

Examining the Social Dynamics of Watershed Governance

Lessons from Kansas



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Overview

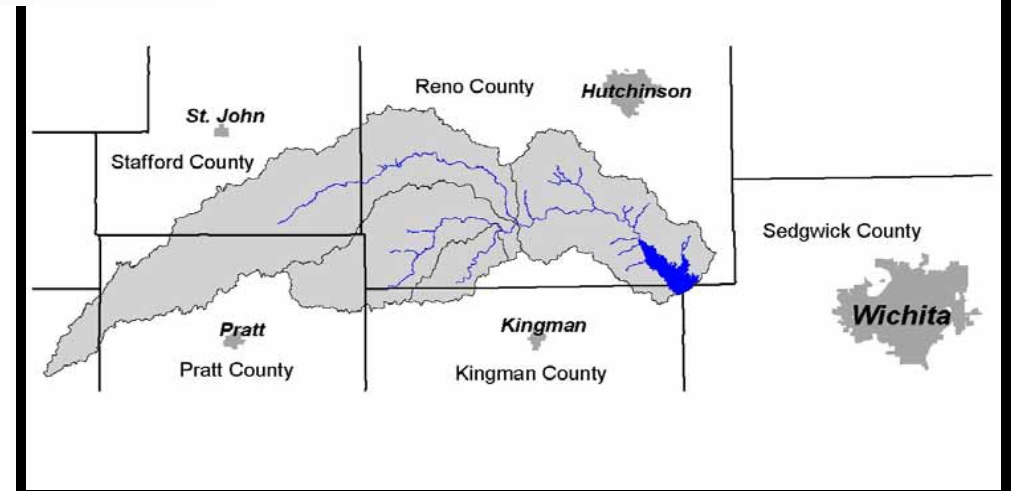
- Introduction
- Background -Cheney Lake Reservoir
- Objectives
- Methods
- Findings
- Future Directions

Cheney Reservoir Watershed



Cheney Lake watershed is a 933-square-mile drainage area located on the North Fork Ninnescah River and associated tributaries in five south-central Kansas counties

The watershed has a population of about 4,000. Land use is predominantly agricultural (>98 percent) and mainly consists of pasture and cropland. Crops are produced on 52 percent of the land area. The reservoir is the primary water supply for Wichita.



Cheney Lake Watershed

- In 1992, taste and odor problems in the City of Wichita's water were identified as coming from an algae bloom.
- Wichita water management personnel found the algae bloom was associated with phosphorus attached to sediment in the lake
- Reno and Sedgwick County Conservation Districts were concerned about sediment deposition in Cheney Reservoir.

“We knocked on the door at almost the very time they were starting to do this investigation about what kind of approaches they could do in the watershed up above the reservoir. Timing was by chance, but it could not have been planned any better. That’s how the pieces came together.”

Stakeholder in watershed

Hypothesis

Our overall research hypothesis is that the key to achieving the most cost effective water quality protection on a watershed scale is the ability to identify and implement practices in the areas of the watershed that will contribute most to water quality improvement.

Research Question: How do social and economic factors contribute to conservation practice placement and maintenance?

Objectives:

1. Identify social and economic factors that influence the adoption and maintenance of conservation practices
2. Identify producers' attitudes toward conservation & the environment
3. Identify producers' understanding of science supporting conservation practices

Conceptual Framework

- Recent focus in watershed management has been on devolution and increased stakeholder engagement (Weber 2000; Leach & Pelkey 2001; Spaling 2003; Wagenet & Pfeffer 2007; Maddock 2004; Lurie & Hibbard 2008; Morton, 2003)
- Farmer attitudes and values are important factors in adoption/maintenance of conservation practices (Swanson & Freshwater 1999; Burton, R, 2004.; Coughenour, C. M. 2003; Selfa et al 2008)
- Producers' Understanding of Science, Local Knowledge Affects Willingness to Adopt Conservation (Weber 2000; Spaling 2003; Parisi et. al. 2004; Irvin & Stansbury 2004; Maddock 2004, Mitchell 2005; Sabatier et. al. 2005)

