Project Implementation Plan SFY23-25

Watershed Specialist

Specialist Staff: Will Boyer, TBD New Specialist, Herschel George, Jeff Davidson, Ron Graber, Susan Brown, Amanda Schielke, Melissa Harvey
Grant Start: July 1, 2022
Grant End: December 31, 2025
Total Allocation: $1,275,000

This WRAPS Implementation PIP will help accomplish the long-term goals established in Kansas' Nonpoint Source Management Plan Goals including:

1. No lake, river, stream or wetland has a violation of Kansas Surface Water Quality Standards due to nonpoint sources of pollutants and all designated uses are fully supported;
2. Kansas surface and ground water are protected from all nonpoint pollutant sources through the use of recommended water quality best management practices.
3. Reducing the levels of phosphorus, nitrogen, and sediment that adversely affect the water quality of Kansas lakes, rivers, streams and wetlands

	Year 1	Year 2	Year 3
Personnel/Fringe	$365,538	$371,020	$376,586
Travel/Supplies/Other	$29,462	$23,980	$22,980
Contractual	$30,000	$30,000	$25,434
Total:	$425,000	$425,000	$425,000

Estimated Load Reductions from Grant Funds	
Phosphorus	48,000 lbs.
Nitrogen	96,000 lbs.

Strategy	Action Steps
KCARE will hire a new Watershed Specialist. Will Boyer will supervise and train the Specialist. The new Specialist will primarily be working in the northeastern part of the state through this 3-year grant period.	Will Boyer will supervise and train the new Specialist in his six WRAPS areas. The new Specialist will work with other Specialists when deemed beneficial. At the end of this 3-year project, the new Specialist will be able to work on his/her own in assigned watersheds. The Watershed Specialist Project Management Team will develop a transition plan to prepare for future (3 to 6 years) full-time retirements of some Specialists.
The Watershed Specialists will attend and facilitate events that will educate watershed residents on local water quality concerns, including livestock and cropland concerns. They will meet in groups or one-on-one when given the opportunity.	Provide I&E to Increase Awareness and Build Capacity for Water Quality Collaborate, Evaluate, and Report with WRAPS groups Baseline/Livestock Referrals: 115% Delaware: 22% Hillsdale: 10% John Redmond: 10% Kanopolis: 20% Lower Kansas: 26% Middle Kansas: 26% Milford: 22% Fall-Toronto: 10% Tuttle: 22%

	Wakarusa: 22% Total of 1,500 outreach and I&E contacts, 20 presentations, field days, and demonstrations, and 12 WRAPS group workshops
The Kansas Watershed Specialist will provide technical assistance and education to assist in the implementation of livestock and cropland BMPs. These BMPs will reduce nonpoint source pollutants such as, nitrogen, phosphorus, and *E. coli* contamination in targeted watersheds in Kansas.	Identify and Assess Impairment Issues and Plan Strategies for Management. Implement BMPS for Water Quality Streambank Stabilization in the John Redmond Reservoir WRAPS Area Baseline/Livestock Referrals: 115% Delaware: 22% Hillsdale: 10% John Redmond: 10% Kanopolis: 20% Lower Kansas: 26% Middle Kansas: 26% Milford: 22% Fall-Toronto: 10% Tuttle: 22% Wakarusa: 22% Total of 125 consultations/assessments and 60 BMPs implemented BMPs Services Provided to SLTs in Targeted Areas: • Vegetative Filter Strips • Relocate Pasture Feeding Site • Off Stream Watering System • Range Management • Relocate Feeding Pens • Rotational Grazing • Conservation Tillage • Cover Crops • Extraneous drainage, diversions and berms • Grass Buffers • No-Till • Nutrient Management Plans • Riparian area restoration strategies • Vegetative treatment areas • Poultry litter storage and other poultry related BMPs
Kansas State University - KCARE will work with KDHE to update WRAPS Plans to meet KDHE and EPA expectations.	The KCARE planning team will meet with the WRAPS group and KDHE to get updated TMDL, BMP and goal information. Over the course of this project, it is estimated that 9 (~3 per year) WRAPS Plans will be updated to better suit the current needs of the WRAPS SLT and KDHE.

Project Information

Project Title

Kansas Watershed Specialist Program SFY23-25

This 319 Implementation PIP will help accomplish the long-term goals established in Kansas' Nonpoint Source Management Plan including:

1. No lake, river, stream or wetland has a violation of Kansas Surface Water Quality Standards due to nonpoint sources of pollutants and all designated uses are fully supported;
2. Kansas surface and ground water are protected from all nonpoint pollutant sources through the use of recommended water quality best management practices;
3. Kansas Water Plan objectives are achieved by:
    a. Reducing the levels of pathogens, biochemical oxygen demand, dissolved solids, metals, nutrients, pesticides and sediment that adversely affect the water quality of Kansas lakes, rivers, streams and wetlands;
    b. Reducing the levels of dissolved solids, metals, nitrates and volatile organic chemicals that adversely affect the quality of Kansas ground water;
    c. Maintaining water quality conditions for unimpaired waters at a level equal to or better than existing conditions

Contact Information

Enter Sponsoring Organization Information

Sponsoring Organization Name

Kansas State University

Street Address

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City, State, Zip

Manhattan, KS 66506

Sponsor Tax Payer ID (FEIN)

470771751

Signature Authority Name

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Signature Authority Phone Number

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Enter project contact information

Name

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Project Overview

List the HUC8s and/or HUC12s that are included in this project.

The Kansas Watershed Specialist project will serve the following areas (listed by WRAPS area and HUC 8):

- Delaware – 10270103
- Hillsdale – 10290102
- John Redmond – 11070201, 11070202, 11070203
- Kanopolis – 10260006, 10260007
- Lower Kansas – 10270104
- Middle Kansas – 10270102
- Milford – 10250017
- Toronto/Fall River – 11070101, 11070102
- Tuttle Creek – 10270205, 10270207
- Wakarusa – 10270104

Describe the project history.

