

# Watershed News

May 2008

## South Branch of the Root River Watershed Project

### **PROJECT NEARS COMPLETION: ITS HISTORY AND FUTURE**

*By Donna Rasmussen, Project Coordinator*

Hard to believe that it has been 10 years since a watershed project began for the South Branch Root River. For some of you reading this, it may feel like you have been studied to death over the past 10 years! There have been many people who have been very cooperative in helping us understand this watershed and, in general, how to work at the watershed scale. Thank you to all of you for your help and assistance.

Going back even further, it was on November 30, 1995, when discussions first began about a watershed project for the South Branch Root River. Several landowners and agency folks met at Forestville State Park that day to discuss the purpose for a project and potential funding sources. After several meetings in 1996, work began in 1997 to apply for a \$61,500 Clean Water Partnership Grant from the MN Pollution Control Agency to complete a Phase I Diagnostic Study of the area draining to the South Branch west of the park. The grant was approved in March of 1998, and so the work began to evaluate the condition of the water and the watershed.

The most intensive work from 1998 to 2002 was the collection of water quality monitoring data. That data showed turbidity (cloudiness caused by sediment and/or algae in the water) to be over three times the water quality standard for warm water streams and over eight times the standard for cold water streams. Bacteria levels were over two times the water quality standard. Another key piece of information came from the monitoring that continues by several citizen volunteers. All of this information led to segments of the South Branch

being placed on the state's impaired waters list in 2004 and 2006. In 2003, a second funding application for almost \$300,000 was submitted for implementing land use practices that would address the water quality problems identified in the Diagnostic Study. Incentives, cost-share funds, and an additional \$300,000 in low-interest loans were now available to encourage landowners to adopt practices such as no till and cover crops, to plant buffers in sensitive areas along streams, around sinkholes, and as field borders while allowing limited harvesting. Woodland stewardship plans, conservation easements, well water testing, and septic system upgrades are also being funded.



No-till is one of the practices for which farmers can get an incentive payment.

The implementation project will end September 30<sup>th</sup>, so landowners need to contact the Fillmore SWCD office at 507-765-3878, ext. 122 soon if interested in participating in any of the programs.

So, what's the future hold? Work is beginning on a study of the entire Root River watershed to determine how much sediment is washing into the river and where it is coming from. When this 3-year study ends, it will open the door for incentives and cost-share for landowners in the Root River to reduce soil erosion on their land. This work will build on what was learned in the South Branch.

## ROOT RIVER TURBIDITY TMDL BUILDS ON SOUTH BRANCH PROJECT

TMDL is short for Total Maximum Daily Load, or the maximum amount of a pollutant that can enter a stream or lake without exceeding the water quality standard. Turbidity is a measure of the cloudiness of the water caused by suspended soil particles and algae scattering light in the water column. In the Root River, it is mainly sediment washing into the river that is negatively impacting what lives in the stream—the fish and the food they eat. Data collected in the South Branch project plus monitoring done in other parts of the Root River watershed, some by citizen volunteers, have shown that turbidity exceeds the water quality standard in 11 segments of the river, sometimes by as much as three times the standard.

*Water is the principle,  
or the element, of things.  
All things are water.*  
Plutarch,  
*Placita philosophorum*, c. 100 AD

Why does this matter? For those things living in the stream, cloudy water means more difficulty seeing food. Sediment settles on the bottom covering food sources, as well as egg-laying areas. Turbid water reduces oxygen levels and warms the water, conditions that especially impact trout species. Less light means less photosynthesis by plants that release oxygen into the water. If the plants die due to lack of light, oxygen is used up as they decay. One also has to consider that if the soil is ending up in the streams, it is coming from the watershed. And that means that the soils left behind will be less productive. During these times of increasing need for even more productivity from our soils, this becomes an even more urgent issue.

Once a stream segment has been identified as impaired, it is a requirement of the Clean Water Act that a TMDL be completed to determine how much of a pollutant load is in the water and the sources of the pollutant. This is accomplished with intensive water quality monitoring along with gathering information about land use in the watershed. Sixteen monitoring stations are being established in the Root River watershed by the Fillmore SWCD in

cooperation with other agencies: MN Dept. of Agriculture (MDA), DNR-Fisheries and Waters, Eagle Bluff Environmental Learning Center, and U.S. Geological Survey. The stations will monitor stream stage and turbidity. Grab samples will also be collected periodically and analyzed for the nutrients nitrogen and phosphorus, total suspended solids, and turbidity. Monitoring will continue for three years. These data will be used in watershed computer models to predict the water quality effects from various land uses. This results in better targeting of best management practices to those areas which contribute more sediment to the river and helps predict the cost involved in addressing sedimentation problems. That modeling is being done now on a smaller scale in the South Branch Root River by MDA (see page 3). Lessons learned from that will be useful when applying the model to the entire Root River watershed.

As the turbidity TMDL moves forward, it is extremely important for landowners, elected officials, ag and conservation groups, and policy makers in the watershed to provide input into those decisions about the solutions to the problems. No one wants to see our soil being washed down the river. But because this is a “nonpoint source pollution” problem—one that cannot be pinpointed to one particular field or pipe—it comes back to each of us to do what we can to reduce erosion in our own part of the watershed.