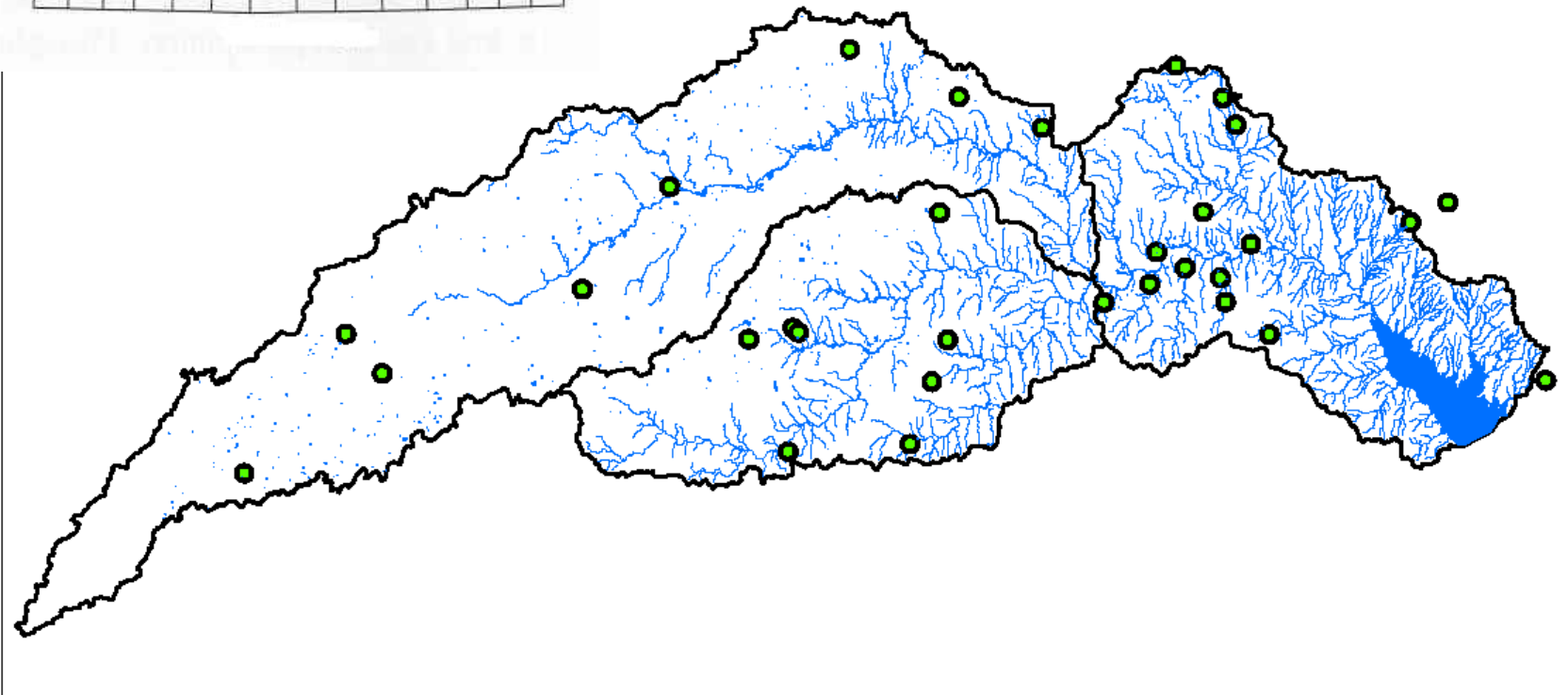
Methods

- In-depth interviews
 - Conducted February 19, 2008 to March 14, 2008
 - 32 Producers
 - Duration: 20-70 minutes each
- Closed and open-ended questions
- Digitally recorded
- Transcribed and uploaded to analysis software
 - 1 hour of recorded interview = 3 hours of transcription time
- Analysis to identify common themes
- Summarize responses

Distribution of Interviews



Cheney Lake Watershed



Farmer Interview Questions

Farm Structure

1. What is the size of your operation?
2. Your operation has:
 - Crops:
 - Grassland:
 - Livestock:
3. Do you engage in other revenue producing activities on your farm—e.g., selling hunting rights
4. Is any of the land you manage rented?
If so, what percentage

Knowledge of watershed

5. How would you describe a watershed?
6. Do you know the name of the watershed where you farm?
7. Do you know the boundaries of the watershed where you farm? If so, can you describe them?
8. Is there an organization that works with farmers about practices, conservation, etc. for your watershed?
If so, what is the name of the organization?

