Grant # C9994861-10

Capacity Building in the Little River Watershed

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Submitted by: Mekayle Houghton Deputy Director, Cumberland River Compact
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B. Acknowledgments

The Cumberland River Compact would like to acknowledge the following individuals for the contributions to this project:

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D. Executive Summary

The Cumberland River Compact received a 319 grant from KDOW to establish a model for collaborative stakeholder engagement in watershed management through educational forums and activities in a rural setting. One stakeholder meeting and four Technical Advisory Team meetings were held. After the meetings and a re-evaluation of the project, the Compact produced a water quality map for the Lower Cumberland Basin (2,000 copies) to be freely distributed by and to stakeholders throughout the basin. Furthermore, residential BMPs were installed in Hopkinsville and educational signage at a local rain garden. The signage directs readers to the Compact’s website where they can find rain garden DIY instructions and garden templates for home implementation. It was a pleasure to work with the KDOW staff on this project – we admire their expertise, standards of excellence, and professionalism.
E. Introduction & Background

The Cumberland River Compact’s goal for this project was to establish a model for collaborative stakeholder engagement in watershed management through educational forums and activities in a rural setting.

**Goal:** Improve the knowledge and awareness within the rural communities of the Little River Watershed concerning the origins, magnitude, and prevention of nonpoint source pollution through a multi-faceted approach to convene stakeholder groups and assist in forming a watershed group to address water quality and quantity challenges in the Little River Watershed. A publication will be developed to capture the methodology and lessons learned to enable future replication in Kentucky.

**Part 1: Gather and Convene Stakeholder Groups (Public and Technical) to Collaborate in Development of Educational Programming**

**Objective:** Hold regularly scheduled meetings with stakeholders to create new partnerships, strengthen existing partnerships and foster greater trust, commitment, accountability, and action to restore the health of streams.

**Activities within Little River Taskforce (technical advisory group) effort:**

1. Identify technical contact list for the technical committee’s quarterly meetings with the assistance of Little River Watershed Taskforce, The Nature Conservancy, and Four Rivers Basin Team, Land between the Lakes National Recreational Area and State Park, and the Kentucky Association for Environmental Education.

2. Characterize the Little River Watershed for public consumption (gather existing data and identify data gaps, analyze data, identify causes and sources of impairments that need to be controlled).

3. Identify issues of concern and potential sources of impairments such as nutrient and pathogen concentrations that the general public is interested in learning about and seek solutions for.

4. Solicit and incorporate feedback on issues of concern from public stakeholder meetings.

5. Identify projects to coordinate together and educational trainings for the public.

6. Finalize goals for training program that will address the water quality impairments for the watershed without duplicating existing programs and utilizing them whenever possible.

7. Design training activities (develop schedule, interim milestones, information and educational components, evaluation process, and technical and financial assistance needed to implement plan). All materials will be reviewed and approved with KDOW before implementation.

8. Implement workshops and identify small watershed management projects (clean ups, rain gardens, rainwater harvesting, etc.).
9. Develop a BMP Implementation Plan for small watershed management projects and obtain KDOW approval project for implementation.

10. Implement small watershed management projects.

**Activities within Public Stakeholders effort:**

1. Compile list of potential key stakeholders in the watershed.

2. Hire neutral facilitator to foster discussion and reaching consensus among this diverse group of people with a broad range of backgrounds and opinions.

3. Invite a highly diverse group of stakeholders to educational meetings such as local officials, landowners, farmers, developers, teachers, agency representatives, builders, citizens, and business people.

4. Complete a media campaign via local newspapers, radio, and television. Media campaign work plan will be submitted to KDOW for review and approval.

5. Conduct a series of focus groups to engage citizens to learn what water-related issues are important to them. Identify parallel community development projects to build relationships with members of the community.

6. Hold a series of stakeholder meetings that provide a forum to discuss water quality/quantity challenges and expand the education process to the greater public on these issues.

7. Identify engaged leaders within the group to become the design team who will assist in the agenda setting for future meetings.

