



# **Missouri Department of Natural Resources**

## **Water Quality Coordinating Committee Water Protection Program**

### **Minutes**

**Nov. 20, 2007**

## **WATER QUALITY COORDINATING COMMITTEE**

Missouri Department of Conservation  
Auditorium  
2901 W. Truman Blvd.  
Jefferson City, Missouri

Nov. 20, 2007

10 a.m.

### **MEETING AGENDA**

Nitrogen And Water: Where Is The 500-Pound Gorilla And How Can We Tame It?  
Dr. Peter Scharf, University of Missouri - Columbia

NRCS Programs Best Management Practices, Dwaine Gelnar, Natural Resource  
Conservation Service

AgNPS SALT Best Management Practices,  
Colleen Meredith, Missouri Department of Natural Resources, Soil & Water  
Conservation Program

Monitoring Experimental Streambank Stabilization Techniques in Missouri Streams,  
Jason Persinger, Missouri Department of Conservation

Other

Agency Activities

Meetings & Conferences

NOTE: Nonpoint Source Management Plan Revisions Advisory Group Meeting  
scheduled for Dec. 18.

## MISSOURI WATER QUALITY COORDINATING COMMITTEE

Nov. 20, 2007

Missouri Department of Conservation  
Auditorium  
2901 W. Truman Blvd.  
Jefferson City, Missouri

### MINUTES

#### Attendees:

Cecilia Campbell	DNR, Water Protection Program	Jason Persinger	MO Dept. of Conservation
Dwaine Gelnar	USDA – NRCS	Paul Calvert	MO Dept. of Conservation
B. Darlene Johnson	USDA – NRCS	Anne Peery	DNR, Water Protection Program
Tim Rielly	DNR, Environmental Services Pgm	Candy Schilling	Env. Resources Coalition
Ken Tomlin	DNR, Water Protection Program	Bob Bacon	Env. Resources Coalition
Colleen Meredith	DNR, Soil & Water Conservation	Miya Barr	USGS – MO Water Science Ctr
Greg Anderson	DNR, Water Protection Program	Doyle Brown	MO Dept. of Conservation
Tucker Fredrickson	DNR, Water Protection Program	Chris Riggert	MO Dept. of Conservation
John Johnson	DNR, Water Protection Program	Randy Lyman	City of Springfield Public Works
Bob Ball	USDA – NRCS	Mohsen Dkhili	DNR, Water Protection Program
Bob Broz	University of MO Extension	Donna Menown	DNR, Water Protection Program
Paul Andre	MO Dept. of Agriculture	Jaci Ferguson	EPA Region 7
Walter Roachell	EPA Region 7	Mark Osborn	DNR, Water Protection Program
Cindy DiStefano	MO Dept. of Conservation	Lindsay Tempinson	DNR, Water Protection Program
Stacia Bax	DNR, Water Protection Program	Priscilla Stotts	DNR, Water Protection Program
Mark Van Patten	MO Dept. of Conservation	Sarah Fast	DNR, Water Protection Program
Sherry Fischer	MO Dept. of Conservation	Darlene Schaben	DNR, Water Protection Program
Eric Hempel	DNR, Water Protection Program	Peter Scharf	University of Missouri Columbia

Introductions were made. Sarah said the focus today is on agricultural best management practices.

**Nitrogen And Water: Where Is The 500-Pound Gorilla And How Can We Tame It?**, Dr. Peter Scharf,  
University of Missouri - Columbia  
PowerPoint Presentation

There is a question of how much nitrogen is coming from agricultural sources and how much is from urban sources. Peter didn't feel there was a nitrogen problem in Missouri, with the exception of some streams in the summer. The Des Moines River exceeds the EPA nitrate standard of 10 ppb for drinking water though. Des Moines uses this water for drinking water. They have installed a very expensive treatment option to remove the nitrates when the levels run high so water provided to the city meets the standards. None of this is used in Missouri. Peter showed a picture of where the Mississippi flows into the Gulf of Mexico. You could see by the color the separation of river and gulf waters. The gulf water is high salt and high phosphorus, thus more dense. The lighter river water (high nitrogen; high sediment) could be seen further out in the gulf, making it muddy looking. He showed a satellite image of where the nitrogen from the Mississippi River and the phosphorus from the Gulf met to get an abundance of phytoplankton. The amount coming down the river has tripled since 1950. They aren't sure where it is coming from. He felt that movement was coming from underground getting into the streams and surface waters. If underground, it is extremely hard to trace. During 1950-1980, use of fertilizer had increased from ½ million tons to seven million tons. Peter thought that all the nitrogen in the river was not coming primarily from urban sources. The state average per square mile on fertilizer use is a little bit higher away from the city than the average in urban areas. The 500-pound gorilla on nitrogen is agriculture. Sometimes manure and

fertilizer used together may be the nitrogen problem; other times fertilizer alone or fertilizer and legumes may be the problem.