Identification of water issues

9. What do you believe are the primary water quality concerns in your watershed?
10. Is soil erosion a problem in your watershed?
11. Is erosion a problem in specific areas of the watershed and not others?
12. What do you think would be the best way to reduce soil erosion in your watershed?

Management Practices

15. What farming practices do you use that have a positive impact on water quality?
16. In the last five years, have you made any changes in your farming practices to protect water quality? If yes, please list
17. Which of the following practices would you adopt if it were appropriate to your operation?
- a. _____ no-till farming
 - b. _____ reduced tillage farming
 - c. _____ reducing livestock access to streams and provide alternative water source/system
 - d. _____ build/maintain terraces
 - e. _____ build/maintain waterways
 - f. _____ CRP (conservation research program) grass
 - g. _____ Change fertilizer, manure, or pesticide application for water quality improvements
 - h. _____ Grazing management program
 - i. _____ plant grass buffers around stream
18. Which of the above practices would you suggest to your family, neighbors, and friends if they were appropriate to their operation?
19. What are some of the things that might keep you from adopting a management practice that has a positive impact on water quality?
20. Do you feel you can get adequate information about new practices?
- 20a. Did the new practice increase, decrease, or not change your work load?
21. What are the primary motivations that lead you to adopt a new practice?
- Economic reasons?—
 - Efficiency?— less work to manage land or livestock
 - Cost Share Program flexibility? —
 - Sense of stewardship?
 - Desire of the landowner
 - Encouragement from neighbor/community leader, from NRCS or KSU Extension staff,
 - Other?

Demographic Questions

28. Who makes the management decisions for your operation?
29. Does anyone else help in making management decisions?
30. Do you have children involved/working on your farming operation?
Do they participate in decision-making?
31. Do you plan to pass the operation on to other family members when you retire?
32. Did you inherit the farm/ranch you are operating?
33. Is it important to you to help your children establish a farm/ranch operation of their own or as an expansion of the "family" operation?
34. What is your age?
35. What is the highest level of education you have completed?
36. In what way does your background have an impact on your attitude toward conservation? (school, church, ancestors, etc.)
37. Gender is
38. What percentage of your household total income comes from farming?
39. What are the major difficulties farmers like you face today? _
40. Have environmental concerns affected the way you farm?

Measuring Farmers' Attitudes

“How important are the following reasons in your decision to farm?”

	Very Important	Somewhat Important	Not important
Being a good steward of the land	26	1	0
Enjoying the farming way of life	24	3	0
Looking after the environment	18	9	0
Being a progressive, up-to-date farmer	17	6	4
Making a reasonable living	13	13	1
Maximizing profitability	12	13	2
Carrying on the family tradition	10	13	4

