation at large”
Need for More Funding

- Increase conservation funding
  - Demand far outpaces supply for both working lands and easement/retirement programs
  - Resource needs far outpace supply
- Leverage private sector funding
- Create and leverage partnerships

* But, we’ll never be able to have enough funding to pay farmers indefinitely to adopt conservation practices *
Targeting Conservation Funding

- Target funding to:
  - Most effective practices
  - Practices with multiple natural resource benefits
  - Practices with high environmental benefits but low return to farmers (buffer strips, wetlands, bioreactors)
  - Transition assistance, but not indefinite payments, for adoption of practices with high return to farmers (cover crops, nutrient management, etc.)

- Focus on long term conservation strategies
- Increase technical assistance capacity, education, outreach
Better aligning crop insurance and conservation

How can we make sure that crop insurance helps to encourage low-risk practices that provide benefits for soil health and water quality?

- The 2018 Farm Bill took a major step forward by making it easier for farmers who adopt cover crops to maintain their crop insurance coverage.
- Iowa has started providing farmers with a $5/acre crop insurance premium reduction for cover crops.
- Can crop insurance be tweaked to make it easier to take the most unproductive areas out of production and into permanent cover?
- Are there other ways to remove disincentives for conservation practices and provide incentives for risk-reducing conservation practices?
Need for improved monitoring and evaluation

Report: Provide funding specifically for water quality monitoring, so the impacts of conservation are easily identified.

- 2018 Farm Bill included some provisions related to data collection and monitoring, but much more is needed
  - Ag Data Act (Klobuchar/Thune, S. 2487)
  - Healthy Fields and Farm Economies Act (Fudge/Faso, HR 4751)
- USDA has currently has the authority to do more monitoring and evaluation of conservation programs.
Concluding Thoughts

- We need to move quickly and boldly to address the water quality crisis.
- Although we just passed a Farm Bill with wins for water, there is still a huge opportunity to influence implementation of the bill.
- Voluntary conservation programs alone are not enough – they must complement Clean Water Act, Swampbuster, and other important regulatory programs, as well as state laws and initiatives.
- Growing role of supply chain, food companies.
- All solutions need to be on the table.
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Laying the Foundation for Partnerships Between Water Utilities and Agriculture

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July 23, 2019
What are Source Waters?

“Source water is a raw, untreated supply of water – typically surface water or groundwater – used for current or potential future drinking water.”

– AWWA Source Water Committee
What is Source Water Protection?

“Source water protection is a proactive approach to safeguard, maintain, or improve the quality and/or quantity of drinking water sources and their contributing areas.”

— AWWA Source Water Committee
Why Source Water Protection?

• Long-standing issue across sector, recent renewed focus
  - Toledo, OH (2014)
  - Salem, OR (2018)

• Opportunity to reduce risk, instill public confidence, and reduce treatment cost and complexity
AWWA’s Initiative

1. Recognition and focus on source water protection in 2018 Farm Bill
2. Building awareness across the water sector
3. Advocating for utilities to partner for mutual benefit
4. Incorporating source water protection across programs
2018 Farm Bill Focus on Source Water Protection

1. Source water protection is now a goal of the conservation programs
2. NRCS directed to work with utilities and state technical committees to inform the programs
3. Authority to increase cost share of measures that help to protect source waters
4. Spending at least 10% of conservation funding on source water protection
How Does it Work for Utilities?

- Identify source water protection challenges with agricultural connection
- Work with NRCS on ways to focus conservation programs to address issues
- Apply for relevant program(s)
- Work with conservation districts and other established partners

*Not always linear!*
Educating the Sector

You can watch the Farm Bill Key in Protecting Drinking Water video on AWWA’s YouTube channel.
Educating the Sector

These and other source water protection resources are available on the AWWA Source Water Protection page.
Building Case Studies

Three new RCPP projects recently begun:

- Illinois ($1.7 Million Including Match)
  • Reduce nutrients and sediment inputs into Otter Lake

- North Carolina ($1.5 Million Including Match)
  • Streambank restoration and safer agrichemical mixing into Mills River

- Kansas (> $8 Million Including Match)
  • Reducing risk of cyanobacterial blooms (nutrient reduction) in Milford Lake
Key Take-Aways (Utility Perspective)

1. Get to know the NRCS state, area, and district conservationists.
2. Sign up for state technical committees and local workgroups and contribute their knowledge of source water issues and concerns.
3. Partner with their conservation districts and others with established track records in their watersheds.
4. When/where ready and appropriate, be part of RCPP, NWQI, CIG, or other projects.
5. AWWA’s Source Water Protection Page has materials to assist
QUESTIONS?

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