Peter said most of his research was focused on corn. More nitrogen is used on corn than on all other crops put together. It is hard to manage nitrogen on corn. Soil also provides nitrogen which makes it hard to predict nitrogen needs. In some cases, nitrogen needs vary for different parts of a field to increase yields. A yield monitor is used now to figure out which fields yield more and in which areas. Although, the amount of nitrogen is not closely related to the amount of the yield; there is a trend of where the yield is less, more nitrogen is needed, but it is a weak trend (13 percent of the variability).

Peter explained a process they used where sensors were attached to a producer's sidedressing equipment. The sensors would signal the computer in the tractor cab and calculate the nitrogen rate using their research equations. This would control how much fertilizer was released in the soil. This project is funded by a Section 319 Nonpoint Source grant. They did 26 fields this year using this method, which was 1,500 acres. An increase was seen in the yields in some fields. The rule of thumb is to use 1.2 pounds for one bushel of yield. Farmers are using pound for pound.

### **NRCS Programs Best Management Practices, Dwaine Gelnar, NRCS** PowerPoint Presentation

Through their programs, they work with farmers. A lot of time is spent with producers on issues related to pest management and nutrient management. The goal is to improve water quality.

Dwaine said that it all starts with NRCS' Field Office Technical Guide (FOTG). Information that is used to work with producers is contained in the FOTG. It contains all practice standards, which is set up for all practices used; resource concerns, which includes water, air, and soil; and quality criteria, which identifies measures and needs to meet a particular resource. The standard identifies what they need to look at when addressing issues related to water quality, such as soil tests, soil concerns, agronomic concerns, quality criteria, etc. The FOTG is available online on NRCS' Web page, then select eFOTG and the county you are interested in. Contact NRCS if you have any questions about the FOTG or Web page. Conservation planning is also discussed with the participant. Resource maps are developed as well as decisions and recommendations and any specifications on activities they plan to undertake are included.

Bob Ball is the State Resource Conservationist and manages the FOTG and the conservation planning within the state. Some of the programs that are used most include CTA (Conservation Technical Assistance), EQIP (Environmental Quality Incentive Program), and CSP (Conservation Security Program). NRCS is funded through these programs. The CTA program is used for all initial contacts. Dwaine explained several of the practices they worked with on cropland. These practices and the numbers of acres can be found on the Web at [www.nrcs.usda.gov](http://www.nrcs.usda.gov), select the state, then the county or watershed of interest.

The EQIP program has several eligibility requirements. Once signed up, applicants go through a ranking process. More applications are received than there is available funding. Financial assistance is now at a flat rate instead of the previous cost share method. Contracts are then developed for the selected applications. In 2007, several counties provided more than 100 applications for EQIP funding. Several staff hours are spent reviewing each application. Sometimes only ten applications will be funded. One-third of the funding is used for animal feeding operations, handling of animal waste; one-third for grazing systems; and one-third for cropland, not related to grazing or animal waste, wildlife and forestry. During 2007, areas of special emphasis included windbreaks, forestry, and development of Comprehensive Nutrient Management Plans (CNMPs).

There are several options under nutrient management that NRCS can assist with and at varying levels. For instance, with the color sensing technology, the financial incentive rate is \$19 per acre per year for two payments.

Others include incentives for using precision equipment in pest management (applying pesticides and herbicides correctly); residue management; soil erosion; irrigation; and animal waste.