8. Facilitate group discussion following the educational presentations to prepare them to review the information that will be created through the technical committee process. Each presentation will end with an exercise to further identify issues and concerns and obtain a deeper understanding of the impaired streams.

9. Hold regular educational programming events that help illustrate information learned at stakeholder meetings such as stream cleanups, field days, and K-12 school programs. The Compact will utilize school program materials developed by the Kentucky Environmental Education Council, http://keec.ky.gov/publications.htm.

10. An informed watershed group will be empowered to implement small scale watershed management activities to address water quality impairments.

**Part 2: Create a case study to transfer the process in watersheds throughout the state.**

**Objective:** Capture the process and develop a case study to document the process in order for the information to be transferred to watersheds throughout the state.
Activities within Case Study effort:

- Involve KDOW NPS staff in meetings to see the process in practice.
- Document activities associated with the development of a case study.
- Transfer information regarding the capacity building into a case study.
- Provide case study to Kentucky Watershed Leadership Academy.
- Present case study at water related conferences when available.

Describe the NPS Pollution Control Plan of Work:

The Little River Watershed is predominately rural but contains the town of Hopkinsville which has a population of 30,000 (United States Census Bureau 2008). In some rural areas especially during the current economic downturn, most people are focused on subsistence issues. This can lead to slower adoption of environmental stewardship practices. However, if the Compact takes the time to address one or two small societal benefit projects, we hope to build a deeper relationship and trust that will open new opportunities to our effort. This approach has succeeded in several watersheds including the Rockcastle River where the Coordinator assisted in the restoration of a church. The local community increased the trust of their organization and gained “buy-in” of the Coordinator’s environmental stewardship efforts.

At the beginning of the project, the Compact will hire a neutral professional facilitator to assist staff and facilitate the focus groups and stakeholder meetings throughout the project in the Little River Watershed. The Compact’s project manager will begin a log to track the implementation of this project, the obstacles, opportunities, and lessons learned. The information from the log will be incorporated into a publication which outlines the rural watershed outreach model process and lessons learned to assist future efforts in rural watersheds throughout Kentucky. The Compact will target residents within the entire Little River Watershed to help identify areas of interest and local capacity to build a grassroots watershed group. We have learned that a wider recruitment effort is needed in a rural watershed. Our public stakeholder effort is a three step process. First, we undertake a reconnaissance of the entire watershed to identify key stakeholders. These individuals are invited to one of four focus groups sessions held throughout the watershed. The focus groups help us identify water quality related concerns and topics on which they would like additional information. The focus groups will be built by working with key community contacts, invited by phone, and provided a fact sheet for follow up that can be faxed, mailed, or emailed. Following the focus groups, the project manager will create an “issues matrix” to identify and quantify issues expressed by the focus groups.

Once we receive buy-in to continue our efforts, we will hold educational forums for a diverse gathering of the general public to increase their understanding of nonpoint source pollution and solutions to address targeted concerns from the focus group meetings. A media campaign will utilize newspapers, flyers, radio, organizations, and 319 program sponsors already in place in the watershed to publicize
these meetings. Meetings will continue to be publicized to offset any initial dropout rate and increase diversity of attendees. The determining factors to assist this group in identifying watershed management related trainings are (1) special use waters or 303d listed streams, (2) local capacity to implement projects, (3) specific impairments, and (4) local landowners’ willingness to participate in implementation activities. Information and recommendations gathered in the technical advisory committee will be incorporated into the discussions. This effort will closely involve the Kentucky Watershed Watch monitors. Leaders will be identified during these meetings and will be encouraged to participate in the design team which will assist in designing future agendas and assist with implementing educational programs outside the regularly scheduled meetings to showcase topics discussed during the stakeholder meetings. The activities will include stream cleanups, field days, and K-12 educational programming. Due to the potential barriers of working in a rural area, we will work to build trust by assisting the area in one to two community development projects during the first year.

