Restoring and Protecting Watersheds Through College Campus/Community Partnerships

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Presentation Outline

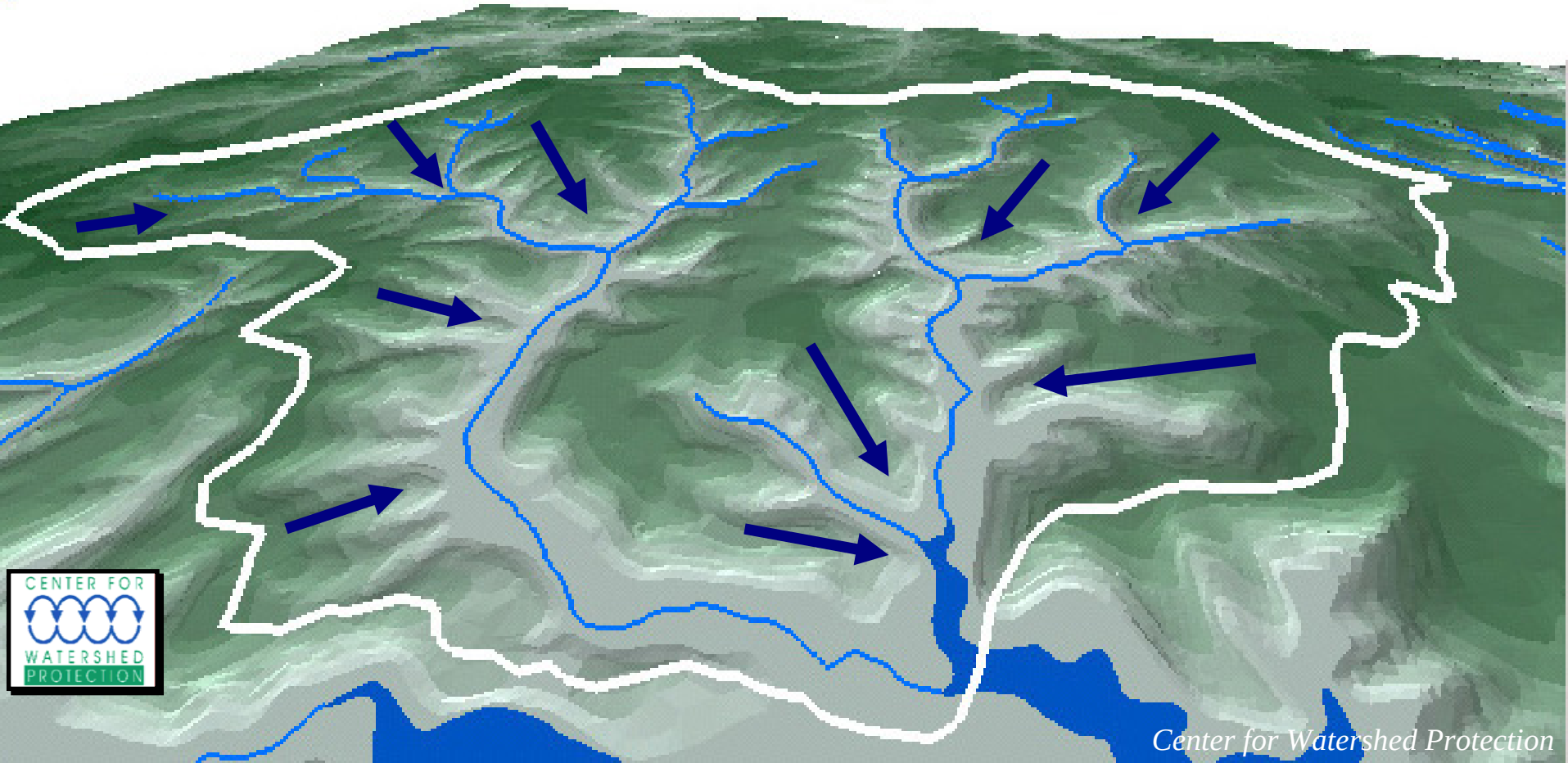
- Introduction
- Service-learning Essentials
- Past & Current Projects
- Breakout Group Session
- Questions & Wrap up

Introduction

- 1972 Clean Water Act.
- EPA Clean Water Act (CWA) **Section 319** non-point source grant.
- Kansas Department of Health & Environment.
- Watershed Restoration and Protection Strategy (WRAPS).

