

**Dix River Watershed Council Meeting
February 26, 2008**

Meeting Notes

Attendees: Malissa McAlister (UK KWRRI); Preston Miles (landowner); Tony White (Mercer County Health Dept.); Rose-Marie Roessler (CREEC); John Webb (Ky. Division of Water); Bill Payne (landowner); Ken Douglass (landowner); Josh Morgan (City of Danville Stormwater Engineer); Heath Stone (Garrard County Health Department); Andrea Zimmer (U.S. EPA); Jim Roe (Ky. Division of Water); Angie Wingfield (Ky. Division of Conservation)

Watershed Activities

- *Rain Garden Alliance Kick-Off was held on February 25th.*
Bluegrass Pride, the Kentucky Department of Fish and Wildlife Resources, Lexington-Fayette Urban County Government and other Lexington-based organizations are partnering to promote the development of 2,010 rain gardens by 2010. Rain gardens are a suggested tool to deal with stormwater runoff problems, mainly for residential homeowners. Retaining as much stormwater as possible on the land - rather than letting it run into storm drains - can help keep harmful flows and pollutants out of streams and rivers.
- *Growth Readiness workshop on March 4th in Harrodsburg*
The first "Growth Readiness" workshop for the four-county region of Anderson, Boyle, Mercer, and Washington Counties was held in Harrodsburg on February 4th. Representatives of these counties are interested in learning more about low impact development and will be assessing local ordinances relating to development practices. Participants will be working to improve the ability of ordinances to enable--rather than hinder--development practices that reduce impacts on local water quality, preserve greenspace, and increase the overall desirability of the community. The next meeting is scheduled for March 3rd from 1:00 to 5:00 p.m. at the Lions Park Community Center in Harrodsburg.
- *Community Presentations*
Malissa McAlister will be making a presentation on water quality and homeowner gardening to the Boyle County Garden Club on March 5th. On March 14th, Malissa and John Webb will be speaking to the Danville Rotary Club about the Dix River Watershed Council's activities.
- *In-lieu funding available for stream restoration projects.*
Whenever someone intends to impact a stream or wetland as a result of a proposed operation or development, permits must be obtained from the U.S. Army Corps of Engineers and KY Division of Water. In some cases, "mitigation" is required to compensate for the loss of those aquatic resources, as determined by the regulatory agencies. Mitigation generally involves locating an impaired stream or wetland, then restoring or enhancing it to a suitable level of biological function.
In the past, permittees had the responsibility of locating mitigation project sites and performing the work themselves, or they could hire a consultant. A relatively new approach to satisfy mitigation obligations is through KDFWR's In-Lieu-Fee program. A fee can be paid to a Mitigation Trust Fund to be administered by KDFWR. This money is then used to implement stream or wetland restoration/enhancement projects. The type of sites KDFWR will be looking for are: streams that have been previously straightened or channelized that can be returned to their natural configuration; culverted or concrete lined channels where the structure can be removed and the channel restored; or diverted stream segments where the stream can be put back into its original channel. Other good candidates include streams with severely eroding banks, lacking riparian vegetation, void of aquatic habitat or structure, and similar impairments.
Typically, mitigation projects will need to be within the same general area of the drainage basin as the permitted impact in which a fee was received. Mitigation projects may occur on either private or public lands. This is not a cost-share program (totally free) and is voluntary. Landowners will be consulted with regard to the work to be performed. Although the main objective of the program is not bank stabilization or flow improvement, these elements can be part of a project. The only concession expected of the landowner is that at least 25-feet, and preferably up to 50-feet, of trees/shrubs need to be planted along both sides of the stream. In addition, a conservation easement must be obtained for the work area.
Dix Council members were encouraged to submit proposed locations for such mitigation projects in the Dix River Watershed. Funding is available in the Dix Watershed, and it was noted that an in-lieu fee of \$960,000 fee was recently assessed for the US150 road project in Lincoln County.

Watershed Planning Review

Malissa and John provided a presentation to Council members as a refresher course on the purpose and scope of "Watershed Plans." A watershed plan is intended to serve as a flexible framework for managing water quality and quantity and should include strategies to address the most important issues. The implementation section of the plan should include responsible entities, partners, schedules, resources needed and funding options.

