Water Quality, Regenerative Agriculture, and Sustainable Small Communities in America's Dairyland

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Background

- Rural communities and small towns across the state have suffered in recent decades from interconnected issues:
  - Environmental degradation (especially declining water quality)
  - Population declines (tax bases erode, public services suffer)
  - Loss of small, local businesses (including small farms)
- UW-Stout has expanded applied research about these topics
- Our polytechnic focus uniquely positions us to contribute to potential solutions

Think about and be ready to share….

What needs are you seeing in your communities:

- Environmental issues
- Agricultural Sector
- Policy and government
- Data questions (economic, social, needs assessment, etc.)
- Non-profit support?

Existing Research and Efforts

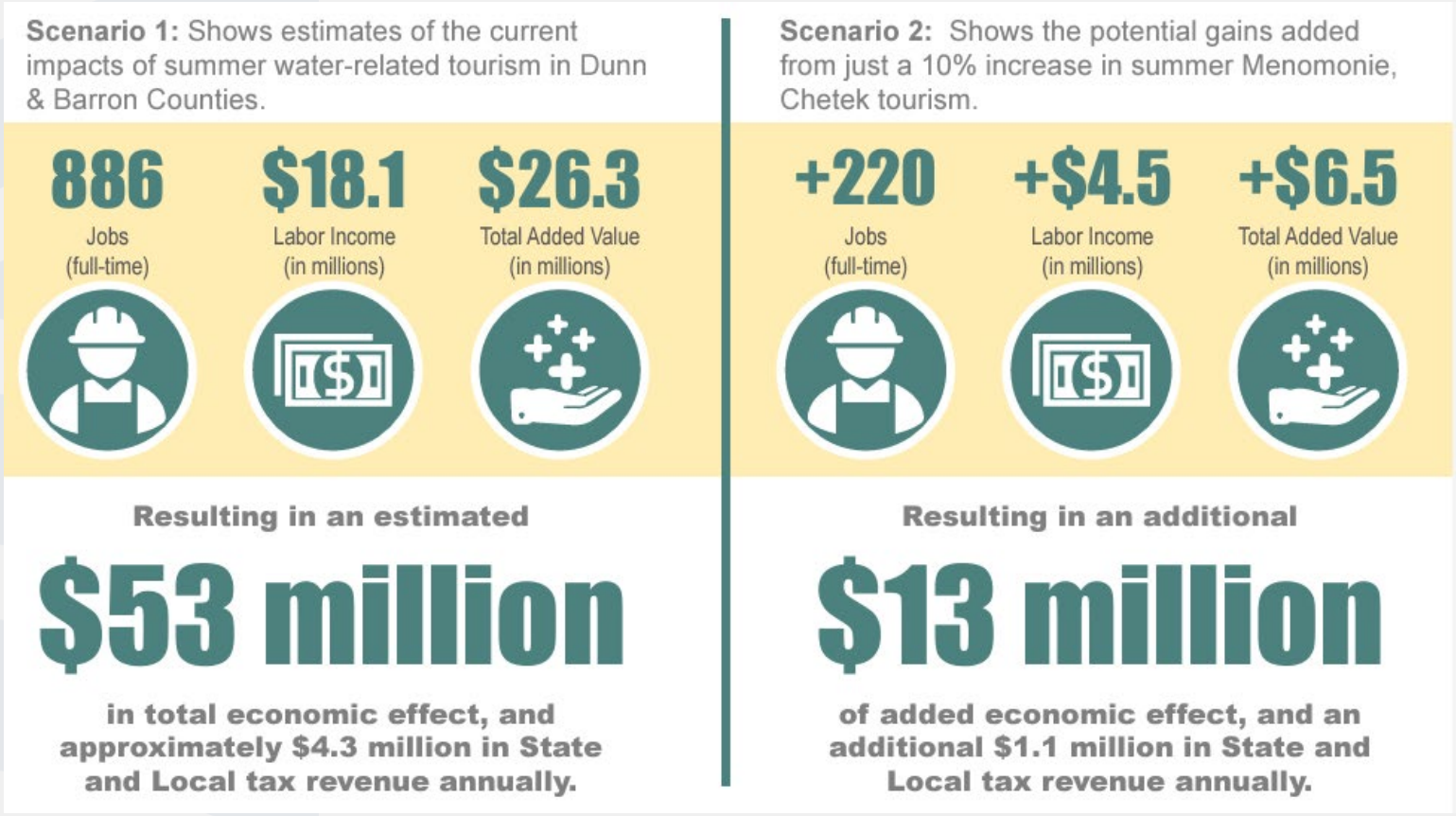
- Center for Limnological Research and Rehabilitation
  - Lab and expertise to monitor water quality, diagnose issues, and provide rehabilitation plans for local lakes
- Faculty research (examples, some in partnership with the Freshwater Collaborative of Wisconsin)
  - Drones and other technology to improve environmental monitoring efforts
  - Technology to support sustainable agriculture (e.g. monitoring field conditions and compiling data)
  - Ecological restoration and limnology
  - Community capacity
  - Economic and social dimensions of sustainable agriculture
- LAKES REU
  - Adoption of sustainable farming practices, farmer social networks
  - Economic impacts of clean water and farm consolidation
  - Research on potential markets for locally and sustainably produced products
  - Environmental Policy
- Red Cedar Watershed Conference