What Is a Watershed?

A watershed is the area of land that drains to a particular point along a stream



WaterLINK

- Available to all Kansas 2- and 4-year institutions of higher learning.
- Match faculty with communities (non-profits, public agencies, municipalities).
- Provide resources to successfully execute service-learning/water quality project.
- Competitive mini-grants up to $5,000.
- Program evaluation and monitoring.

Service-Learning

- Instructional method used to enhance the teaching and learning experience.
- Combines meaningful community service with academic application.
- Blend of service and learning.
- Service reinforces, improves and strengthens learning; Learning reinforces, improves and strengthens the service.

Service-Learning

1. Identify community need.
2. Establish community partnership & develop action plan.
3. Perform service-learning process.
4. Identify relationship between service learning project & course content.
5. Evaluate impact of service.

Reflection

- Separates service-learning from volunteerism or community service.
- Provides students time to reflect critically on their attitudes and experiences.
- Written (i.e., journals, essays, portfolios) or oral (small groups, class discussion).
- Multiple strategies most effective.

Benefits to Student

- Application of academic skills.
- Real-world experience.
- Personal investment into community (citizenship).
- Attainment of Life Skills.
- Personal Growth.

Benefits to Community

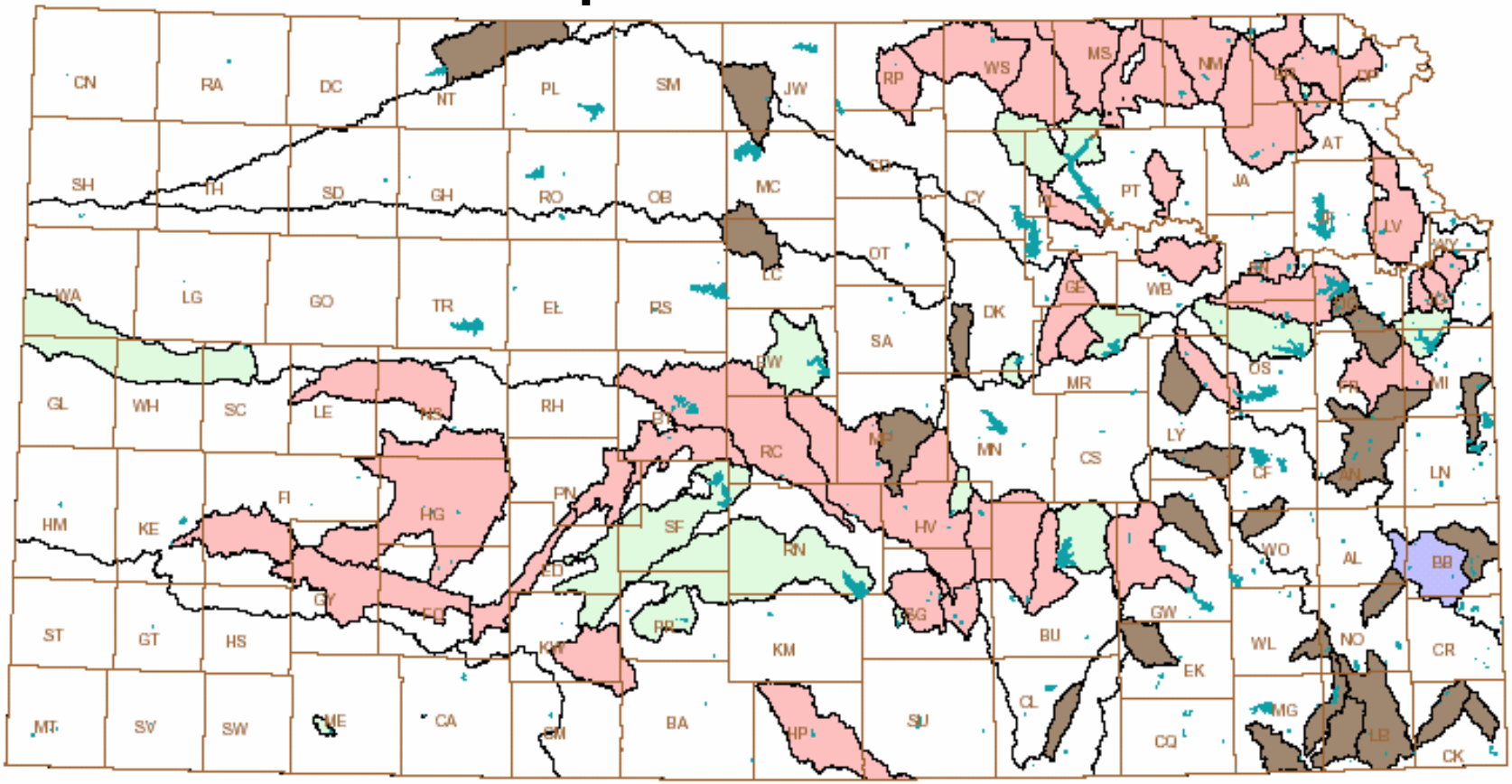
- Access to campus resources and expertise.
- Improved relations with local campus.
- Organizational support.
- Cost-effective community enhancement.
- Quality of life and environmental improvements.