The Kentucky Waterways Alliance recently completed its draft version of a "Watershed Planning Guidebook for Kentucky Communities." This guidebook is being piloted in four other watersheds in Kentucky and will be revised based on experiences in these watersheds. In the meantime, the guidebook can be accessed at www.kwalliance.org/publications.

The predetermined scale of the Dix River Watershed is larger than that of most for which watershed plans are developed. Thus, it may be simpler to subdivide the larger watershed into smaller subwatersheds (i.e., Hanging Fork, Clark's Run, Logan Creek, Dix River Headwaters, Dix River/Herrington Lake, and Mocks/Spears Creeks) when writing the watershed plan. The smaller the focus watershed, the easier it is to develop specific water quality objectives and management recommendations.

At a minimum, the watershed plan will need to address waterbody segments already documented by the Kentucky Division of Water as being impaired. The findings of the TMDL (Total Maximum Daily Load) reports being developed by various entities for Hanging Fork, Clark's Run and Herrington Lake will be incorporated into the plan.

In its early discussions, the Dix Council suggested the water quality goals of safe drinking water, healthy fisheries, recreation (swimming, boating), greenspace preservation, agricultural uses for livestock and irrigation, and wildlife habitat. The group also submitted critical water resource issues facing the Dix Watershed, including sewage waste disposal, adequate water supply, flooding and water retention, stormwater / polluted runoff, solid waste disposal, and land use adjacent to waterways / protection of riparian areas. Specific goals of the Watershed Council included the following:

- Extension of public sewers – to unserved areas
- Clean water – instream and for drinking
- Continuous monitoring – to measure progress, status, and trends
- Reduced impacts to water quality
- Improved riparian buffers
- Better public education and understanding – better mechanisms for sharing information on status of watershed
- Identification and remediation of straight pipe influences
- Development of marina guidelines

The Council is now in the Water Quality Information and Analysis phase, during which sampling results are reviewed and key pollutants and sources are identified. Thus far, the council has reviewed median sampling results for nutrients, E coli, chlorophyll a, total suspended solids and dissolved oxygen. Impaired stream segments and permitted point source discharges have also been considered. Other water quality analyses that likely need to be included in the planning process are habitat assessment scores, microbial source tracking results for E. coli, ammonia, chloride, turbidity, as well as field visits / windshield surveys of land uses, restoration projects and best management practices.

Once water quality goals are clearly established, Council members will need to develop targets for each goal, select appropriate best management practices, identify resources, and suggest ways to achieve public outreach and education. Water quality indicators and a water monitoring program will measure actual improvements. Progress in meeting the plan's goals should be tracked and reported to key community groups. As milestones in the plan are achieved, it should be reevaluated to ensure that water quality is maintained and advanced, if the plan's overall vision should be expanded, and/or if new goals should be established.

Water Quality Data Review:

A Closer Look at Sampling Results for Chlorophyll a and Total Suspended Solids

Suspended sediment, one component of total suspended solids, is commonly considered the most detrimental pollutant in both U.S. and Kentucky streams and rivers. In addition to suspended sediment,

total suspended solids may include phytoplankton, non-living particles containing nutrients, and inorganic solids. Sources of TSS include industrial discharges, sewage, fertilizers, road runoff, and soil erosion. Suspended solids can serve as carriers of toxic compounds, which is especially of concern as a way of pesticides entering waterways. In Kentucky, the average concentration of total suspended solids in water quality samples is 10 mg/L.

The Dix River Watershed sampling effort produced two sites for which the mean TSS value exceeded the Kentucky average concentration, both of which were located in the Dix River. (See table below.) The mean result at the Dix River sampling site above Hanging Fork (Cathole Bend Road off of Old Danville Road) was 16 mg/L, and the mean sampling result at the Dix River DOW site at KY52 was 12 mg/L. Further examination of the monthly sampling results for these sites showed significantly higher TSS readings, or spikes, in July 2006 (Dix DOW site) and August 2007 (Dix above Hanging Fork).

After reviewing the TSS findings, it was noted that suspended solids should be greater after a storm event and that it would be helpful to know if and when significant rainfalls had preceded the sampling dates. Council members also questioned the length of time typically needed for elevated suspended solids to subside. It was also suggested that, since none of the mean results seemed to be significantly greater than the state average of 10 mg/L, this water quality parameter may not be of great concern to the council's evaluation.