The Watershed Specialist program was envisioned and created through a collaborative effort of KDHE and Kansas State University in July 2000, with the Abatement of Fecal Coliform Bacteria program. The project is a comprehensive effort to implement TMDLs in Kansas. A TMDL plan has been completed for all river basins in Kansas. A primary contaminant in impaired streams is fecal coliform bacteria. The state of Kansas is taking a voluntary compliance approach to meeting TMDLs. The Watershed Specialist model is a proactive, multi-agency, private/public partnership to: build awareness of water quality issues; identify sources of water quality impairment; demonstrate, promote, and implement BMPs for water quality improvement and protection. The Watershed Specialist program evolved with the WRAPS program at the watershed level.

Watershed Specialists throughout Kansas have made excellent headway in raising awareness, building trust relationships, demonstrating best management practices (BMPs) and motivating changed behavior of farmers/producers. The Specialists are in the field getting practices on the ground. They have been successful in helping producers implement important changes for improved management practices that make a real difference for water quality in the watershed.

The Specialists have had different titles since the initiation of the program and their watersheds/WRAPS groups have changed with time.

- ***Will Boyer*** *has served as the Northeast Area Watershed Specialist* for nearly 18 years. Boyer is a full-time Watershed Specialist and will provide technical assistance services to the Delaware, Lower Kansas, Middle Kansas, Milford, Tuttle and Wakarusa WRAPS groups/areas. A new Specialist will be hired to work in these areas under the direction and mentorship of Boyer during this new 3-year project period.

- ***Jeff Davidson*** *has served as the Flint Hills Watershed Specialist* for nearly 11 years. Davidson is a part-time Watershed Specialist and will provide technical assistance services to the John Redmond Reservoir and Toronto/Fall River WRAPS groups/areas. In August 2015, Mr. Davidson became the "Streambank Stabilization Coordinator" for the Cottonwood, Hillsdale, Milford and Upper Neosho WRAPS projects. He will continue his Streambank Stabilization Coordinator duties in the John Redmond Reservoir WRAPS, which includes what was previously considered Cottonwood and Neosho WRAPS areas. His streambank work is included as part of his "baseline" funding.

- ***Herschel George*** *has served as the Southeast Area Watershed Specialist* for roughly 18 years. In the past 3-year project he was considered contract-labor and worked solely to assist another Specialist in western Kansas on livestock BMP implementation education. George will now work as a part-time Watershed Specialist in Hillsdale and Kanopolis WRAPS groups/areas. His time in Kanopolis will be spent primarily on livestock education.

- ***Ron Graber*** *has served as the Central Kansas Watershed Specialist for nearly 21 years*. Graber has also served as the Lower Smoky Hill River and continues to serve as the Little Arkansas River WRAPS Coordinator. The majority of Graber's time is spent fulfilling his duty as WRAPS Coordinator in the Little Arkansas River Watershed, however he has been written into this grant to cover his time spent doing livestock referrals outside of the Little Arkansas River Watershed.

- ***Stacie Minson*** *has served as the Kanopolis Big Creek Middle Smoky Hill River Watershed Specialist for nearly 20 years.* Minson is the WRAPS Coordinator for the Kanopolis Big Creek Middle Smoky Hill River WRAPS in west-central Kansas. Minson is funded solely by the WRAPS project and does not receive any funding from this project, therefore details of her work will not be included in this proposal.

Each watershed/WRAPS group that has allocated a percentage of their project funding to obtaining a Watershed Specialist will receive a corresponding percentage in Specialist time for technical service assistance.

A <u>baseline percentage</u> will be calculated for each of the Specialists, excluding George. This percentage time will be designated for those projects and/or KDHE livestock referrals that are outside any of the

WRAPS watersheds mentioned in the project scope. In the case of Davidson, his baseline funding will also include streambank stabilization coordinator duties.

The Kansas Watershed Specialist Program Goal to improve water quality includes these steps:

- Build trust relationships with producers and landowners,
- Increase awareness and change in attitudes,
- Develop producer knowledge and skills,
- Increase capacity and technology transfer, and
- Implement BMPs and encourage behavior change.

All of which result in improved water quality and protection of water resources.

The Kansas Watershed Specialist Program is closely aligned with local WRAPS priorities. WRAPS and Specialist both want to accomplish:

- Improved water quality
- Restoration of impaired water resources (TMDLs)
- Abatement of Fecal Coliform Bacteria (FCB)
- Abatement of Atrazine and Pesticides
- Reduce nutrients and sediment load
- Protection of water resources
- Implementing farmer/producer best management practices (BMPs)
- Protecting agricultural productivity
- Development of local partnerships

Watershed Specialist Priorities:

- Provide water quality education (Goal 2 of this proposal)
- Livestock education and BMP implementation (Goal 3 of this proposal)

<u>Statewide Watershed Specialist Education Accomplishments from 2000 – December 2021 include</u>:

- 4,657 events to educate and motivate stakeholders throughout Kansas
- 3,500 one-on-one consultations with producers
- 1,700 individual producers implemented BMPs
- BMPs were implemented involving 111,927 animal units
- BMPs were implemented on 243,244 acres of cropland
- Over 8,300 feet of streambanks were stabilized using willow stakes and tree revetments
- 2,190 BMPs have been implemented since 2010 due to the technical assistance that the four Watershed Specialists have provided.

The information and education numbers listed above do not take in to account the many BMPs that were installed without our knowledge or further assistance, but are a result of presentations or demonstrations the Specialists were involved with. Some producers will go back home and make management changes and not need further assistance or acknowledgement. Such BMPs go unaccounted for but are making a positive impact on our environment and water.

<u>Statewide Watershed Specialist Livestock BMP Accomplishments from 2005 – December 2021 include</u>: As a direct result of the Watershed Specialist's technical assistance, 825 livestock operations have implemented BMPs positively affecting 73,625 animal units (2005-2021). KDHE has figured the load

reductions from these BMPs implemented to be a reduction of 997,433 lbs of nitrogen and 510,030 lbs of phosphorus (2005-2020). Load reductions are based on estimates at this time and may be adjusted with additional site-specific information.

For over 50% of these BMPs, the producer chose not to use cost share. This calculates to be a real bargain as the only program cost to this BMP is the Watershed Specialist's time working with the producer to plan and implement the BMP.