Benefits to Faculty

- More meaningful engagement in and commitment to teaching.
- Deeper connections with students as learners and individuals.
- Enhanced knowledge of student learning processes and outcomes.
- Greater involvement in community of teachers and learners.

(Pribbenow, 2005)

Implementation Priorities



High Priority for Implementation Watershed

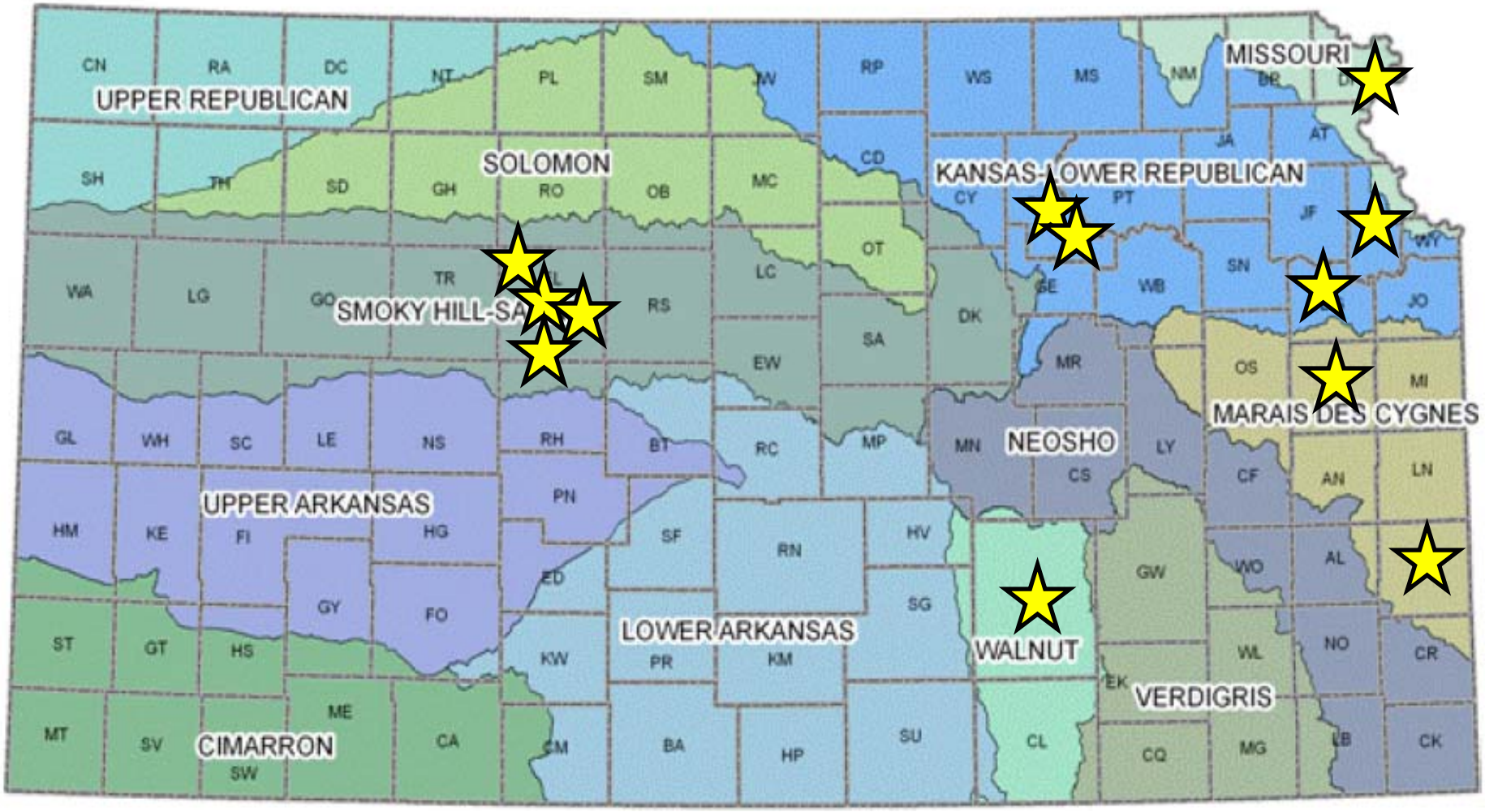
- Impairment - Fecal Coliform Bacteria*
- Impairment - Low Dissolved Oxygen*
- Impairment - Eutrophication*
- Impairment - Nutrients/BOD

