Dix River Watershed Council Meeting
November 14, 2006
Danville City Hall

Attendees
Ken Douglass, Rose-Marie Roessler (CREEC), Kim Hall (CREEC), Preston Miles (CREEC, Centre College), Randall Carrier (KOWA, Lincoln County Health Dept.), Tony White (Mercer County Health Dept.), Josh Morgan (City of Danville), Tim Montgomery, Scott Wallace (Herrington Lake Conservation League), John Webb (KDOW), Malissa McAlister (UK KWRRI, KRA), Andrea Zimmer (USEPA Region 4), Lee Colten (KDOW), Liz Maples (Danville Advocate-Messenger), Pamla Wood, Bill Payne, Hugh Coomer (Danville mayor-elect)

Announcements
Malissa announced that Danville had submitted a proposal requesting $650,000 for assistance with stream restoration and nutrient stormwater runoff abatement related to drainage in Clark's Run. Lee announced that Third Rock is approximately 3/4th of the way through the monitoring and gearing up for high-water rain events sampling.

Council operations
Malissa and Lee requested someone volunteer to serve as Council Chair, to conduct meetings and advise about meeting agendas, but no one came forward. Lee said increasing involvement would increase buy-in and success. Several people agreed to talk with others about coming: e.g. Mayor Miracle of Stanford, KU rep, NRCS rep, and Jerry from Extension.

Third Rock presentation
Lee introduced Tony Miller, from 3rd Rock. The "hot spots" considered at the last Council meeting were large, too large to effectively identify pollutant sources or target funds ($60,000) for helping fix the problem. Tony said that the primary problem is to figure out the difference between human and cattle contributions. He said microbial or bacterial source tracking could identify sources, but is both a young, evolving science (EPA doesn't have standard methods yet, although they have published a guidance document), and the methods are not cost-effective in large areas.

Tony introduced Dr. Gail Brion, from UK, an environmental engineer and environmental virologist, and a water reuse specialist. Gail described a more cost-effective way of identifying sources.

Dr. Brion uses a total coliform membrane filter method. She uses an "AC/TC" ratio, comparing the colonies that are indigenous (Atypical), to introduced coliform (Total). Ratios of <5 represent human sewage (1.5 ratio). Ratios of about 10: represent agriculture or wildlife. Ratios of 15-20 represent urban runoff. Ratios may run >20, and sometimes as high as 200 represent water impounded for > 7-10 days.

Dr. Brion said when the AC counts are higher, there are fewer violations of the water standards. These are linked to nutrients in the water system. AT increases slightly during a storm, but the ratio remains the same.

Thus, Dr. Brion recommends monitoring begin by finding the AC/TC (ratio). Second, she recommends testing for "male-specific coliphage. The third step is to test for E. coli.

Dr. Brion has applied this analytical process within Lexington. In analyzing Georgetown's water system, she found a large human source, formerly unidentified. In Eagle Creek (lower Kentucky River Basin) she found it verified the sewage entry. Dr. Brion said this method doesn't give you specific data on amounts, but it will accurately provide focus for your work. It coincides with E. coli data. Gail is working with 3Rd Rock to train them in some of her methods. Sampling for caffeine or for enteric viruses (@ $1500) are other methods, but they are considerably more expensive.

Dr. Brion said there are three analytical phases: determining load, finding the age of the load, and identifying the source. The ratio gives information about each. Male-specific coliphage can be used to give more specific information.

Discussion about analytical methods

Preston suggested microbial source tracking could select between wildlife and agriculture, but Dr. Brion said the results haven't been shown to hold true. She said antibiotics could be used, because 90% of the antibiotics use is for animals (in the US).

Preston elicited discussion by expressing concern about a novel, untested method, especially one that doesn't differentiate between wildlife and agriculture. Regarding method effectiveness, Dr. Brion said the method tested out at 96.4% accuracy in Georgetown, 86% accuracy in locating human enteric viruses on the Kentucky River – which is phenomenal, in this field. At each site, five samples are taken under baseline dry conditions, and five under wet conditions (1" within 24 hours).

Discussion about differentiating between wildlife and livestock yielded the points that human sources are more of a threat to human health, that wildlife isn't controllable, and that impacts from livestock can be mitigated but not removed.

General discussion

Randall said that the local health dept in Garrard County is prohibited from taking action on straight pipes or bad septic systems on farmsteads (10 acres or more) without a written complaint from a named individual, but KDOW can. (These locations were exempt from all violations until July 1992.) Many banks are checking the status of the wastewater systems prior to transferring property. There were questions and comments about household systems: how many there are; how many might be performing poorly; and how much would they add. Junction City has tried to fix its overflow problems, but it still has capacity overload.

Further discussion revealed that:

- 3Rd Rock is scheduled to finish E. coli analysis, better identifying hot-spot areas, by March.
- The next step for microbial source tracking needs to be bid out the work, which will take some time. Lee urged the Council to solicit bids so as to explore the various proposals that might come in.
- The Council has input into the objectives of a Request for Proposals (RFP), but the selection of the contractor will be made using state expertise, which will compare the contractor's qualifications, the proposal's effectiveness to the stated objectives, price, and other criteria.

Next steps
Lee will draft objectives for the Council to review via e-mail. Generally, the goals are to narrow geographic locations of pathogen sources, upstream of sites with exceptionally high E. coli, and to provide relative pathogen sources by type. The work should answer the questions "How would the contractor propose to determine where the problems are and what are causing them?" and "Is the source human or animal?" There was also discussion about including maps that show wastewater treatment used throughout the area, including septic. Sources of this information include at least PVAs, 911 systems, Cities, and ADDs.

Lee reminded the Council that contractors would need to access streams on private land. Rose Marie said once the specific locations were identified, the Council could try to figure out how to contact landowners. Rose Marie added that she hopes the upcoming Town Hall Forum for Clark's Run will raise awareness and acceptance of the need to sample and make improvements.

Next meeting is in Danville, January 16, 6:30 p.m.