The Little River Taskforce (technical stakeholder group) involves technical representatives from nonprofits and local, state, and federal agencies as well as Kentucky water quality permit holders. Government officials also will be engaged in this forum. We will utilize the Four Rivers Basin Team and invite additional representatives in the Little River Watershed. Meetings will be held bimonthly to identify water resource concerns based on available data, develop public stakeholder educational programs, and identify small scale projects volunteers can participate in to better understand watershed management opportunities for a watershed group. The information will be developed in coordination with information collected from the public stakeholders’ focus group sessions so that the trainings incorporate local background information.

The third and fourth quarter meetings will continue cultivating local leadership to continue long-term efforts and begin working on the case study. The fourth quarter will focus on leadership and project development activities to direct the core leadership and watershed design team so that the work continues well after the grant’s completion date. This information will be captured and a special public kick-off event will announce the launch of a group and provide an opportunity to recruit new volunteers for specific tasks. The project manager will work with staff/stakeholders to begin the application process for implementation funding. The project manager will finalize and publish the rural watershed outreach model by the end of the grant cycle.

**Environmental Data Collection:**

There will be no water quality monitoring conducted during this project.

**Public Involvement:**
Public involvement in the development and implementation of watershed management projects is critical to their success. The Compact and its project partners will conduct outreach campaigns to local officials, businesses, and agencies, as well as farmers, teachers, developers, parents, retirees, engineers, attorneys, and all other interested citizens via a widespread media campaign on local radio and in local newspapers. Geographic focus groups will also serve as a means of involving the public directly in the areas of immediate concern to them. The Compact will hire a professional, neutral facilitator for the meeting process, which we have found to be essential to fostering discussion and reaching consensus among a diverse group of people with a broad range of backgrounds and opinions. The public will have further opportunities for involvement by completing feedback forms and questionnaires to enable the Compact to provide the most relevant and effective water quality education.

Genuine public involvement and contributions to our watershed stakeholder meetings is a key aspect to our process to develop the Watershed Design Team, who will set the groundwork for further public participation in nonpoint source pollution prevention.

**Project Measures of Success:**

**Deliverables:**

- Build grassroots watershed awareness in a rural region.
- Create educational materials based on specific impairments that describe the what, why, and solutions to improve/restore water quality conditions.
- Complete the reconnaissance to identify local leaders to cultivate into future local watershed leaders.
- Hold four focus group meetings to better understand “key” public concerns for stakeholder meetings.
- Bring together and hold six technical stakeholders meetings to discuss data information and identify data gaps, current programming/projects, identify future needs, identify grant opportunities, and recruit local speakers for public stakeholder meetings.
- Hold six public watershed stakeholders meetings based on focus group and impaired stream concerns and conditions.
- Develop a manual/case study based on efforts for future replication in Kentucky.

**Objective 1:** Hold regularly scheduled meetings with stakeholders to create new partnerships, strengthen existing partnerships, and foster greater trust, commitment, and accountability. 

**Measures of Success:**

1. Conduct a series of four geographic focus groups to engage citizens and learn what water-related issues matter to focus group attendees with an average attendance of 12-15 at each focus group meeting.
2. Take issues from focus groups and develop/implement a series of eight stakeholder meetings seeking a diverse group of stakeholders at both public stakeholder and Little River Watershed Taskforce (technical advisory group) meetings.
3. Average a grade of “good” or “better” on feedback forms from participants on the content and presentation for each public meeting.
4. Complete watershed education meetings and training programs each quarter with goals established.
5. Obtain media coverage for at least one event in the watershed each quarter.
6. Facilitate group discussion following educational presentations at each stakeholder meeting.
7. Create a grassroots effort, the design team, to prevent previously unlisted waters from becoming impaired and improve the quality of impaired streams beyond the grant cycle.
8. Initiate four to eight educational projects during the grant period which will showcase BMPs and empower additional behavior changes to address nonpoint source impairments.
9. Create a publication that models the rural watershed outreach approach to assist additional efforts throughout the Commonwealth of Kentucky.
10. Compilation of where existing environmental/water quality data to assist with future watershed management efforts in the Little River Watershed.
F. Materials & Methods

A description of the project area.