- Major River Basin Boundary
- County

KDHE/BOW/WPS (10/09/03)

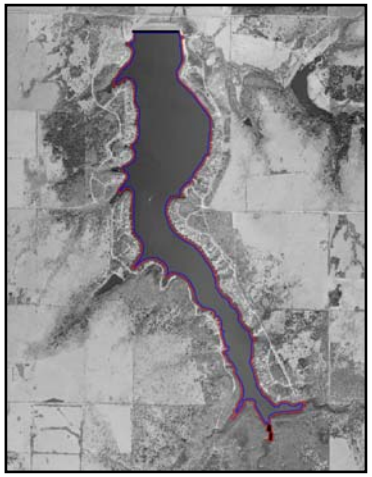
* Other high priority for implementation impairments may exist

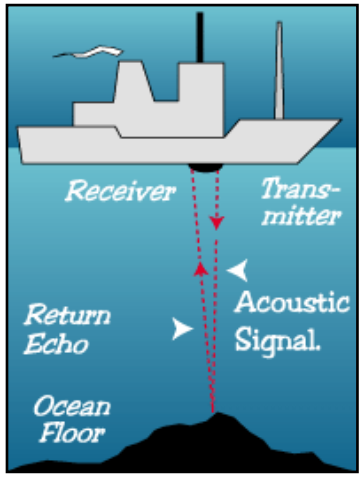
Past/Present Projects



Bathymetric Survey

- A survey of the bottom surface of a water body to produce a topographic map.
- Estimate Lake's Storage Capacity.
- Determine Sedimentation Rate.





Background Information

- Lake Fort Scott constructed in 1958 to augment water supply
- Original capacity of 2.1 billion gallons or 6485 acre-feet.
- Water occasionally used from lake during dry years to maintain sufficient quality drinking water for city.
- Land use within watershed is primarily production agriculture (grassland).
- Shoreline property has been sub-divided into 141 lots for part-time and permanent year round residential housing.

Participant Quotes

- "The independent work (independent from instructors) really helped to show us that we could function as professionals."

  ~Student Participant

- "I think students can leave college better prepared to interact and perform in their continued professional lives. If nothing else, it tests what you know and what you can do before it truly matters - in a safe environment."

  ~Student Participant

Pollution Prevention

- Communication course partners with city public works department.
- Develop a plan for the prevention of illicit discharges into the stormwater sewer
- Formulate a list of potential contaminants, the actions required, and the environmental impact of the contaminants.
- Formulate a spill prevention and spill clean-up procedures.

Environmental Reporting

- Specialty Journalism Course.
- Print and Broadcast Stories covering water quality issues in the Clinton Reservoir watershed.
- Faculty partners with local newspaper and television station.