The Conservation Security Program (CSP) is a fairly new program that is watershed-based. There are nine watersheds included in this program. An estimated \$30 million was paid to participants in those watersheds. Payments can be received for up to ten years. The program is set up as a stewardship program instead of a cost share program. It was established to reward producers who have applied conservation in the past and have shown stewardship in the management of their farms. The program sets up additional payments so participants can do additional things. Eligibility requirements are similar to EQIP. Producers who sign up must complete a "self-assessment workbook." This helps them determine if they meet the requirements of the program. More information about the CSP is also available on the NRCS Web page.

Watersheds with a lot of previous activities were selected as priority. Dwaine didn't feel there would be many changes with EQIP in the new Farm Bill. With CSP, he said the Senate proposed to make CSP an add-on to EQIP so as to be funded better. The Administration is proposing to maintain CSP as a separate program in itself, making it harder to get funding and based on new ideas of a producer.

### **EQIP (Environmental Quality Incentive Program) – Darlene Johnson, NRCS**

Darlene said EQIP is a popular program. All counties in Missouri have at least one EQIP contract. EQIP has been available since 1996 and was reauthorized in the 2002 Farm Bill. Missouri has seen an increase in funding received because of the 2002 Farm Bill and because of actions taken by the State Conservationist, Roger Hansen. There are national requirements that are set at the national level. There are five national priorities that states are required to address (reduction of nonpoint source pollution in impaired watersheds; conservation of ground and surface water; reduction of emissions, particularly of particulate matter and volatile organic compounds; reduction of soil erosion and sedimentation; promotion of at-risk species in habitat conservation). More funding can be received if all five are addressed. Because of the complexity of land in Missouri, all five of the national priorities can be addressed. The national priorities are then set up based on eight major resource concerns. One of those is water quality. In 2007, financial assistance on 71 practices was offered through EQIP. Sixty-two (62) of those practices, in some manner, directly address water quality. In 2007, 1,386 EQIP contracts were funded. 1,302 had at least one practice addressing water quality. \$20.3 million was obligated; over \$19 million addressed water quality. The 2008 first round of EQIP pre-approvals has been completed. Producers can sign up at any time. Recently, funding selections from the last ranking period were made. Almost 3,000 applications were received, which added up to over \$40 million funding requested. The allocation amount was \$17.7 million. This shows that there is a lot of interest.

The Web site under "Programs" contains the 2008 program policies.

Dwaine invited everyone to attend the State Technical Committee meetings. They are held every three or four months in Columbia. Membership includes DNR, MDC, MDA, etc. Generally, one to three staff from each department are designated to be members. If anyone wants to become a member, they would need to send a request to Roger Hansen at NRCS.

### **AgNPS SALT Best Management Practices, Colleen Meredith, Department of Natural Resources, Soil & Water Conservation Program PowerPoint Presentation**

The Agriculture Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) program is funded by the one-tenth of one percent Parks & Soils Sale Tax. Missouri Parks get half; the Soil & Water Conservation Program (SWCP) get the other half to administer. Colleen showed a graph of the different uses of the funding.

Approximately \$20 million is spent yearly on agriculture best management practices (BMPs). The SALT practices share is about \$7 million a year.

Unlike EQIP, any landowner can apply and receive SALT funding to do a practice. SWCP is trying to focus funding in one watershed. They get regular cost share but SALT is additional funding to push the BMPs. There are currently 72 SALT projects. There are 16 that have been completed and 12 waiting to start in July. The districts have to do a Watershed Management Plan, which means they have more knowledge about what is happening in their watershed. For nutrient management practices, farmers can receive up to \$30/acre for three years and up to \$4500/year per operator or farm. All payments go to landowners. SALT requires ten pounds per acre of NPK so there is a balanced fertilizer on the land. They are then required to go through a 4-year plan to see what is actually happening so they know why they need more phosphorus or why they don't, why phosphorus shouldn't be applied at all, etc.

SALT pays more for the waste utilization practice (\$35 per acre). Pest management practices pay \$15 per acre. Riparian forest buffer practices pay up to \$500 per acre. Colleen said there are three practices that no one does: Contour buffer strips, windbreak/shelterbelt, and contour strip cropping. Several have expressed interest in water drainage management, which was piloted in Cape Girardeau. In the bootheel area, they are installed using a laser level. They feel this practice works because the water flow from the field is ultimately reduced. Also, there is some denitrification. This is a good practice if a landowner follows the watershed management plan.

Another good practice is the stream protection practice, which pays \$500/acre when farmers fence out 25 feet minimum and 180 foot maximum. They get alternate watering and stream crossings with 75 percent cost share.