Enter the project start date (MM/DD/YYYY)

07/01/2022

Enter the project end date (MM/DD/YYYY)

12/31/2025

Project Members: List the name, role, affiliation, and email for each member.

Last Name	First Name	Email	Role/Affiliation
Boyer	Will	wboyer@ksu.edu	Northeast Kansas Watershed Specialist, KSU
Brown	Susan	spbrown@ksu.edu	Grant Writer/ Technical Assistance, KSU
Davidson	Jeff	jdavidso@ksu.edu	Flint Hills Watershed Specialist, KSU
George	Herschel	hgeorge@ksu.edu	Southeast Kansas Watershed Specialist, KSU
Graber	Ron	rgraber@ksu.edu	Central Kansas Watershed Specialist, KSU
Griffith	Randy	srgrifth@ksu.edu	Grants Specialist, KSU
Harvey	Melissa	mharvey@ksu.edu	Communication Specialist, KSU
Metzger	Susan	smetzger@ksu.edu	KCARE Director, KSU
Schielke	Amanda	aschielk@ksu.edu	Grant Writer/ Reporting and Technical Assistance, KSU

Project Scope

Describe the TMDLs and/or water quality impairments directly addressed in this project.

The TMDLs addressed by the Watershed Specialists is no short list considering they work in so many watersheds and work in unison with the WRAPS groups on their priority TMDLs. However, the Specialist's focus on livestock does have more of an emphasis on the following water quality impairments:

- Biology,
- Dissolved Oxygen (DO),
- *E. coli* Bacteria,
- Eutrophication (E), and
- Total Phosphorus (TP).

The Specialists also work in cropland areas from time to time. Education and BMP implementation in cropland areas results in the following positively impacted water quality impairments:

- Atrazine/other herbicide,
- Biology,
- Dissolved Oxygen (DO),
- *E. coli* Bacteria,
- Eutrophication (E),
- Nitrogen (N),
- Total Phosphorus (TP),
- Sediment, and
- Total Suspended Solids (TSS).

Budget

Personnel			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$276,923**	**$34,972**	**$311,895**
Year 2	**$281,077**	**$35,496**	**$316,573**
Year 3	**$285,294**	**$36,029**	**$321,323**
Total Requested	**$843,294**	**$106,497**	**$949,791**
Description	**Boyer, W - 1.0 FTE for Years 1 – 3, $71,069 in year 1** **Brown, S - .60 FTE for Years 1 – 3, $34,390 in year 1** **Davidson, J - .50 FTE for Years 1 – 3, $31,857 in year 1** **Graber, R - .25 FTE for Years 1 – 3, $19,662 in year 1** **New Watershed Specialist – 1.0 FTE for Years 1 – 3, $60,097 in year 1** **Schielke, A - .50 FTE for Years 1 – 3, $26,051 in year 1** **Harvey, M - .60 FTE for Years 1 – 3, $33,797 in year 1** **A 1.5% increase in salary is built in for Years 2 and 3.** **Salary Match from KCARE is:** **Metzger, S - .20 FTE for year 1-3 - $24,552 in year 1** **Schielke, A - .20 FTE for year 1-3 for reporting - $10,420 in year 1**		

Fringe			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$88,615**	**$11,191**	**$99,806**
Year 2	**$89,943**	**$11,359**	**$101,302**
Year 3	**$91,292**	**$11,529**	**$102,821**
Total Requested	**$269,850**	**$34,079**	**$303,929**
Description	**Boyer, W - 1.0 FTE for Years 1 – 3, $22,739 in year 1** **Brown, S - .60 FTE for Years 1 – 3, $11,005 in year 1** **Davidson, J - .50 FTE for Years 1 – 3, $10,194 in year 1** **Graber, R - .25 FTE for Years 1 – 3, $6,292 in year 1** **New Watershed Specialist – 1.0 FTE for Years 1 – 3, $19,231 in year 1** **Schielke, A - .50 FTE for Years 1 – 3, $8,336 in year 1** **Harvey, M - .60 FTE for Years 1 – 3, $10,815 in year 1** **A 1.5% increase in fringe is built in for Years 2 and 3.** **Match funding comes from KCARE.**		

Travel			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$5,100**	**$2,000**	**$7,100**
Year 2	**$5,100**	**$2,000**	**$7,100**
Year 3	**$5,100**	**$2,000**	**$7,100**
Total Requested	**$15,300**	**$6,000**	**$21,300**
Description	**Estimating $1,500 per year for travel in and around watersheds (non-fuel costs) and $3,600 per year for attending workshops and conferences in the State, such as the Governor's Conference on the Future of Water in Kansas, and conferences such as those sponsored by the Kansas Livestock Association, Cattlemen's Day, and KACAA. Match is KCARE funds to supplement travel to conferences and workshops.**		

Supplies			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$20,582**	**$**	**$20,582**
Year 2	**$15,100**	**$**	**$15,100**
Year 3	**$14,100**	**$**	**$14,100**
Total Requested	**$49,782**	**$**	**$49,782**
Description	**Estimating $335/month for fuel for 4 State vehicles that will be used by the watershed specialists for their producer visits and other activities. After the first year of the grant, fuel costs are expected to decrease, therefore year 2 and 3 are estimates, differences will most likely be made by KCARE if need be. $4,500 per year for materials and supplies for demonstrations and other BMP related activities.**		

BMP/Strategy Funding			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$**	**$69,560**	**$69,560**
Year 2	**$**	**$68,630**	**$68,630**
Year 3	**$**	**$61,515**	**$61,515**
Total Requested	**$**	**$199,705**	**$199,705**
Description	**Matching provided by producers who contribute towards the costs of the projects that the Watershed Specialists will be assisting on in the various watersheds across the state.**		

Contractual Services			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$30,000**	**$**	**$30,000**
Year 2	**$30,000**	**$**	**$30,000**
Year 3	**$25,434**	**$4,566**	**$30,000**
Total Requested	**$85,434**	**$4,566**	**$90,000**
Description	**Service agreement with Herschel George to provide assistance with livestock projects. Match comes from KCARE funds.**		