Environmental Workshop

- "Make Every Water Drop Count", a Soil Conservation & Water Quality Workshop for producers & citizens that care about natural resources.
- Students participating were from the following courses:
  - Soils (9 students)
  - Soil & Water Management (7 students)
  - Beef Feedlot Technology & Management (3 students)
  - Techniques & Technology in Beef Cattle Production (2 students)

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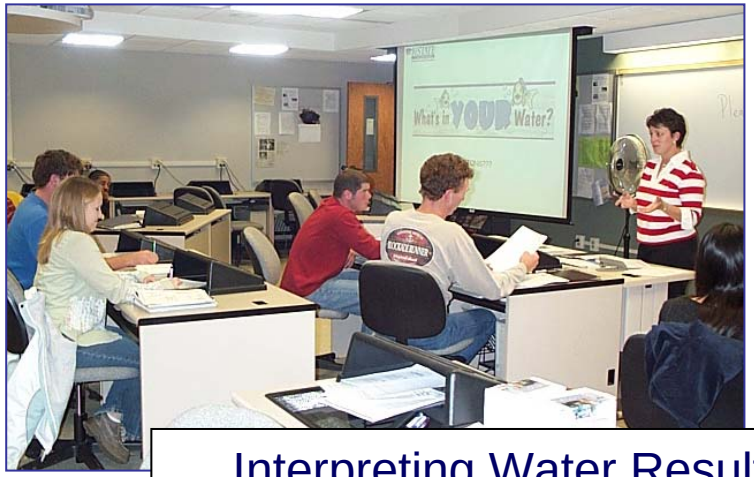
Water Sampling

World Water Monitoring Day Kit

Lagoon Sampling



Interpreting Water Results

Producers & Citizens that care about natural resources in Kansas should plan to attend the

MAKE EVERY WATER DROP COUNT!

Soil Conservation & Water Quality Workshop

October 18, 2005

Registration 9:00 – 9:30 am

Program Begins at 9:30 am – 2:30 pm

Fort Hays State University Memorial Union

Demonstrations & Topics

World Water Monitoring Day Results
Livestock Waste Trailer
Understanding Water Tests
Measuring Crop Residue
Nutrient Management Plans
Terrace Water Holding Capacity

Sponsors

FHSU Agriculture Department
Natural Resources Conservation Service
Kanopolis Lake Smoky Hill River Watershed
K-State Research & Extension
Kansas Campus Compact

Lunch Provided at No Charge.
Reservations Appreciated.
Call 785-623-4888 by 10 am on October 14
Walk-ins Welcome!

Funding provided by Kansas Department of Health & Environment, with partial funding from EPA 319 funds

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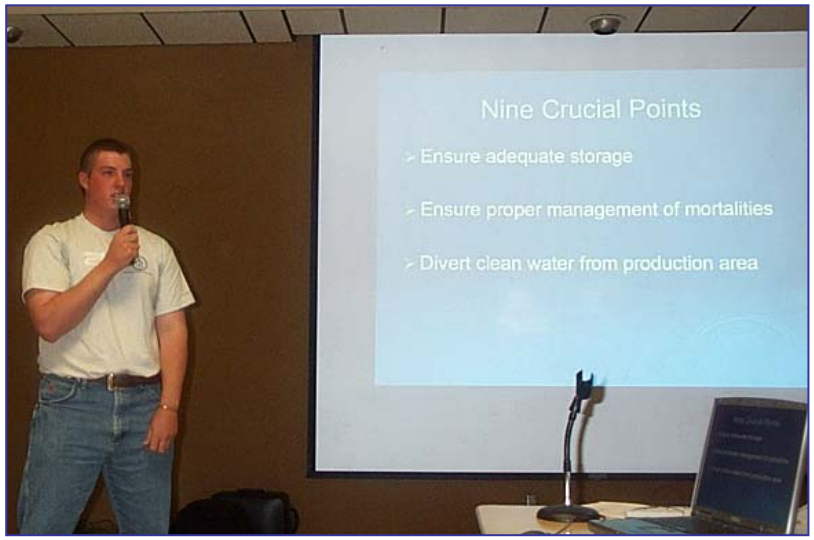
Presentation on World Water Monitoring Day

Presentation on Understanding Water Tests

Demonstration on Rainfall Simulator

Presentation on Nutrient Management Plans



Demonstration on Livestock Waste Trailer

Field Demonstration on Crop Residue Measurement & Terrace Water Holding Capacity

Environmental Workshop

- Students completed both pre- & post surveys.
- Students submitted written comments and in some cases made oral presentations about their experience to the class.

