



**Missouri  
Department of  
Natural Resources**

## **WATER QUALITY COORDINATING COMMITTEE**

USGS Columbia Environmental Research Center  
Conference Building  
4200 New Haven Road  
Columbia, Missouri

April 20, 2010

10:00 a.m.

### **MEETING AGENDA**

Hinkson Creek Watershed: An Overview of Current Projects, Dr. Jason Hubbard, UMC

Hinkson Creek Public Service Announcement Contest, Nicki Fuemmeler, Boone County

Hinkson Creek Feasibility Analysis, Bill Florea, Boone County

Other

Agency Activities

Meetings & Conferences



## MISSOURI WATER QUALITY COORDINATING COMMITTEE

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USGS Columbia Environmental Research Center  
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### MINUTES

#### Attendees:

Greg Anderson	DNR, Water Protection Program	Cindy DiStefano	MO Dept. of Conservation
Anne Peery	DNR, Water Protection Program	Karen Bataille	MO Dept. of Conservation
Mike Kruse	DNR, Water Protection Program	Rebecca O'Hearn	MO Dept. of Conservation
Bill Whipps	DNR, Water Protection Program	Terri Brink	EPA Region 7
Valerie Hentges	DNR, Water Protection Program	Bill Florea	Boone County Planning
Tucker Fredrickson	DNR, Water Protection Program	Nicki Fuemmeler	Boone County
Charlie DuCharme	DNR, Water Resources Center	Jason Hubbart	UMC
Jane Davis	DNR, Water Protection Program	Lorin Crandall	MO Coalition for the Environment
Trish Rielly	DNR, Water Protection Program	Darlene Schaben	DNR, Water Protection Program
Georganne Bowman	Boone County Public Works		

Introductions were made.

#### **Hinkson Creek Watershed: An Overview of Current Projects**, Dr. Jason Hubbart, UMC PowerPoint Presentation

Dr. Hubbart said the initial funding for the Hinkson Creek project was received from the Department of Natural Resources. He used this opportunity to thank the department for their support. Dr. Hubbart directs the Interdisciplinary Hydrology Laboratory at the University of Missouri. They are not only working on the Department-funded watershed study, but also a MO Dept. of Conservation (MDC) nutrient study, and an EPA-funded floodplain study.

The Watershed Study was initiated as a long-term study to monitor alterations to water flow, microclimate, and water quality. The study will also create a watershed scale research/teaching facility. He said in order to know the current status of water quality, you must understand the transport mechanism. The purpose of the project is to determine the effects of development on harvesting trees, agricultural practices, urbanization, best/better management practices, legacy effects, and need.

He said the Hinkson Creek Watershed historically was a forested watershed. A lot has been done on the landscape to change it. We now are dealing with the long-term effects. Dr. Hubbart said that legacy effects are hard to understand and approach if you don't have long-term continuous datasets to apply to concepts. A mechanistic understanding of processes is needed, along with interdisciplinary connections, and integrated, spatially-explicit management tools (models). There are five permanent gauging locations on Hinkson Creek. Site 1 is at Rogers Road; Site 2 is at Mexico Gravel Road; Site 3 is at Broadway Avenue; Site 4 is at Old Route K; and Site 5 is at Highway TT. Dr. Hubbart mentioned the variables sensed at the site locations, which some require long-term data. The expected outcomes include an improved understanding of the hydrologic cycle in the Hinkson Creek Watershed by comparison of long-term hydroclimate records from the 5 gauging sites, monitoring varying land use types and drainage areas of the watershed; with multiple



years of data an estimate of a mass balance, estimate of TMDL for sediment, and quantify peak flow alterations. They expect to publish a paper on peak flow modeling later this year.

The MDC funded Hinkson Creek Watershed Nutrient Study is a 6-year project. The first four years will be spent collecting data. The basic goals are to quantify differences in total nitrogen, total phosphorus, and other water quality constituents. Grab samples at all five sites are taken every other day (4 days per week). Nitrogen and phosphorus tell a lot about primary productivity in aquatic ecosystems. It provides baseline data for all subsequent biological work since primary producers provide the base of the food web. It also tells something about anthropogenic effects, like land use and fertilizer applications. The samples are collected near bubbler orifice of the stream gauge and turbid inlet of the particle analyzer. They are also doing cross-sections at each site to quantify the volume of flow at regular intervals to create rating curves, which they are also doing cross-sections to depth integrated sampling for sediment. The expecting outcomes from this study include to improve understanding of nutrient cycling in the Hinkson Creek watershed by comparison of long term records from five gauging sites with varying land use and contributing area. After approx. four years they can estimate a TMDL for nitrogen and for phosphorus.