Other			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$3,780**	**$**	**$3,780**
Year 2	**$3,780**	**$**	**$3,780**
Year 3	**$3,780**	**$**	**$3,780**
Total Requested	**$11,340**	**$**	**$11,340**
Description	**$180/month for cell phone/mi-fi services for Watershed Specialists $135/month for other communications costs, including copies and other handouts, mailings, etc. for the project.**		

Indirect			
Budget Line	**Grant Request**	**Match**	**Total**
Year 1	**$**	**$165,608**	**$165,608**
Year 2	**$**	**$165,850**	**$165,850**
Year 3	**$**	**$167,695**	**$167,694**
Total Requested	**$**	**$499,153**	**$499,153**
Description	**We are assuming that the award will be funded by state water plan funds, so that no indirect costs will be available for the grant. K-State's foregone indirect costs are included as the match.**		

WRAPS Strategic Planning

Describe the water quality problems/issues being addressed

Addressing Water Quality Problems: Bacteria, nitrogen, phosphorus, and sediment are significant threats to water quality in Kansas. These concerns are reflected in the 9-Element WRAPS plans of the areas that utilize the Watershed Specialists for technical assistance. The Watershed Specialists work to educate watershed residents on water quality issues and recommend BMP implementation in both livestock and cropland areas that would lead to water quality improvement.

Livestock on pastureland, grazing land and animal feeding operations are contributors to nonpoint source pollutant impairments that occur in surface water. It is crucial that best management practices (BMPs) related to livestock are implemented at the farm site in order to restore and protect water quality. The key to addressing livestock-related water quality problems rests with changing producer behavior or farm management actions.

The Watershed Specialist program primarily focuses on livestock operations and BMP implementation. Livestock wastes are considered a major source of bacterial contamination and nutrient enrichment of water resources in the watershed. Livestock can also contribute to sediment loading of water when allowed to degrade riparian vegetation and soils in riparian areas. A variety of BMPs are available to reduce pollutant loads from livestock wastes. Unique conditions in each livestock operation require that different types of waste controls be applied. However, livestock BMPs can effectively protect water resources if they can accomplish one or more of the following: exclude livestock from riparian zones, cause livestock to spend less time in streams or riparian zones, filter runoff from areas where livestock are fed or otherwise concentrated, keep livestock dispersed and unconfined for greater lengths of time, or capture and retain runoff containing animal wastes.

Most older animal feeding operations are located on sites more for convenience and practicality rather than concern for water quality. Being convenient to water and other factors, often allows these sites to be high risk for pollution. The Specialist's goal has been to help these operations make the necessary modifications with best management practices to reduce the risk of pollution potential. The Specialist begin this process with an on-site assessment with the producer. Site assessments include: capacity, pen slope, slope below pen, distance to stream, utilization, soil type, buffer type, buffer size, extraneous drainage, annual rainfall, rainfall intensity.

Livestock BMPs incorporated include: provide alternate water supplies, grass buffers, berms, adjust animal numbers and sizes, abandon pens, relocate pens and feeding sites, exclusion fencing, resize pens, clean and reshape pens, sediment basins, lagoons, water storage structures, and manure management.

The Watershed Specialists also address serious confinement livestock problems in the watershed by responding to KDHE livestock referrals regarding specific operations with significant pollution potential. The Watershed Specialists assist the producers to develop a plan for BMPs to correct the pollution potential, and prepare the appropriate registration and KDHE permit application. KDHE reviews the plan for BMPS to address the problems and proceeds with the producer. Frequently the producer implements all the recommended practices without choosing to apply for cost share. Through this process, all parties are winners. Producers have assistance in installing approved BMPs, KDHE has met pollution concerns and corrected them, and water quality in the watershed is restored or protected.

Cropland is also a nonpoint source contributor of sediment and nutrient pollutants in surface waters. Nutrients leach to sediment and runoff allows the sediment to vacate crop fields, carrying not only sediment but phosphorus and nitrogen pollutants to nearby water sources as well.

Cropland BMPS incorporated include: filter strips, no-till, cover crops, conservation tillage and Nutrient Management Plans (NMPs). Other livestock and cropland BMPs based on WRAPS priorities will be implemented as necessary.

The Watershed Specialist Program: How it works!
Behavior change in agriculture involves raising awareness of issues and problems, identifying options for action, securing technical and financial assistance, and implementing change.

The Watershed Specialist process works to:
- Build trust relationships with producers and landowners,
- Increase awareness and change in attitudes,
- Develop producer knowledge and skills,
- Increase capability and provide technical assistance and training, and
- Facilitate implementation of BMPs.

The Watershed Specialists have/will obtain Service Provider agreements with those WRAPS projects to which services will be provided. The types and quantities of BMPs reflected in this proposal are representative of the agreed upon deliverables between the Kansas Watershed Specialists and the WRAPS projects serviced based on how much funding each WRAPS group set aside for the Watershed Specialists.

The Watershed Specialists are on the front line of behavioral and management decisions, implementing the full component of activities necessary to accomplish water quality improvement changes related to livestock pollution. Management changes are the core of all BMP success. A poorly designed facility, if managed correctly, will not necessarily create pollution potential; while a well designed and constructed facility, if not properly managed, can have significant pollution potential. The Watershed Specialists collaborate with WRAPS groups to address water quality problems and strive to accomplish a variety of changes in the watershed to restore and protect water quality.

Watershed Specialists work in collaboration with WRAPS to address water quality problems as identified in the objectives and methods below. A great amount of experience and expertise is required to be successful in facilitating changes that make a real difference for water quality in the watersheds across Kansas.

This proposal will cover technical assistance provided by the Watershed Specialists:
- Will Boyer will work in the Delaware, Lower Kansas, Middle Kansas, Milford, Tuttle Creek, and Wakarusa WRAPS areas.
- A newly hired Specialist will also work in the Delaware, Lower Kansas, Middle Kansas, Milford, Tuttle Creek, and Wakarusa WRAPS areas shadowing Will Boyer.
- Jeff Davidson will work in the John Redmond Reservoir and Toronto/Fall River WRAPS areas.
- Herschel George will work in the Hillsdale and Kanopolis WRAPS areas.
- Ron Graber will provide technical assistance *only* on baseline activities and KDHE livestock referrals through this project. The majority of his time is spent as the WRAPS Coordinator for the Little Arkansas River Watershed.