Student Quotes

- “I enjoyed sharing my knowledge with the public.”
- “It made it seem like a real-life experience & that I was taking these samples from my own operation.”
- “Making the connection between the classroom & the community is an important link.”

After-school Presentations

- Students from Soil Fertility & Fertilizers Class worked in groups of 2 or 3 & visited after-school programs.
- Topics discussed with the children were water pollution (point & nonpoint) & water quality.
- Students submitted a written journal & made an oral presentation to the class about the experience.

Water Quality Posters

Enviroscape Demonstration

Word Search &
Coloring Sheets

T-shirt Printing

Participant Quotes

- “Working with the Enviroscape has also opened my eyes to pollution prevention.” (Student)
- “I learned that the kids are good listeners and are interested in what you have them doing as long as you keep it simple and interesting.” (Student)
- “The next day the presentation was the talk at lunch & children that hadn’t been at the after-school program for the presentation wanted to know if we would do it again.” (School Coordinator)

Point & Non-point Source Pollution

Crop Production Class

Home & Garden Show

Spring 2006

Goals

The project goals are to address water quality concerns in Kansas by encouraging students to take an active role in identifying potential pollution sources, learning skills to keep water clean, and sharing those skills with others. By participating in this event, we hope to improve and/or protect the Big Creek and Middle Smoky Hill River Watersheds.

Preliminary Work

Students will research and read several publications on Point and Non-Point Source Pollution and Atrazine contamination of groundwater. At the Home & Garden Show the students will visit with people and demonstrate methods of determining nitrate and Atrazine pollution in groundwater as well as share with them ways these pollutants can be reduced.

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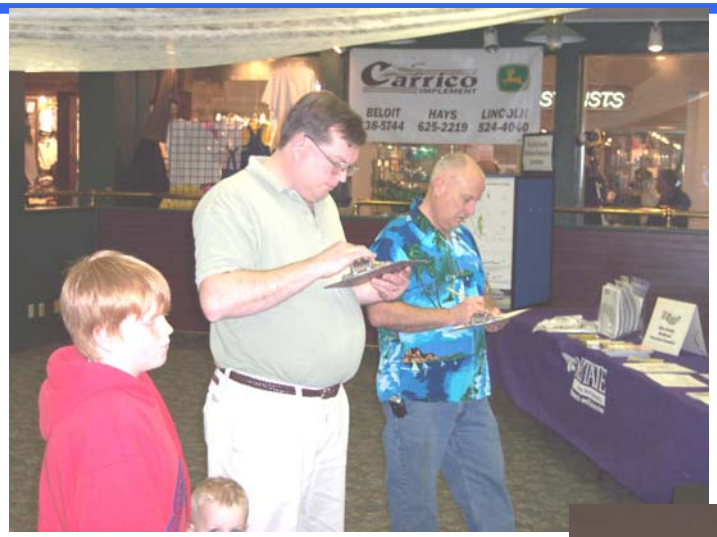