The EPA funded Floodplain Study is the most focused study in terms of land area. The research questions they want to answer are about the historic floodplain flow attenuation efficacy, current floodplain flow attenuation efficacy, and how to better manage these systems to maximize floodplain flow attenuation while sustaining urban development and population growth. They are conducting studies at two “bookended” study sites – Bottomland Hardwood Forest area and Abandoned Agricultural area. They will do hydrogeomorphic assess of floodplain functions and hydrogeomorphic modeling. He showed a map of the areas. They are going to install an automated water sampler to start collecting data for sediment. He talked about the locations of the different monitors and samplers in the floodplain areas. The process of installing a volumetric water content profile and erosion pins was explained. The expected outcomes of this study include a hydrogeomorphic assessment of floodplain functions, hydrogeomorphic modeling, and information to help land managers better utilize bottomland hardwood forest landscape features to maximally control flooding. Specific collective expected outcomes include an improved understanding of urban watershed alterations to hydroclimate (there’s a lot to learn); quantifiable estimated of TMDLs for many water quality constituents of concern (sediment, nutrients, others to come); improved management of urban floodplains in the central U.S. (management tools to aid development); interdisciplinary, integrated management tools (models); training facility for future water resources professionals; and the many opportunities for collaboration. The short-term expected outcomes include additional instruments, secure funding for continued operation, explore opportunities for collaboration, and publication of results. Some long-term outcomes include to maintain a thoughtful program and to consider the future.

They have five publications anticipated to be in print by the end of this year; two others are being prepared to submit for publication. He acknowledged several agencies in appreciation for their continued support of this critical work.

A copy of this presentation can be found at [http://web.missouri.edu/~hubbartj/index\\_files/IHLPPM.htm](http://web.missouri.edu/~hubbartj/index_files/IHLPPM.htm) then select the presentation dated April 20, 2010.

### **Hinkson Creek Public Service Announcement Contest, Nicki Fuemmeler, Boone County DVD Video Clips**

Nicki is responsible for the education aspects of the Hinkson Creek project. In January the residents and students of Boone County had the opportunity to participate in a Public Service Announcement (PSA) contest. They could create videos to help educate the community on water pollution issues, stormwater issues, and help relay the street to stream runoff concept. There were two categories: 30 seconds or less



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short PSA and 1-3 minute short film. There were 4 entries for the 30-second category and 3 entries for the short film. Nicki showed the 1<sup>st</sup> place and 2<sup>nd</sup> place winning videos from each category. The contest ended on Feb. 19 and videos were judged on March 9. There was no limit on number of entries. The PSAs will be aired on television and at local theaters. The short films will also be used at kiosks during educational events and on Web sites. A reception is planned in April to recognize the winners. First place winners in each category receive \$500, while second place winners receive \$250. Another PSA contest is being planned in a couple of months with winners being announced during October, Water Quality Month. They are hoping to see more stormwater related PSAs.

**Hinkson Creek Feasibility Analysis, Bill Florea, Boone County**  
PowerPoint Presentation; handout: Summary of BMP Performance and Cost