Watersheds outside of these areas will require technical assistance from time to time as well, including KDHE referrals. ***Baseline funding*** will be provided to the Watershed Specialists to cover a percentage of their time outside these WRAPS areas for general water quality concerns as well as livestock referrals. In the case of Davidson, his baseline funding will also include streambank stabilization coordinator duties. In the case of George, he will receive no baseline funding as he will be restricted to only Hillsdale and Kanopolis.

If a Watershed Specialist has not been specified within a watershed, the Specialists will choose who works in that watershed or on a specific project within the watershed based on project expertise, location and possible time constraints.

The Kansas Watershed Specialist Program will work to improve water quality through education, behavioral changes, and BMP implementation. The Program has set and plans to achieve the following goals and objectives.

GOAL 1: Hire a New Kansas Watershed Specialist
GOAL 2: Provide Water Quality Information and Education (I&E) to Kansas Residents
Objective 1: Provide I&E to Increase Awareness and Build Capacity for Water Quality
Objective 2: Collaborate, Evaluate and Report
GOAL 3: Provide Technical Assistance for BMP Implementation
Objective 1: Identify and Assess Impairment Issues and Plan Strategies for Management
Objective 2: Implement BMPs for Water Quality
Objective 3: Streambank Stabilization in the John Redmond Reservoir WRAPS Area (Davidson)
GOAL 4: WRAPS Plan Updates

Goal One: Hire a New Watershed Specialist

Provide a general summary of Goal

KCARE will hire a new Watershed Specialist. Will Boyer will supervise and train the Specialist. The Specialist will primarily be working in the northeastern part of the state through this 3-year grant period.

Methods

Methods to achieve this goal:

- Advertise and hire a qualified individual in Year 1 of this project at 1.0 FTE.
- Will Boyer will supervise and train the *New Hire* in his six WRAPS areas.
- The *New Hire* will work with other Specialists when deemed beneficial.

The New Watershed Specialist will be accountable for the same goals as Boyer for the first few years of this project, as it is considered training.

Objectives

At the end of this 3-year project, the new Specialist will be able to work on his/her own in assigned watersheds.

The Watershed Specialist Project Management Team will develop a transition plan to prepare for future (3 to 6 years) full-time retirements of some Specialists

Goal Two: Provide Water Quality Information and Education to Kansas Residents

Provide a general summary of Goal

The Watershed Specialist will attend and facilitate events that will educate watershed residents on local water quality concerns, including livestock and cropland concerns. They will meet in groups or one-on-one when given the opportunity. The ultimate goal is to form relationships and trust between educator and producer and encourage behavioral and land management changes, such as BMP implementation.

Methods

Anticipated distribution of Watershed Specialist services:

The Kansas Watershed Specialists (Will Boyer, newly hired Specialist, Jeff Davidson, Herschel George and Ron Graber) will collaborate to provide technical assistance.

This Watershed Specialist project will include:

- Two (2) full-time (1.0 Full-time Equivalent (FTE)) Specialists: Will Boyer and newly hired specialist,
- One (1) part-time (0.5 FTE) Specialist, Jeff Davidson,
- One (1) contracted Specialist (considered 0.3 FTE for the purpose of this proposal), Herschel George, and
- One (1) one-quarter time (0.25 FTE) Specialist, Ron Graber.

This equates to 3.05 FTE or 305% time.

Herschel George is contracted to serve as a Specialist for $30,000. 30% of his time will be spent in Hillsdale, while 70% of his time as Specialist will be spent providing state-wide livestock education (primarily in Kanopolis). For the purpose of simplifying this plan, George will be considered at 0.3 FTE (~30% time).

If a WRAPS group requested the time of a specific Specialist, it is listed below:

WRAPS Request for Kansas Watershed Specialist

WRAPS Group	Budget	Watershed Specialist
Delaware	$10,000	Will Boyer/New Specialist
Hillsdale	$10,000	Herschel George
John Redmond	$10,000	Jeff Davidson
Kanopolis	N/A	Herschel George
Lower Kansas	$15,000	Will Boyer/New Specialist
Middle Kansas	$15,000	Will Boyer/New Specialist
Milford	$10,000	Will Boyer/New Specialist
Fall-Toronto	$10,000	Jeff Davidson
Tuttle	$10,000	Will Boyer/New Specialist
Wakarusa	$10,000	Will Boyer/New Specialist
Baseline/ Livestock Referrals	$35,000	Boyer/New Specialist, Davidson, Graber
Totals	$135,000	

The dollar amounts associated in the previous table do NOT reflect the Specialist's salaries; they assist in determining how much time should be spent in each watershed and baseline funding.

The newly hired Specialist will work in conjunction with Will Boyer during this grant project. His/her time spent in the northeast Kansas watersheds/WRAPS groups and any associated accomplishments will mirror those of Boyer.

The remaining time for each Specialist is referred to as "Baseline" time and has been included in the project and is a percentage time/funding set aside for those areas "outside the WRAPS areas" or utilized for KDHE livestock referrals. George is the exception, he will not receive "Baseline funding" as he will only work in his designated areas.

Baseline Funding will be used to cover the Watershed Specialist's time spent in:

- Other neighboring watersheds, for education, consultations, assessments and implementation when needed.
- Basin-wide ongoing livestock referrals from KDHE Livestock Section. The Watershed Specialists also respond to referrals from the KDHE Livestock Section to address operators who need assistance to solve serious water quality related issues. They will coordinate with the KDHE Livestock Waste Management Section regarding this process.

The distribution of percentage time spent in each watershed was estimated by the dollar amount in which each individual watershed requested funding for the assistance of a Watershed Specialist. The tables below demonstrate the amount of time (by percentage) that each Specialist will spend in a watershed or on a project based on their rate (FTE) of employment.