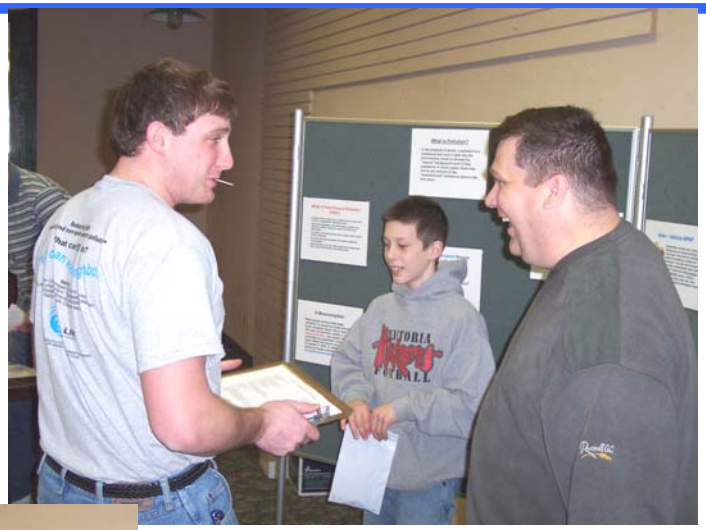

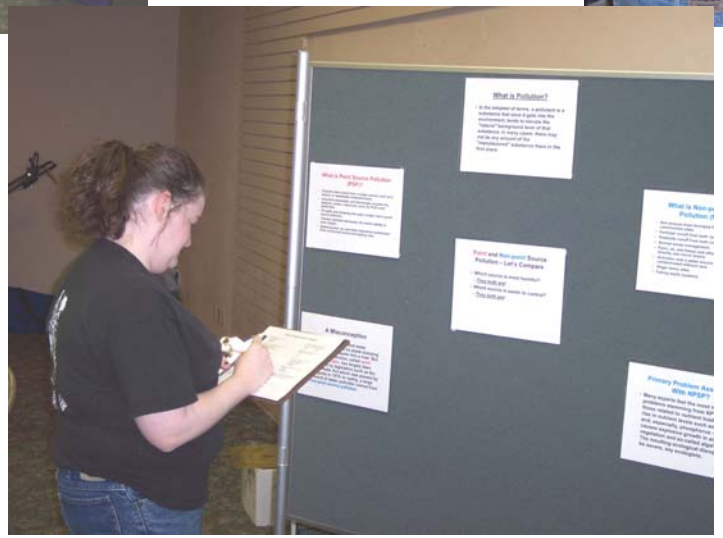

Completing the survey/quiz and checking the answers

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Identifying point and non-point source pollution and taking the clean water pledge

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Demonstrating the Enviroscape

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Survey/Quiz: -27 filled out the form. -Ranged from 20 yrs of age to 65.
Clean Water Pledge (adults) -19 filled out the pledge -Came from 0 to 60 miles away
Clean Water Pledge (children) -30 filled out the pledge -Came from 0 to 60 miles away

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- Student Assessment:

  Students completed both pre and post-assessment surveys.

  Students shared comments and thoughts about the project in a round-table discussion. They later submitted a written summary/report.

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- Student Comments:

  "I was really surprised that all the kids knew so much about the way pollution affects our environment."

  "Very few people knew the difference between point and non-point source pollution, and we were able to open up their eyes on ways they could reduce pollution."

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- Student Comments:

  "One thing that most of the people didn't seem to be very interested in taking was the quiz. All of the kids were very interested in the Enviroscape, and I think it made their parents realize some things they had never thought about."

  "Having the wrist bands was a great idea – everyone wanted one."

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- Student Comments:

  "The adults that stopped by seemed to have some good questions. There were quite a few folks that had no idea that the runoff from the streets is not treated – it really got their attention."

  "I would do this project again next year because of the positive interaction that we had with the community."

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home / welcome

Welcome

Thank you for visiting the WaterLINK website. WaterLINK is a service-learning project available to college and university faculty and community watersheds in Kansas. We are funded by the Kansas Department of Health & Environment. WaterLINK aims to infuse service learning into the college classroom, with the main goal of improving water quality through community/campus partnerships.

We will initially focus on high priority watersheds, as defined by the Kansas Department of Health & Environment. Projects may range from developing educational materials for producers on best management practices to reduce water contamination from agricultural land to conducting community water education fairs or stream monitoring. Projects will be designed to reinforce class learning objectives. We aim to engage students from all majors and interests.

A key component in service learning is the drive to mutually benefit both the community and the student. The end result enhances students' self-efficacy, provides a true mastery of course objectives, and builds interpersonal, teambuilding and leadership skills. The community

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Know your watershed

Butler County crosses 7 watersheds, including Upper Walnut River, Lower Walnut River, Kaw Lake, Fall, Elk, Upper Cottonwood, and the Lower Cottonwood.