Colleen discussed several other SALT practices. Those included riparian forest buffer practices, improving pasture management-planned grazing systems, spring development and animal waste management practices. New practices this year are timber harvest plan and restoration of skid trails. Landowners must work with an Missouri Department of Conservation forester or a private forester and complete a pre-harvest checklist. (If a private forester is used, they must have a Missouri Department of Conservation -approved plan.) Streambank stabilization pays \$5,000 per landowner or farm. Well decommissioning is a practice that is completely paid. If the well is closed appropriately and registered with the department's Division of Geology & Land Survey, this shows there is no contribution to water quality problems. Colleen commented that there are some practices where it takes one landowner to do a practice before others will follow.

**Monitoring Experimental Streambank Stabilization Techniques in Missouri Streams**, Jason Persinger,  
Missouri Department of Conservation  
PowerPoint Presentation

Jason works at Missouri Department of Conservation's Resource Science Division and is the lead on experimental streambank stabilization techniques. This project started in 2004 and is currently in the monitoring phase. For the last 20 years, Missouri Department of Conservation has been the technical lead on streambank stabilization in Missouri. They work with NRCS to recommend SALT techniques for landowners. Some of the techniques have included cedar tree revetment, riprap, bendway weirs, etc. He said they have had several challenges. They developed an action plan for developing new projects and examined whether or not there was a new way to stabilize streambanks. The steps of the plan were to select techniques, select sites and install projects, monitor the results, evaluate the performance, and then determine which techniques to recommend. Of the recommended techniques, they decided to try five at different locations on MDC land and monitor them. At this point, they are finishing the installation stage and starting to monitor results. Twenty-two of the 25 projects have been installed. The selected techniques were rock weirs, log weirs, toe rock, backsloping, and gravel roll. Jason showed pictures of sites where some of the techniques were installed. He also had pictures of the effects after flow events using a rock weir. In the one project that didn't work, Jason felt the problem was because of the size of the shot rock. He determined the average costs run from approx. \$10 per foot to \$30 per foot for this technique. The log weir

technique was similar to the rock weir. They had flow events at the five sites of the installed locations. They had four that worked; one failed. He said the packed material used around the logs didn't hold. They then used rock to hold them in place and angled the log upstream. So far, this method had held the bank in place. The cost for log weirs was approx. \$10 perfoot to \$30 per foot. Jason said he preferred the rock weir technique because it was more versatile.

There were six sites with toe rock installed. Five have been built; flow events have been at four sites. The goal was to cover 1/3 to 1/2 of the bank with rock. One site had two flow events that got almost to the top of the bank. The toe rock project held but an unstable bank from upstream washed which caused a deposit by the site. So far, the project seemed to be working. The cost of this technique was \$15 per foot to \$35 per foot.

Jason said they had the backsloping technique installed at four sites but only two of those have received flow events. He felt this technique was working and hoped to get vegetation started growing before another flow event. The deer were a challenge at these sites. This technique is more expensive due to the extra equipment time needed for installation. This cost was approx. \$25 per foot to \$35 perfoot. With this technique, they lay erosion control fabric on the bank surface until vegetation started growing. If fabric isn't used and if the landowner would have some of the equipment, the cost would be less.

In the Ozarks, they used available gravel for the gravel roll technique. They used the backsloping technique with the erosion control fabric and piled gravel inside it then sewed it closed. They have three projects in place but need two more. Only one project had a flow event, and it failed. They are working on solutions for repairs. The costs were about the same as the backsloping technique.

Jason summarized the average costs of each technique then talked about the sites he still needed. Monitoring will continue and within the next year or two he will be able to make some recommendations. He acknowledged EPA and several MDC staff who have assisted with this study.

### **Agency Activities**

Sarah said the regular December meeting was cancelled but the Nonpoint Source Management Advisory Group would meet on Dec. 18, 10-2, in Columbia. All were invited to attend. In January, topics include a DVD on Pesticides & Water Quality Education, the Antidegradation Rule, and groundwater monitoring.

Peter Scharf mentioned a Crop Management Conference, Dec. 5-6, to be held at the Holiday Inn in Columbia.

Sarah thanked the Review Committee that worked on the 319 proposal reviews.