Stout Research in the Red Cedar Watershed

Water quality (harmful algal blooms and drinking water):

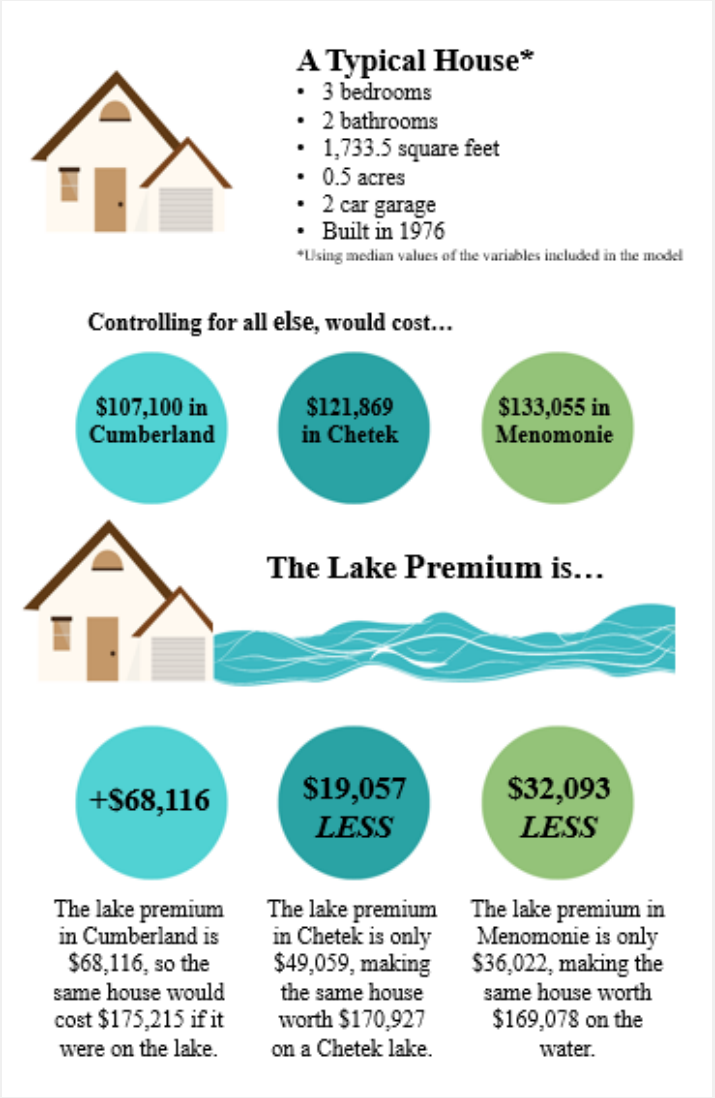
- Agriculture is largest land-use in the Watershed
- Community planning and engagement efforts have made a positive impact
- P levels have been declining since 2010 (but N increasing)

Economic Impacts



Economic Impacts

(Pedrotti, Melly, Delaney, Ferguson 2016)



LAKES REU Farming Research

Famer views on the adoption of conservation agriculture (Cullen 2022)

What supports adoption:

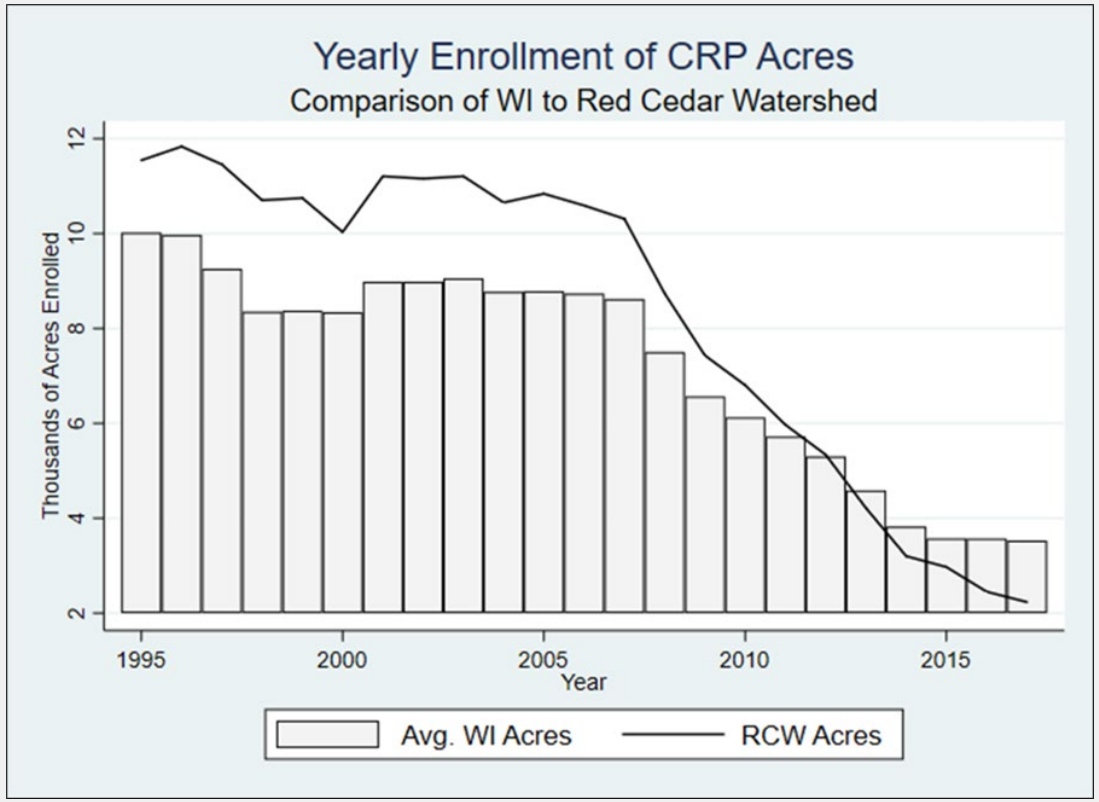
- Understanding how practices contribute to profitability
- Soil health benefits
- Time savings from practices like no-till
- Financial incentives for practices like cover crops
- Strong relationships with agencies like NRCS

Barriers include:

- Uncertainty about whether techniques will work on their specific farm
- Concerns about yields
- Start-ups costs

LAKES REU Policy Research

- Section 319 Clean Water Act (Gould and Schick, 2019)
  - Grants from this program have been effective in improving water quality and the benefits (in terms only of recreational value of lakes) outweigh costs
- Conservation Reserve Program (Schick and Gould, 2019)
  - More acres in CRP associated with decrease in total phosphorous; benefits (in terms of recreational value of lakes) outweigh costs
  - Steady decrease in number of acres in CRP since 1995
- Continued need for funding/time (Cho, 2022)
  - Lack of resources for adequate communication and trust-building continue to hinder efforts



A vision for sustainable communities

A healthy environment that sustains livelihoods and provides quality of life for residents

A thriving local economy that provides opportunities for all

An engaged community that can come together to solve existing and emerging problems

Activities of the Center for Sustainable Communities

- Support existing efforts and help expand research and practice into new areas to respond to the needs of communities in the state (e.g., sustainability education, rural mental health, small business support)
- Strengthen and grow partnerships with local agencies, small producers, and local businesses and non-profits
- Provide additional hands-on learning opportunities in service to community partners (internships, co-ops, projects)
- Provide training and educational opportunities to community members related to rural sustainability
- Our goal: Become a “one-stop-shop” to connect rural communities to Stout’s expertise (both faculty and student)

Discussion

- What needs do you see in your communities?
- How could the center assist?

Questions?