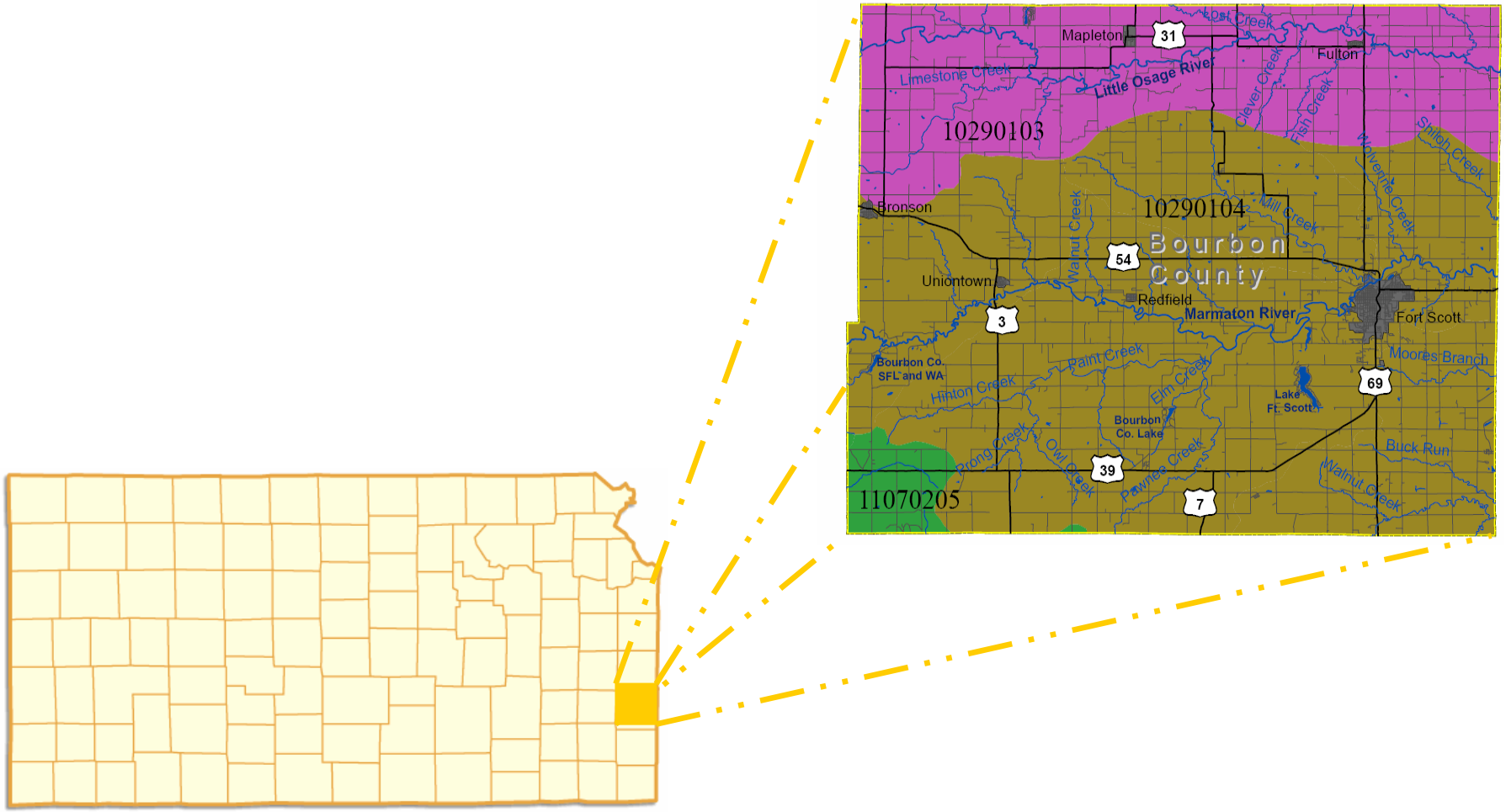
Detailed County Watersheds Map.

Local Contacts:

David Kehler, KSU Agricultural Agent
Butler County
Ph: (785) 742-7871
E: dkehler@oznet.ksu.edu

Butler Co. Conservation District
Ph: (316) 320-5891
E: brenda.nyberg@ks.nacdnet.net

www.ksu.edu/waterlink



Breakout Session

1. Identify potential service-learning projects that will reinforce course learning objectives and address natural resource issues in your watershed.

Breakout Session

2. Identify potential challenges to engaging in environmental service-learning projects.

Breakout Session

3. Identify reasons to engage in a water quality service–learning project.

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