Will Boyer: Percentage by Category
WRAPS Group / Baseline, % Time Spent
Delaware: 11%
Lower Kansas: 13%
Middle Kansas: 13%
Milford: 11%
Tuttle: 11%
Wakarusa: 11%
Baseline/Livestock Referrals: 30%
Totals 100%/1.0 FTE

New Specialist: Percentage by Category
WRAPS Group / Baseline, % Time Spent
Delaware: 11%
Lower Kansas: 13%
Middle Kansas: 13%
Milford: 11%
Tuttle: 11%
Wakarusa: 11%
Baseline/Livestock Referrals: 30%
Totals 100%/1.0 FTE

Jeff Davidson: Percentage by Category
WRAPS Group / Baseline, Time Spent
John Redmond Reservoir: 10%
Toronto and Fall River: 10%
Baseline / Livestock Referrals / Streambank: 30%
Totals 50%/0.5 FTE

Herschel George: Percentage by Category
WRAPS Group / Baseline, Time Spent
Hillsdale: 10%
Statewide Livestock Education / Kanopolis:20%
Totals 30% (Contracted for $30,000)

Ron Graber: Percentage by Category
WRAPS Group / Baseline, Time Spent
Baseline/Livestock Referrals: 25%
Totals 25%/0.25 FTE

Objectives

Objective 1: Provide I&E to Increase Awareness and Build Capacity for Water Quality

Methods in achieving this objective:
- Personal contacts with farmers and ranchers regarding water quality concerns and ongoing methods to build trust relationships.
- Specific presentations regarding water quality, BMPs, and innovative strategies.
- Demonstrations and field days for Livestock BMPs for protecting water quality.
- Ongoing outreach, I & E, including brochures, flyers, and news media.

Breakdown by Watershed of Deliverables and Accomplishments:
Please note that the Information and Education Activities (consultations, presentations, tours, demonstrations, assessments, meetings, news articles, etc.) numbers may vary from that which is projected in each watershed, much depends on the WRAPS group and their plans.

Watershed Specialists: I & E Capacity Building Deliverables (per year)

WRAPS Group	Time Allocated Per Watershed	Ongoing Outreach /I&E	Presentations, Field Tours, Demonstrations	Attend WRAPS Meetings
Delaware	22%	108	1	1
Hillsdale	10%	49	1	0
John Redmond	10%	49	1	0
Kanopolis	20%	98	1	1
Lower Kansas	26%	128	2	1
Middle Kansas	26%	128	2	1
Milford	22%	108	1	1
Fall-Toronto	10%	49	1	0
Tuttle	22%	108	1	1

Wakarusa	22%	108	1	1
Baseline /Livestock Referrals	115%	566	8	5
TOTALS	305%	1,500	20	12

The Watershed Specialists will assist with the implementation of the WRAPS Action Plan in each watershed mentioned above. These numbers were determined by an equation based on the percentage time allocated to each watershed, based on the employment of 3.05 FTES, including the contracted Specialist, George. These numbers have been rounded to the nearest whole number. These numbers are not concrete and will fluctuate among watersheds.

TOTAL Anticipated Outputs for ALL watersheds listed above for contracted Kansas Watershed Specialists include:

- Ongoing Outreach, Information and Education: 1,500 contacts / year
- Public Presentations, Field Tours and Demonstrations: 20 / year
- WRAPS meetings: 12 / year
- News/Newsletter articles: 4 / year
- WRAPS action plan: Assist with Implementation – ongoing
- Attend 50% of WRAPS Stakeholder Leadership Team meetings
- Maintain quarterly contact with WRAPS coordinators

Effectiveness of Information and Education Activities

Information and Education Activities such as field tours, demonstrations, one-on-one consultations and on-site assessments target an audience of producers/landowners and local watershed stakeholders. These activities are designed to educate participants on local water quality issues and pollutants and the various BMPs that can be used to address and improve upon such water issues. The Evaluation mechanism for such educational events is difficult to measure but can be thought of as two-fold:

1) A person could measure the event by how many BMPs are implemented as a direct result. However, this measurement would be unfair to the Specialist as BMPs are often not reported to the Specialist post-event if the producer self-implements and self-pays. The event was still the driver behind said implementation but the implementation and benefit to water might go unreported.

2) A person could measure the event by the education received, did participants become more familiar with local water issues and means to address those issues? The answer to this question would always be yes. Just having the participant present is a step in a positive direction.

For events such as water festivals, farm shows, conferences/workshops, etc. where the Watershed Specialist has been asked to attend and possibly present, the target audience becomes more of a public audience where environmental interests may vary. Generally the goal for the Specialist is to educate and raise awareness of watershed and/or water quality issues. These types of events are usually sponsored, and are generally evaluated by those who organize and/or sponsor the event. The Watershed Specialist is a small part of these events and not always familiar with the results of the evaluation but one can assume if they are asked to present in the future, the feedback must have been relatively positive.

Education Events are designed to spur interest in young and old. *A large part of the Specialist's job is to simply increase awareness of water issues and to build capacity and offer insight and demonstrate strategies to improve water quality.* If reductions in pollution are made in their watersheds, overall, their activities were successful.

Objective 2: Collaborate, Evaluate, and Report

Methods to achieve this objective:

- Enable ongoing WRAPS collaboration and teamwork. Work with WRAPS groups to identify critical locations for livestock BMPs.
- Support WRAPS teams, conservation districts and other extension personnel in planning and implementing non-livestock BMPs.
- Help coordinate and plan monitoring activities.
- Report progress and activities to WRAPS SLTs and KDHE.
- Attend the Annual WRAPS Meetings.

Objectives and methods are on-going unless otherwise stated.

Multidimensional provider: This service provider application provides the services of the five Watershed Specialists, Will Boyer, Jeff Davidson, Herschel George, Ron Graber and the new hire, in addition to the KSU scientists that provide ongoing scientific analysis, technical advice, and support to the Watershed Specialists. The significant collaborators and resources available to the program without fee include: Aleksey Sheshukov, Peter Tomlinson, and the KSU Extension network.

Goal Three: Provide Technical Assistance for BMP Implementation

Provide a general summary of Goal

The Kansas Watershed Specialist will provide technical assistance and education to assist in the implementation of livestock and cropland BMPs. These BMPs will reduce nonpoint source pollutants such as, nitrogen, phosphorus, and *E. coli* contamination in targeted watersheds in Kansas.