**Overall Watershed Description**

The Little River watershed is located in the 8-digit Hydrologic Unit Code (HUC) 05130205, in the Lower Cumberland River Basin. The headwaters of Little River separate into North Fork Little River and South Fork Little River, each of which is represented by a separate 11-digit HUC. The Little River watershed includes a diverse landscape of forest and agricultural and urban areas around Hopkinsville and Cadiz, Kentucky. Land use in the Little River watershed was determined using the 2001 land use analysis of Landsat photography of Kentucky (KDOW 2009). Land use in the impaired watersheds is predominately agricultural (215.3 square miles), followed by forested land (117.4 square miles). In the Little River and South Fork Little River watersheds most of the agricultural land is used for cropland followed by pastureland whereas in the North Fork Little River watershed the agricultural land is predominately pasture/hay followed by cropland. The primary row group in the region is grain fed corn followed by soybeans (KDOW 2009). The urban area of Hopkinsville represents about 13 percent of the land use in the North Fork Little River watershed, and approximately 12 percent in the South Fork Little River watershed.

The region provides a home to more than 1,300 plant species, over 230 birds, and reintroduced bison and elk herds (FRBT 2000). The Lower Cumberland Watershed also provides a home for state and federally listed aquatic species such as the alligator gar (*Atractosteus spatula*), alligator snapping turtle (*Macrochelys temminckii*), and a diverse mussel assemblage. Federally listed as endangered mussels include the pink mucket (*Lampsilis abrupta*), fanshell (*Cyprogenia stegaria*), orangefooted pearly mussel (*Plethobasus cooperianus*), ring pink (*Obovaria retusa*), and fat pocketbook (*Pootamilus capax*). These freshwater mussels are rapidly declining due to degraded water quality associated with nonpoint source pollution (KDFWR 2008). Additionally, the federally endangered cave dweller, the gray bat (*Myotis grisescens*), is known to be located in the watershed and it relies on healthy karst systems.

**Threats & Impairments to Watershed**

This biodiversity is threatened by agriculture, failing wastewater management systems, and development. Much of the watershed is alluvial flood plain providing rich soils for agriculture. Livestock intrusion and lack of buffers from row crops further degrade a healthy river system and increase sedimentation that provides a mechanism to transport pollutants further downstream. The geology consists of sinkholes, caves, sinking streams, and springs which form the connection between surface and subsurface. Often these sinkholes are utilized for trash dumps, further impacting healthy karst systems.
Of the stream miles assessed for the Kentucky 2008 Integrated Water Quality Report, over 86 stream miles in this watershed do not support their designated uses and 70 stream miles in this watershed only partially support their designated uses. The Little River, including the North Fork Little River and South Fork Little River, has impairments ranging from pathogens, nutrients, siltation, iron, mercury, habitat alterations, and flow alteration. The causes of these impairments have not been fully identified, but do include agriculture, urban stormwater runoff, municipal point source discharges, and habitat modifications. Table 1, attached to this proposal, lists the impaired streams and their impairments. The Little River has received over $500,000 in Section 319(h) funding to implement cost-share supported agricultural best management practices (BMPs). Since 1995, 358 applications from producers in Christian, Todd, and Trigg Counties have been approved (KDOE 2008b).

After a series of stakeholder meetings the Compact and KDOE reevaluated the scope of the proposal so that once the grant period terminated a few concrete deliverables would remain. Those included rain barrel installations and educational rain garden signage in the City of Hopkinsville. We also agreed to produce a water quality map for the Lower Cumberland Basin.

A description of any specialized materials that were used in the collection of data for the project.

The Cumberland River Compact partnered with the Nature Conservancy and Siegenthaler public relation to produce a water quality map for the Low Cumberland River. This map depicts healthy and impaired stream in the Lower Cumberland basin and discusses sources of impairment and BMPs.
G. Results & Discussion

Public Stakeholders Meetings

Three focus group meetings were held with a total of 42 participants. One meeting was held in Cadiz (Trigg County) and two meetings were held in Hopkinsville (Christian Co.). The Compact participated in Environmental Activities Day at Jeffers Bend with a macroinvertebrates and water quality booth. 200 people attended.

