Watershed Plan for the Eagle Creek Mouth Watershed (051002-05-410)

The Eagle Creek mouth watershed is largely agricultural, but it is likely to experience development in the near future. The terrain is steep, so the potential for erosion is high. The watershed contains a number of small streams with problems, and Eagle Creek itself carries high concentrations of bacteria. There is general concern about the nutrient and sediment runoff from agricultural land and of sediment runoff from construction activities. One priority is to promote practices for construction and land management that can prevent soil loss and degradation of the streams. A principal strategy is to fund implementation of the existing 1992 watershed plan for the Lick Creek subwatershed. Another priority is to eliminate the pathogen contamination of local streams. A new regional sewer system and a study of the total maximum daily load for pathogens will help with this. Other priorities are to foster a regional discussion of development, design, hydrology, and flooding and to determine what is needed to restore degraded creek sections and minimize losses from flooding. Landowners, local government, citizens and other stakeholders have a leading role to play in developing specific plans.

The following watershed plan emerged through the combined input of local task force members and agency personnel who participated in a series of meetings on this watershed, culminating in a planning workshop (see list of participants on page 50). Task force members and agency personnel examined monitoring data, agency programmatic information, and local knowledge assembled through the framework process as a factual background for the meetings. During the workshop, an independent facilitator asked planning participants to identify the issues they felt were most important. Next, the group went through a priority-setting process to highlight the issues and actions of greatest concern to the group. Finally, they discussed what steps should be taken next to address issues in the watershed.

Goals and strategies for action are listed on page 47. A color map of the Eagle Creek mouth watershed appears on page 151. The watershed summary for this watershed appears on page 370.

Assessment and Ranking (2000)

Ranking metrics

Eagle Creek mouth watershed was the only watershed in the north end of the basin that rated a high ranking of overall need for action under the framework prioritization formula. A cluster of stream impairments among tributaries to Eagle Creek was one reason. The level of bacteria in Eagle Creek itself, and its conse-

quent failure to support use for swimming was another. The potential for agricultural erosion was calculated to be 5.35 tons/acre, substantially higher than the 3.2 tons/acre mean for all watersheds in the basin (values for watersheds ranged from 0.57 to 9.79, with a median of 2.96 tons/acre).

Agency data assessment

Of 89.4 miles of streams in the watershed, 40.8 miles were assessed for the 2000 305(b) report, and 25.9 miles fail to fully support all designated uses. Three of the nine assessed creek segments in this watershed do not support their designated uses. Segments of two other streams only partially support theirs. The upper end of Eagle Creek (the only place in watershed that was assessed for bacteria) had levels of bacteria too high to support primary contact recreation. A short stretch of Buck Run (siltation) and part of Moseby Branch (flow alteration and habitat alteration) fail to support aquatic life. Lick Creek (siltation and habitat alterations) and Twomile Creek (flow alteration) only partially support aquatic life.

Eagle Creek proper (creek miles 0 to 38.8) was listed for TMDL development (nutrients and pathogens) in 1998, at that time as a second priority. UK's Tracy Farmer Center for the Environment is conducting the TMDL under an EPA grant. The tributaries of Eagle Creek in this watershed were not on the 303(d) list before the watershed management assessment, so there are as yet no TMDLs. The tributaries will be listed on the 2002 303(d) list in October 2002, and TMDLs will be scheduled then.

Most of the identified impairments within the watershed are in lower-order tributaries rather than on the main stem of the creek. Achieving and documenting improvements should not, therefore, be complicated by inflow of contaminated water from upstream watersheds, and focused restoration projects would be quite feasible on tributaries such as these.

Volunteer data

Kentucky River Watershed Watch took one sample from Eagle Creek in July 1999, near the bottom of the watershed, and the fecal coliform count was very low. No samples were collected there in 2000. In July 2001, samples from two sites on Eagle Creek, at the head of the watershed, yielded fecal coliform counts of 610 and 810 col/100 mls. Dissolved oxygen values from all three sites were in the 5-6 mg/l range.

Identification of Issues and Opportunities (2001)

Eagle Creek emerged as the regional priority at the meeting held for the northern counties of the Kentucky River basin in Owenton (January 2001). Participants in the regional meeting and in subsequent discussions provide a nucleus of

service personnel who can provide technical expertise. The Eagle RC&D Council is prepared to take a guiding role in this effort and offers a multi-county organization and experience with grant writing and program development. Members of the council include county and city officials and members of conservation boards. Theoda Franklin, the Regional Coordinator for the Council, has supported the Framework process from its beginning. The local NRCS district conservationists have also participated in our meetings.