While it is not a "goal" of this project to reduce sediment non-point source pollution, many livestock Best Management Practices (BMPs) will also prove to reduce sediment runoff. Sediment BMPS on cropland will subsequently reduce nutrient leaching and thereby reduce nutrient (nitrogen and phosphorus) non-point source pollution.

Objectives

Objective 1: Identify and Assess Impairment Issues and Plan Strategies for Management.

Methods in achieving this objective:

- On-site farm and ranch assessments and one-on-one consultations (including an assessment of livestock facilities and grazing land for potential pollution concerns).
- Determine and design site-specific practices (including analysis of the effectiveness of alternative management strategies).

Objective 2: Implement BMPS for Water Quality

Methods to achieve this objective: Help producers implement specific BMPs including:

- Provide assistance identifying the appropriate practice,
- Strategies for implementation,
- Estimating costs, resources needed, and options,
- Identifying cost share and other financial resources, and
- Provide assistance implementing the practices.
- Assess the effectiveness of the practice installed in achieving pollutant load reductions.

The Watershed Specialists work with landowners to identify and implement site-specific BMPs that address TMDL and water quality concerns. Identifying and solving local water quality concerns involves collaboration with WRAPS SLT and/or other agencies.

a. Addressing Nutrient and Bacteria Pollutants from Livestock Sources to include Feeding Operations and Grazingland

The Specialists will address nutrient and bacteria pollutants from livestock sources using the following three methods:

1. The Watershed Specialist helps to design a combination of strategies most appropriate for each farm/ranch. Practices will simultaneously target phosphorus and bacteria pollution. Practices may include but are not limited to: install grass buffers, vegetative treatment systems, livestock alternative watering site(s), development of feeding site(s), relocation or pen size reduction,

diversions and berms, riparian strategies surrounding livestock areas, and a variety of BMPs approved by the WRAPS group and their priorities.

2. Livestock Waste Referrals will be addressed by the Watershed Specialists.

   As mentioned in Goal 1, a percentage of "Baseline" funding/time will be spent tending to areas outside of their specified WRAPS groups or on livestock referrals.

   The following will take place when referrals are being addressed.
   - Livestock referrals will follow a flow-chart that has been approved by KDHE and the Specialists. The chart will lay out a proposed schedule on who and when contact will be made with a referred producer.
   - A checklist should be utilized on an initial visit.
   - The Specialists will work to provide technical assistance to the producer to comply with state livestock pollution control regulations.
   - The Specialists will more actively pursue producers that have received letters from the LWMS in an effort to get them started in meeting KDHE requirements.
   - The Specialists will give the producer time to initiate contact with them, if no contact is made, the Specialists will call the landowner/producer and offer their services.
   - The Specialists will educate producers on water quality issues and offer alternatives that will meet water quality goals.
   - These efforts will be reported.

3. The Watershed Specialists will provide technical service and education on grazing/forage cover crops.
   - The Watershed Specialists will be trained on how to instruct producers on utilizing cover crops for grazing/forage.
   - The Specialists will hold at least one grazing/forage cover crop and/or cropland cover crop workshop for producers per year. Demonstrations would work to achieve this goal. The workshop can be through a WRAPS group or through another group. A "demo-development project spec (specification)" will come from the Specialists.

b. <u>Addressing Nutrient and Sediment Pollutants from Cropland Sources</u>

The Specialists will continue their education around uses for soil health in croplands to address nutrient and sediment pollutants from cropland sources using the
following two methods:

1. The Watershed Specialist helps to design a combination of strategies most appropriate for each producer. Cropland practices will target sediment and phosphorus and nitrogen pollution. Practices may include but are not limited to: conservation tillage, crop rotations, cover crops, vegetative buffers, no-till, nutrient management plans, riparian area restoration strategies, vegetative treatment areas, and a variety of BMPs specified in the WRAPS plans in WRAPS areas.

   Funding sources that MAY be utilized to implement BMPs: available funds in Specialist's budget for BMP supplies, remaining County Extension Agent Water Quality Funds, NRCS EQIP funds,

and Division of Conservation cost-share funds. As mentioned in the project history, roughly 50% of the BMPs implemented and reported by the Watershed Specialists have been paid for by the producer.

2. The Watershed Specialists will provide technical service and education on soil health and cover crops.
   - The Watershed Specialist will be trained on how to instruct producers on soil health principles and planting cover crops, especially for grazing/forage to remove cattle from riparian areas.
   - The Specialists will hold at least one grazing/forage cover crop and/or cropland cover crop workshop for producers per year. Demonstrations would work to achieve this goal. The workshop can be through a WRAPS group or through another group. A "demo-development project spec (specification)" will come from the Specialists.

Breakdown by Watershed of BMP Implementation:

Watershed Specialists: Capacity Building & BMP Implementation (per year)

WRAPS Group / Baseline	Time Allocated Per Watershed	Consultations /Assessments	Implement BMPS
Delaware	22%	9	4
Hillsdale	10%	4	2
John Redmond	10%	4	2
Kanopolis	20%	8	4
Lower Kansas	26%	11	5
Middle Kansas	26%	11	5
Milford	22%	9	4
Fall-Toronto	10%	4	2
Tuttle	22%	9	4
Wakarusa	22%	9	4
Baseline /Livestock Referrals	115%	47	23
TOTALS	305%	125	60

These numbers were determined by an equation based on the percentage time allocated to each watershed, based on the employment of 3.05 FTES, including the contracted Specialist, George. These numbers have been rounded to the nearest whole number. These numbers are not concrete and will fluctuate among watersheds. The majority of Specialist's time in baseline areas will be spent on BMP implementation, rather it be follow-up from previous year's projects or KDHE livestock referrals, etc. This effort is on-going.

TOTAL Anticipated Outputs for ALL watersheds listed above Kansas Watershed Specialists include:
- One-on-One Consultations with Producers / On-Site Assessments: 125 / year
- Help producers implement BMPs: anticipate 60 / year
- Nutrient Management Plans – ongoing

BMPs Implemented:

The following livestock and cropland BMPS may be implemented in each of the watersheds/WRAPS areas listed in this project proposal (Delaware, Hillsdale, John Redmond Reservoir, Kanopolis, Lower Kansas, Middle Kansas, Milford, Toronto/Fall River, Tuttle and Wakarusa).