### **Root River Pasture Walk**

**Tuesday, June 10 at 6:30 p.m.**

**Greenleaf Angus Farm**

**Owned by Lynn and LaVonne Mensink**

2271 211<sup>th</sup> Ave., Preston

12 miles SW of Preston or 2 miles SW of Greenleaf

#### **Topics:**

**Managed grazing with seven paddocks**

**Frost seeding red clover**

**Using ethanol by-product with corn stalks for forage**

(Harry Root, local nutritionist)

**Demonstration of wrapping high moisture hay**

(Loren Mathison)



Sponsored by Root River Pasture Walk Group,  
Fillmore SWCD, University of Minnesota Extension,  
South Branch Root River Watershed Project

## EVALUATION OF BEST MANAGEMENT PRACTICES (BMPs) USING A COMPUTER MODEL

by Adam Birr, MDA Research Coordinator

The federal Clean Water Act requires states to adopt water quality standards based on designated uses of Minnesota's surface waters. The standards define how much of a pollutant can be in a surface water while meeting its designated use for such things as drinking water, fishing, swimming, agricultural, and industrial purposes. The Minnesota Pollution Control Agency (MPCA) is required to assess Minnesota's waters to determine if the standards are being met. Every two years the MPCA publishes a list of waters that do not meet the standards known as the "impaired waters list." Currently, the South Branch of the Root River (SBRR) is listed for a turbidity impairment.

During the summer of 2006, the Minnesota Legislature passed the Clean Water Legacy Act to provide resources to achieve and maintain water quality standards for surface waters in the state. As part of the act, the Minnesota Department of Agriculture (MDA) received funding to coordinate research projects to address impaired waters issues in agricultural watersheds. One such project that began in the spring of 2007 is being lead by researchers from the University of Minnesota. This project will use the Soil Water Assessment Tool (SWAT) to refine estimates of all sources of turbidity in the SBRR. The project will also identify both the type and extent of Best Management Practices needed to meet TMDL goals in the SBRR. Findings from this study will provide immediate input into the development of the TMDL for the watershed.

A number of activities have occurred since the project began last year. The SWAT model is a physically based model designed to directly simulate water movement, snowmelt runoff, sediment movement, crop growth and nutrient cycling processes. Consequently, it is very important to use inputs into the model that are representative of the soils, farm practices, and other physical characteristics of the watershed. In 2003 and most recently this past winter, the MDA

conducted surveys to get a clear understanding of existing farm practices regarding drainage, tillage, nutrient management, and pesticide management. Researchers from Winona State University have also been surveying stream channels throughout the watershed to provide information on the shape of the channels for the model. In addition to long-term water quality monitoring data that has been collected in Forestville/Mystery Cave State Park, the MDA recently installed two new sites in Mower County that will monitor flow, turbidity, nutrients, and selected pesticides. The monitoring data will insure that the model is accurately representing water quality and quantity in the SBRR. Other data also collected during the SBRR project will aid in improving the performance of the model.

This spring, input has been gathered from various stakeholders from the watershed on BMPs to simulate using the model. The researchers will evaluate these practices and determine how they impact water quality in relation to the standards for turbidity. A report will be completed by the researchers in June of 2009 and will be made available to the public.

Contact Adam Birr (MDA) at 507-696-5624 for more information on this project.



### FREE Woodland Advisor Classes

#### **Tree Identification, Tuesday, June 10**

*Learn to identify the native trees and plants of your area.*

#### **Forest Wildlife, Thursday, June 12**

*Learn how to attract wildlife to your woodland.*

Both classes will be held from 6:30 to 9:00 p.m. at Forestville/Mystery Cave State Park, meeting at the picnic shelter in the main park area.

#### **To register,**

contact Mary Jane Stearns, [mstearns@umn.edu](mailto:mstearns@umn.edu),  
507-536-6310, or 888-241-4536.

**FREE to watershed landowners, who will be reimbursed the \$20 registration fee from South Branch Root River Watershed Project grant funds.**

*Sponsored by U of M Extension, the MN DNR,  
with support from Forest Stewardship  
and the South Branch Root River Watershed Project.*

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Preston, MN 55965

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### **HEUSINKVELD FARM CHOSEN AS CONSERVATIONISTS OF THE YEAR**



The Fillmore Soil and Water Conservation District (SWCD) selected *Heusinkveld Farm* of Spring Valley as the District’s 2007 Outstanding Conservationist of the Year. Heusinkveld Farm is a three-generation family dairy operation

owned and operated by Cleon Heusinkveld and sons, Steve and Jeff, and Jeff’s son, Nate. The Heusinkvelds milk 270 cows and operate about 600 acres, ninety percent of which is in a four year 50/50 hay and corn rotation. Their practices include cover crops on their corn silage acres, well maintained grass waterways, terraces, a farm pond, conservation tillage, and implementation of a nutrient management plan reducing their commercial fertilizer input significantly. They have been cooperators in a grazing study conducted by the Minnesota Department of Agriculture to measure runoff from pastures and manured crop fields. The Heusinkvelds operation has prevailed through tough economic times for dairy farms making many improvements while keeping conservation on the land. **Congratulations to the Heusinkvelds--Cleon, Steve, Jeff, and Nate--on their conservation achievements!**