The Feasibility Analysis is a component of the Hinkson Creek Watershed Restoration Project, Phase II. The project includes planning and development; education/public involvement; BMP/cost share program; and evaluation. A watershed plan was developed in the Phase I Hinkson Creek project. It was a good starting point but to be effective they need to have public input and involvement. In Phase II, a stakeholder group was formed and the plan updated. A feasibility study will be conducted and a monitoring plan developed. In the education/public involvement portion of the project, they have had a PSA contest, involvement in the Show-Me Yards and Neighborhoods, and two watershed workshops/events. To evaluate the project, they will monitor BMP effectiveness, track attendance at events, and measure the increase in knowledge. To do the feasibility study they identified a 'hotspot' area at the I-70/63 interchange. Bill showed a map of the coverage area. They used the Steering Committee to assist and developed a Request for Proposal. This allowed the Committee to evaluate the proposals and get the best and final offer. In order to check the work being done, the contract included that two meetings would be held with the consultant during the study. The cost was not to exceed \$25,000. Nineteen sites were looked at in the hotspot area. The basis of the study is the cost share program. They wanted to be able to identify sites within the hotspot area that could be retrofitted with BMPs. This study was conceived for the purpose of educating developers. They asked the consultant to look at installation cost, 15-year maintenance cost, amount of impervious area treated, how well the BMP would work and the expected water quality benefits, and constructability. Bill showed a summary of all nineteen sites that discussed total area treated by site, percent reduction in 0.5 in. and 1 in. event, percent reduction in channel velocity, proposed BMP, property owner, estimated construction cost, estimated 15-year maintenance, and total cost per acre treated. The goal in the grant is to install four practices. Economic factors will limit the opportunities on private lands. The Steering Committee selected four potential sites using the cost per treated acre column on the summary sheet as the primary factor. Bill talked about the four selected sites, their treatment area, the proposed practice, expected benefits, reduction in flow rate for hotspot area, installation cost, long-term maintenance cost, and the owner. They are trying now to recruit landowners to work with them. Site visits are scheduled with the local Dept. of Transportation office to look at some of the sites. Presentations to local business groups and personal contact with landowners are also being planned.

Bill thanked the Dept. of Natural Resources and EPA for the funding for this project and the Steering Committee, who have been invaluable. He also thanked A Civil Group, the engineering firm, for their support.

Boone County is collaborating with the City of Columbia and University of Missouri on this Phase II project. The city does more on outreach and education to schools and the general public; the county focuses on contractors and developers.



## Agency Activities

Anne Peery mentioned the TMDL web site is updated with new information sheets for the 2004-2006 303(d) lists. You can also see the progress on TMDLs.

Mike Kruse encouraged everyone to check out the Web site since there are several TMDLs on public notice.

Georganne Bowman mentioned that joint committees have invited the Dept. of Natural Resources to answer questions on the Hinkson Creek TMDL. The meeting is scheduled for today (April 20) 2-4 p.m. at the Boone County Government Center in the Commission Chambers.

Cindy DiStefano invited the group to attend a seminar on Friday, April 23, at 3 p.m., at the University of Missouri's ABNR Room 123. Dr. Paul Angermeier, Virginia Cooperative Fish and Wildlife Research Unit, will be speaking on making biological conservation broadly relevant: a fish ecologist's meddlings and muddlings. He has done a lot of work on small streams.

Rebecca O'Hearn said she was hired at MDC and works closely with the environmentalists and emergency response with the Dept. of Natural Resources. She is also on the Steering Committee for the Hinkson Creek Phase II Project.

Terri Brink mentioned the Watershed Planning Conference to be held April 23-24 at Lodge of Four Seasons at Lake of the Ozarks. This is the end result of a 319 grant with the University of Missouri Extension Water Quality Program. Terri plans to attend and encouraged others to attend.

Lorin Crandall said the hottest topic at Coalition for the Environment is the proposed casino in the floodplain area just south of Columbia Bottom Conservation Area. They are mounting opposition from various organizations and environmentalists. Currently, CFM is on board. The deadline is May 1 to get information to the Missouri Gaming Commission. If this fails, the next step would be to compel an Environmental Impact Study for the 404 permit. Other proposed locations are Cape Girardeau, St. Louis City, and Kansas City.

They are also working on Kiefer Creek, a tributary to the Meramec, where bacteria levels are higher than River des Peres, according to a USGS data dated 1996-2004. However, when they got numeric criteria applied through a lawsuit, the testing entity switched to a local sewer dept. which found a way to get low test results. They are working on doing their own tests to see if it belongs on the 303(d) list or not. This creek goes through Castlewood State Park where there are several visitors.

Greg Anderson mentioned announcements from EPA of a 104(b) grant for wetland research and a national competitive targeted watershed grant. These have been forwarded to the WQCC group.

319 subgrant interviews were held March 23-24. [These were proposals received in response to the Request for Proposals (RFP) for the 2008-2009 319 grant funding.] Recommendations should be made to dept. management soon, then taken to the July Clean Water Commission meeting for confirmation. EPA will have final approval. Another RFP should be coming out soon for the 2010 319 grant funding.

Meeting adjourned.