- Vegetative Filter Strips
- Relocate Pasture Feeding Site
- Off Stream Watering System
- Range Management
- Relocate Feeding Pens
- Rotational Grazing
- Conservation Tillage
- Cover Crops
- Extraneous drainage, diversions and berms
- Grass Buffers
- No-Till
- Nutrient Management Plans
- Riparian area restoration strategies
- vegetative treatment areas
- Poultry litter storage and other poultry related BMPs

Other livestock and cropland BMPs based on WRAPS priorities will be implemented as necessary.

<u>Breakdown by Watershed of Load Reduction Goals</u>:

Watershed Specialists: Load Reduction Goals (per year)

WRAPS Group / Baseline	Time Allocated Per Watershed	Animal Units Affected	Nitrogen lbs	Phosphorus lbs
Delaware	22%	216	6,925	3,462
Hillsdale	10%	98	3,148	1,574
John Redmond	10%	98	3,148	1,574
Kanopolis	20%	197	6,295	3,148
Lower Kansas	26%	256	8,184	4,092
Middle Kansas	26%	256	8,184	4,092
Milford	22%	216	6,925	3,462
Fall-Toronto	10%	98	3,148	1,574
Tuttle	22%	216	6,925	3,462
Wakarusa	22%	216	6,925	3,462
Baseline /Livestock Referrals	115%	1131	36,197	18,098
TOTALS	305%	3,000	96,000	48,000

These numbers were determined by an equation based on the percentage time allocated to each watershed, based on the employment of 3.05 FTES, including the contracted Specialist, George. These numbers have been rounded to the nearest whole number. These numbers are not concrete and will fluctuate among watersheds.

<u>TOTAL Load Reduction Goals for The Kansas Watershed Specialists</u>:
- Anticipate load reduction involving 3,000 animal units

- Nitrogen potential load reduction estimate: 96,000 pounds
- Phosphorus potential load reduction estimate: 48,000 pounds

Load reductions are based on estimates. Accurate site specific information as the practices are installed will provide more accurate basis for calculation. Load reduction estimates do not take into account the impact of information and education activities. Many BMPs are installed without our knowledge or further assistance but are a direct result of Watershed Specialist presentations or demonstrations. Some producers will go home and make management changes and not require further assistance or acknowledgement.

How will success of the BMPs be determined?

Success of the project will consider the following factors:
- If the practice addresses a pollutant of the watershed.
- If the practice reduces the pollution potential.
- If other producers see the positive results of the project.
- If other producers choose to make similar practices changes on their operations.
- If the change is measurable by either chemistry or bio-assessment.

Funding sources used to complete BMPs will include but not be limited to the following:
- Division of Conservation State Cost Share Programs
- NRCS EQIP and other available NRCS programs
- Landowner
- WRAPS funds

BMP Standards and Specifications
BMPs implemented using cost share funding will require that standards are based on pre-approved KDHE and/or Kansas Natural Resources Conservation Service (NRCS) guidelines and specifications.

The Watershed Specialists can provide technical and design assistance when BMP implementation is not utilizing cost share funding without specification approval from KDHE and/or the NRCS. Under these circumstances, Kansas State University faculty, resources, and publications may be used for instruction regarding guidelines for practices to be implemented.

The exception is when a 'demonstration' BMP is implemented. In this case, the landowner may receive cost share funding and the standards and specifications may be left to the Watershed Specialist. A project is considered a 'demonstration' when it is a new and innovative BMP that will be implemented on a trial-basis. It can be used as a learning tool for other methods that may work in given circumstances. A 'demonstration' may also be a known BMP that has been successful in other areas or regions of the state or country, yet is new to the area in which implementation occurs.

In all cases listed above, follow-up visits with the producers will be made to insure the practice is functioning as designed.

Objective 3: Streambank Stabilization in the John Redmond Reservoir WRAPS Area

Watershed Specialist Jeff Davidson will also serve as a Streambank Stabilization Coordinator in the John Redmond Reservoir WRAPs areas, previously known as Cottonwood and Upper Neosho. Time spent as

a Streambank Stabilization Coordinator is minimal and is included as part of his baseline allocated funding and time.

Methods to achieve this objective: Davidson will:

- Identify and work with landowners on stream bank/riparian restoration projects in targeted areas.
- Provide on-site assessments and landowner consultations.
- Provide assistance identifying the appropriate practice.
- Coordinate experts or technical service providers for planning, implementation and construction.
- Provide project completion follow up with an on-site evaluation to assure conditions of the contract/agreement for using 319 dollars are met.
- Assess the effectiveness of the practice installed in achieving pollutant load reductions.

It is not the goal of the Streambank Stabilization Coordinator to contribute to the phosphorus and nitrogen goals, as he may not work with livestock along the streambank. He will most likely be working on stabilization projects that will provide sediment load reductions.

Goal Four: WRAPS Plan Updates

Provide a general summary of Goal

Kansas State University - KCARE will work with KDHE to update WRAPS Plans to meet KDHE and EPA expectations.

Methods

Susan Brown (0.6 FTE), Melissa Harvey (0.6 FTE) Amanda Schielke (0.5 FTE) will work as a team to update each plan on the KDHE schedule.

Methods to Achieve this Goal:

- The KCARE planning team (Brown, Harvey and Schielke) meet with the WRAPS group and KDHE to get updated TMDL, BMP and goal information. They explain the process to the WRAPS group at the initial visit and primarily work with coordinator from that point forward.
- Susan Brown provides updated BMP and load reduction tables and ArcGIS figures for the plan.
- Amanda Schielke organizes each plan so that they are all consistent with each other. Schielke re-writes and updates the verbiage throughout the plan, updates tables, and finally, inserts Brown's figures and tables.
- Melissa Harvey completes the process by editing the plan, making sure there are no mistakes throughout.
- The plan is then ran by the WRAPs Coordinator and SLT (when desired) for final edits.

Once edits are made by Schielke and the newly updated plan is approved by all parties, it is submitted to KDHE for final review and then sent on to EPA.

Objectives

Over the course of this project, it is estimated that 9 (~3 per year) WRAPS Plans will be updated to better suit the current needs of the WRAPS SLT and KDHE.