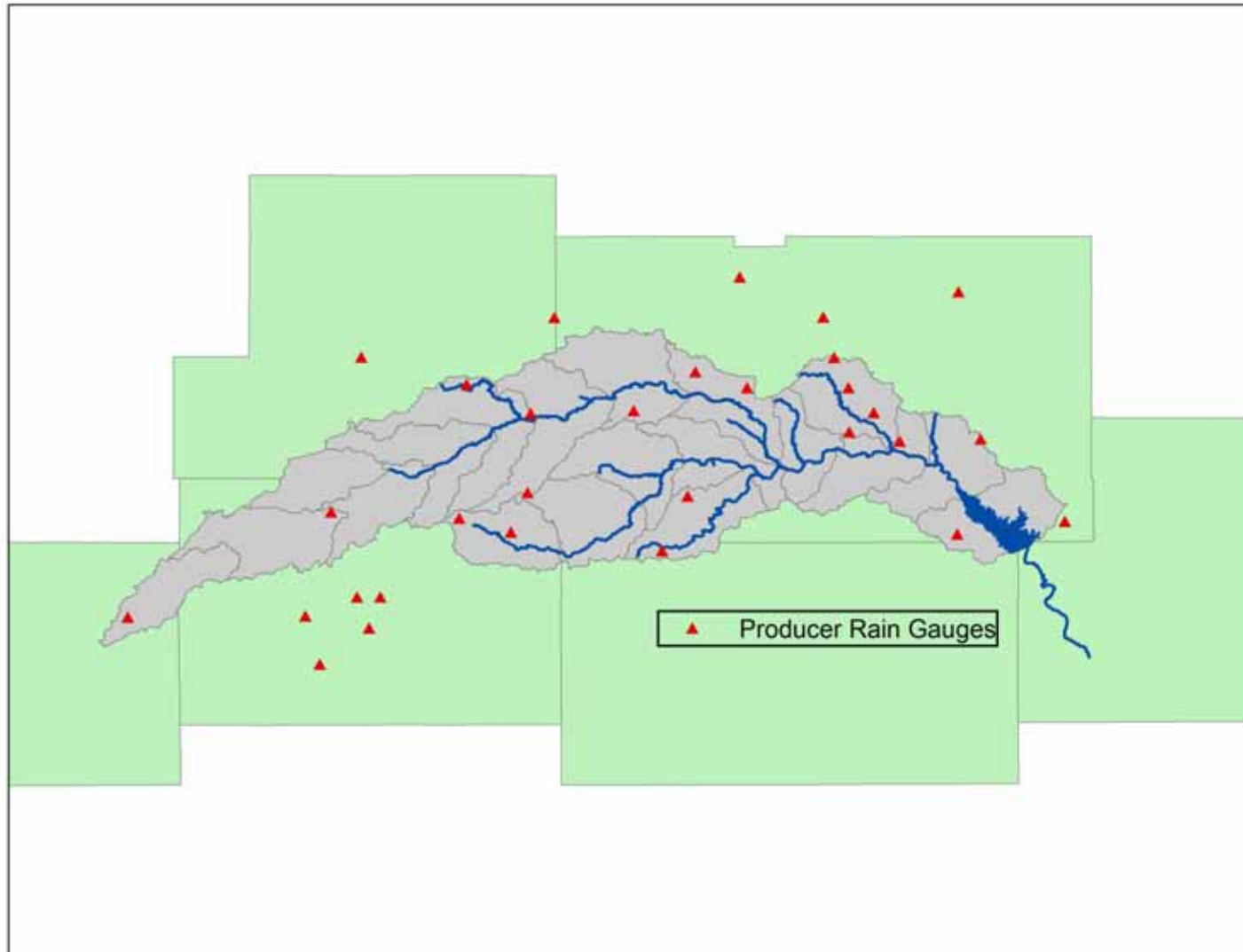
Findings

Producer Knowledge and Attitudes

- Knowledgeable about watershed
- Knowledgeable about water quality issues
- Acknowledge producer responsibility for water quality
- Positive attitude toward conservation
 - Environmental benefits equate to economic benefits

Producer Interest in Watershed

CoCoRaHS -Community Collaborative Rain, Hail and Snow Network



Findings

Farming practices being used or recommended by producers for a positive impact on water:

- CRP grass +
- No till farming +
- Reduced tillage +
- Build/maintain terraces +
- Build/maintain waterways +
- Alternative livestock water +
- Grazing management +
- Stream bank buffers +

- Nutrient management -

Findings

- Major difficulties facing farmers today:
 - High input costs & commodity prices
 - Acquiring assets or capital to farm
 - Finding farm labor
 - High land prices
 - Government regulations
 - Market structure
 - Stress and uncertainty
 - Unpredictable weather

Findings

Primary motivations for adopting a new practice

- Economic: money, costs, financial ++
- Reducing production costs ++
- Soil conservation +
- If it helps the environment +
- To save Cheney Lake +
- Sense of stewardship +

- Not being told how to do things (pre-emptive)

Findings

Farming practice changes to protect water quality

- Turning acres back to grass
- More structured nutrient management system
- More rotation
- More CRP
- Switched to all no till
- Cross-fencing for pasture rotation
- Going no till
- Livestock rotation
- Alternative livestock water

Findings

Primary barriers to adopting a new practice

- Economics / Converting equipment / Reduced production
- Spreading of trees
- Program restrictions / Landlord restrictions
- Fear of reversal and to have to repay cost share
- Time requirements/fit; paper work
- Lack of flexibility to adapt to changing conditions (weather)
- If it would harm the community
- Stage of life (age)
- Not knowing about it
- *"I don't want people telling me how to do things."*
- Government involvement



Future Directions (2009)

- Work with physical scientists to determine primary regions of the watershed with water quality impairments
- Interview sample of farmers (~25) in targeted areas of watershed with identified water quality concerns to understand what sorts of barriers/challenges exist that hinder adoption of best practices in these areas of the watershed

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Questions?

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