Chlorophyll a was collected as an indicator of algal growth in the sampled waterways. It is of concern because increases in nutrient inputs can spur increased algal growth. When large numbers of algae die off and decompose through aerobic respiration, oxygen levels decrease, creating conditions which threaten aquatic life. A recent Louisville-area study produced a median chlorophyll a level of 273 mg/L. Since this study was conducted in a highly developed region in the vicinity of the Dix River watershed, this chlorophyll concentration was used as benchmark for which anything greater was of water quality concern.

Six sites in the Dix River watershed, three each in the Clark's Run and Hanging Fork subwatersheds, exceeded the value of 273 mg/L. In Clark's Run, the sampling site at Goggin Lane (downstream of the sewage treatment plant discharge) had the greatest reading of 434 mg/L. In Hanging Fork, the sampling site at Chicken Bristle had the greatest reading of 456 mg/L. Other results are listed in the following table. Council members thought that it would be helpful in their data review and analysis to see how the chlorophyll and nutrient sampling results correlate.

The next meeting of the Dix River Watershed Council was scheduled for Tuesday, April 15th at 6:00 p.m. at Danville's City Hall.

Summary of Chlorophyll a and Total Suspended Solids Sampling Results

	Chlorophyll a	Total Suspended Solids
Rating Scale	Green=0 to 35 mg/m3 Yellow=36 to 272 mg/m3 Red=273 to 460mg/m3	Green=0 to 5 mg/L Yellow=5 to 10 mg/L Red=10 to 20 mg/L
Clarks Run Subwatershed		
Ball's Branch West	N/A	Yellow (median=7mg/L)
Ball's Branch Mouth	Red (median=285 mg/m3)	Green (median=4.8 mg/L)
Clark's Run at Corporate Drive	N/A	Green (median=3.2 mg/L)
Clark's Run Bypass	N/A	Green (median=3.2 mg/L)
Clark's Run at South Second Street	Yellow (median=187 mg/m3)	Green (median=4.5 mg/L)
Clarks Run at Hwy 150	Red (median=314 mg/m3)	Green (median=5 mg/L)
Clark's Run at Hwy 52	N/A	Yellow (median=5.3 mg/L)
Clark's Run at Goggin Lane	Red (median=434 mg/m3)	Green (median=4.2 mg/L)
Hanging Fork Subwatershed		
Baughman Creek	N/A	Green (median=5 mg/L)
West Hustonville	N/A	Green (median=4.7 mg/L)
McKinney Branch	N/A	Green (median=5 mg/L)
Chicken Bristle	Red (median=456 mg/m3)	Green (median=5 mg/L)
Frog Branch	N/A	Yellow (median=5.2 mg/L)
Peyton Creek	N/A	Yellow (median=8 mg/L)
Oak Creek	Yellow (median=170 mg/m3)	Green (median=4 mg/L)
Junction City	N/A	Green (median=2.4 mg/L)
Moore's Lane	Red (median=303 mg/m3)	Green (median=5 mg/L)
Knob Lick Creek	Yellow (median=266 mg/m3)	Green (median=5 mg/L)
McCormick Church	Yellow (median=192 mg/m3)	Yellow (median=5.8 mg/L)
Blue Lick Creek	N/A	Yellow (median=6 mg/L)
Hanging Fork at Hwy 150	N/A	Yellow (median=9 mg/L)
Hanging Fork Mouth	Red (median=383 mg/m3)	Yellow (median=5.1 mg/L)
Dix River Subwatershed		
Dix River above Hanging Fork	Yellow (median=100 mg/m3)	Red (median=16 mg/L)
Copper Creek	N/A	Yellow (median=5.9 mg/L)
Dix DOW (at KY52)	N/A	Red (median=12 mg/L)
Dix/Crab Orchard	N/A	Yellow (median=9.3 mg/L)
Drakes Creek	N/A	Green (median=3 mg/L)
Gilbert's Creek	N/A	Green (median=3.3 mg/L)
Gum Sulfur	N/A	Green (median=3.2 mg/L)
Logan Creek	N/A	Green (median=4 mg/L)
White Oak Creek	N/A	Green (median=5 mg/L)