Local concerns are a microcosm of the basin: major issues include water supplies for homes and livestock, sewage disposal, and agricultural effects on sediment, stream banks, and pathogens. Flooding concerns many residents of the watershed because of recent severe and frequent flood events. Streamside vegetation is lacking in many places. Woodland management, overgrazing, and loss of habitat for small game and songbirds are also a problem.

Owen County is reorganizing its water utilities, and the county government is keenly interested in water supply and source water protection issues. Some of these issues will be beyond the scope of a watershed task force, but they can be addressed at a basin or regional level. Others are watershed-level issues. Several of the counties, for instance, have been pursuing ways to increase the compliance of septic systems and reduce their impacts on water quality.

Watershed meetings organized by the Kentucky Waterways Alliance in 2001 drew mainly people from Sanders, where the mayor, Jack Ogden, and members of the town council took an active interest. Flooding and siltation in Eagle Creek and Lick Creek were among their leading concerns. The group expressed interest in development strategies that would minimize impacts on the watershed and creek.

NRCS developed a watershed plan for the Lick Creek subwatershed in 1992. Funding the implementation of this plan is an important goal.

A new sewage collection line for a regional wastewater treatment plant in Carrollton will be operational this spring, serving Glencoe, Sparta, and Sanders. The project will eliminate all package treatment plants except those at Eagle Valley Camping Resort and Eagle Creek Resort. It can also be expected to divert some of the sewage that now reaches the creek from failing septic systems or straight pipes. The Speedway's temporary package plant will be eliminated once the sewer line is complete. People along the line will be required to connect to the sewer system: KRS 037 requires hookup. There is no regional sewer authority. The TMDL (total maximum daily load) research now underway will evaluate whether bacterial contamination of the creek remains a problem once the sewer is in use, and the TMDL analysis will provide a strategy for solving remaining contamination. Implementation of solutions can be facilitated by the watershed management framework process.

Planning Workshop (September 2001)

Goals and strategies for action

Development, hydrologic change, and flooding

Residential and commercial development on highly erodible land (e.g., the Sparta and Sanders area) is likely to become rapid. Future development around the Kentucky Speedway could have substantial impact on runoff volume. Already, severe streambank erosion is evident in places (e.g., Folsom/Glencoe area), and sedimentation elsewhere (e.g., Sanders area) has filled channels and degraded fishing.

These effects may be related to watershed changes well upstream (such as the increased percentage of impervious cover associated with new development). Hydrologic modification and streambank erosion will occur as permeable surface is lost to development, and present stormwater retention requirements are not adequate (especially at 35 & I-71) to prevent destabilization of streams. Flooding is also an issue: development in the floodplain of Eagle Creek and its tributaries should be discouraged. New ways to protect the creeks and the water quality while creating growth opportunities are desirable.

Sediment and nutrient runoff

There is general concern about nutrient and sediment runoff from agricultural land and siltation from construction activities. Better design and management practices should be encouraged. Construction BMPs could reduce water quality impacts caused by projects near the interstates. Promoting BMPs in agriculture can protect natural resources in the watershed, without causing hardship to farmers. The NRCS has developed a master plan for the Lick Creek subwatershed, but needs funding to put the plan into action. The restoration of streams–for example, Moseby Branch and Lick Creek–whose condition has been degraded should be a priority.

Pathogens

Residents want to protect public health and maintain and enhance recreational opportunities related to the creeks, i.e., fishing, swimming, canoeing, etc. The new sewer line will help eliminate use impairments caused by pathogens. However, malfunctioning septic systems and unmanaged livestock waste may continue to contaminate groundwater and streams. It is imperative that all who can should continue to tap on to the new sewer lines. The risks of sewer bypass due to either mechanical failure or flooding should not be forgotten. The increased demand on wastewater systems from future development is also an important issue. Flooding impacts on septic systems north of Sparta and animal waste and septic systems in unincorporated areas of Lick Creek watershed are a concern.

Priorities

- ❑ Promote county-wide ordinances requiring connection to sanitary sewers and a focus on regional wastewater treatment.
- ❑ Health departments need to disapprove new septic systems in sewered areas. DOW can work with local health departments on enforcing sewer hookup requirements.
- ❑ Promote proper land management, especially for agriculture and forestry (overgrazing) through existing cost-share programs. Implement BMPs for erosion in Lick Creek, according to the existing plan.
- ❑ Foster regional discussion of development, design, hydrology, and flooding.
- ❑ Educate the public about damages caused by instream activities (such as dredging, channel modification, all-terrain vehicles, etc.) to counter lack of knowledge about restrictions on disturbing creek banks and creek bottoms.
- ❑ Involve the agricultural community, particularly landowners, and other stakeholders.
- ❑ Coordinate with universities for monitoring and analysis.
- ❑ Find resources to support research for grant applications.