Little River Taskforce (Technical Advisory Group)

A total of four meetings of the taskforce occurred. In October 2011, October 2012, February 2013 and April 2013. The first meeting had 15 attendees. Topics identified for education involved blueways, stream restoration, outreach, monitoring and rain gardens.

At the second meeting 6 people attended and discussion was postponed to third meeting. 9 people attended the third meeting.

At the third meeting 10 people attended and a plan was made to develop a home owner’s guide to living on the lake. This was to include laws, regulations, permitting requirements of each regulatory agency on landowner project along waterways. These guides were drafted and circulated among the Technical Advisory Group to solicit input.

The fourth meeting was attended by 6 people. The home owner’s drafts were discussed. KDOV expressed a desire to redirect the project to activities that would yield lasting benefits. The Compact was instructed to work with the City of Hopkinsville.

The Compact drafted 2 broad options for the project and discussed those options with KDOV. Together, the future of the project was set forth as:

The project highlighted the challenges of building stakeholder groups in rural areas. The reworking of project deliverables resulted in the following:

- A Lower Cumberland water quality map 2,000 printed copies and an electronic version
- 10 rain barrels at the City of Hopkinsville’s Challenge House
- Rain garden educational signage at a rain garden built by the City of Hopkinsville

The Compact worked closely with the City of Hopkinsville Surface and Stormwater Utility for rain barrel placement and rain garden educational signage.
H. Conclusions

This grant is the first KDOW grant secured and completed by the Cumberland River Compact. It is the Compact’s mission to work in all watersheds of the Cumberland River Basin. We are very happy to have had the opportunity to work in the Little River watershed with KDOW’s support and the excellent team of professionals in the region. With 14 watersheds in the Cumberland Basin, the Compact has now completed 8 watershed water quality maps. We believe that residents must understand the sources of water pollution and steps they can take to reduce their impact on water pollution. The maps provide this information.

The Compact also has great success demonstrating BMPS. When people see how BMPs work, they are more likely to install them at home.

We did encounter challenges with this project including staff turnover. It was also a challenge to complete the community organizing necessary to form a stakeholder group, especially since we did not have staff in the area. The Compact is proud of our stakeholder model of community organizing but we realize that the longevity of these organizations is not what we hope. The challenge now is how to develop stakeholder groups that are long lived and effective at improving water quality. We think that on the ground activities combined with information and education resources recommending adoption of BMPs may be the most successful approach.

The Compact is grateful to the KDOW staff for their support and willingness to adjust the scope of the project. We are proud of the outcomes and look forward to continued involvement in Kentucky’s Cumberland River basin.
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Cumberland River Compact: Milestones

MILESTONES

1. Submit all draft materials to the Cabinet for review and approval.
2. Submit advanced written notice of all workshop, demonstrations, and/or public forum dates to the Cabinet.
3. Submit Annual Reports and to participate in the Cabinet’s sponsored annual NPS Conference.

PUBLIC STAKEHOLDER MEETINGS

4. Begin reconnaissance process and hire neutral facilitator.
5. Hold three focus group meetings.
6. Begin draft of rural watershed outreach model publication.
7. Hold second meeting to review focus group results and identify training topics.
8. Hold four additional meetings.
9. Hold educational events.
10. Hold two stakeholder meetings.
11. Hold first meeting to review focus group results and identify training topics.
12. Hold second meeting to identify priorities to improve the public response.
13. Hold final meeting to identify priorities to improve the public response.
14. Hold meeting to review training efforts and develop next steps.
15. Hold meeting to review training efforts and develop next steps.
16. Submit draft publication to NPS program staff for approval.
17. Hold meeting to review training and implementation efforts, develop next steps.
18. Submit draft publication to the NPS program staff for approval.
19. Hold meeting to review training and implementation efforts, develop next steps.
20. Submit draft publication to NPS program staff for approval.
21. Hold meeting to review training and implementation efforts, develop next steps.
22. Submit draft publication to NPS program staff for approval.
23. Hold meeting to review training and implementation efforts, develop next steps.

Status of Cumberland River Compact's Milestones

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