Data Collection

- ❑ Institute additional biological monitoring to help identify origins of impairments in tributary streams and more widely assess stream health.
- ❑ Ascertain the sources of pathogens with a broader sampling coverage and develop implementation strategies to reduce fecal loading (the TMDL will provide some of this).
- ❑ Evaluate the impact of development upstream of this HUC on flooding, sedimentation, etc.
- ❑ Investigate the need for more accurate floodplain maps and how to get them.
- ❑ Obtain complete land use and riparian zone analysis, including ground-truthing, to identify opportunities for increasing streamside vegetation and erosion controls.

Critical Partnerships

- ❑ UK Tracy Farmer Center for the Environment (TMDL results, in 2 years).
- ❑ RC&D Council network.
- ❑ NRCS Lick Creek Plan and landowners.
- ❑ Local Conservation Districts.
- ❑ UK Cooperative Extension network.
- ❑ 109 Solid Waste Boards (could be activated?).
- ❑ Local leadership: mayors, county judges, magistrates, health departments.

Agency Support

- ❑ County or local ordinances may be needed to enforce continued hookup to sewer lines. The county health departments and DOW can cooperate in enforcement.
- ❑ State and federal authorites could re-map floodplains.
- ❑ DOW will help coordinate local implementation of TMDL plan.
- ❑ DOW may conduct sampling and monitoring, help coordinate volunteer samplers, and help train citizen monitors.
- ❑ DOW has 604(b) funds for planning regionalized wastewater management.
- ❑ In Lieu Fee program (KDFWR) is a potential funder of stream restoration.
- ❑ Division of Conservation has state cost-share funds for agricultural BMPs.

Watershed concerns, by area

- ❑ Upstream of this watershed, the major issues are the effects of development on hydrology and water quality. At the extreme end of the drainage, Scott County will be constructing a dam and creating an impoundment for water supply.
- ❑ In Tenmile Creek, which joins Eagle Creek at the head of the Eagle Creek mouth watershed, bacteria endanger contact recreation, especially for children but also for fishing and canoeing, and the low quality water affects fishing, as well.
- ❑ Information and implementation strategies are needed throughout the Eagle Creek mouth watershed to address bacterial contamination.
- ❑ Streambank erosion is cutting into a highway between Glencoe and Folsom.
- ❑ Near Sparta there is significant potential for development. Planning/zoning is new in Gallatin County. Septic systems north of town lie outside the sewage area.
- ❑ In the Sanders area, flooding patterns appear to be changing, and people would like to assess the impact of upstream development and possible responses. Updated floodplain mapping would help to better manage the floodplain program and prevent losses.
- ❑ In the Lick Creek subwatershed, erosion could be reduced through grazing practices and other land management approaches. Animal waste is largely uncontrolled, and septic systems outside the sewer area are sometimes affected by flooding.
- ❑ At Buck Run, the segment impaired was reevaluated and subsequently reduced to less than one stream mile; degradation appears to be limited to one property.

Participants in the Eagle Creek Workshop Phase

Workshop was held September 25, 2001, at Carrollton

Local Representatives

Gretchen Bartley, Division of Water (DOW) Florence Field Office
Larry Brown, Eagle RC&D Council
David Crawford, City of Sanders
Jeff Crosby, Department of Fish and Wildlife Resources
Theoda Franklin, Eagle RC&D Coordinator (NRCS)
Linda Hunter, Eagle RC&D Council and Division of Conservation regional office
Gene McMurry, County Judge Executive, Carroll County
Ron Meyer, Division of Forestry local field office
Jack Ogden, Mayor of Sanders
Kim Strohmeier, UK Cooperative Extension, Owen County
Glenn Yost, Director of Creasey Mahan Nature Preserve

State Program Representatives

Julia Clark, DOW Water Quantity Management
Clark Dorman, Kentucky Waterways Alliance
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Joel Murphy, DOW Nonpoint Source Section, grants administration
Danny Peake, DOW Nonpoint Source Section
Kevin Ruhl, DOW Total Maximum Daily Load program
Bill Sampson, Department of Fish and Wildlife Resources, Watersheds
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Bob Ware, DOW Assistant Director and Kentucky River Authority member

Staff

Jennifer Thompson, facilitator (Kentucky Natural Resources Leadership Institute)
Pamla Wood, workshop recorder (Licking River Basin Coordinator, DOW)
Greg Epp, Kentucky River Basin Coordinator (KWRRI for KRA)
Lee Colten, Watershed Framework Manager (DOW)

Reference

United States Department of Agriculture, Soil Conservation Service. “Hydrologic Unit Management Plan: Lick Creek Watershed.” 1992.

Point of Contact

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