WATERSHED NEWS

Fall 1999

South Branch of the Root River Watershed Project

Open House

Thursday, November 18, 1999
7:00 - 9:00 p.m.
At Trinity Lutheran Church, Ostrander

Displays and resource people will provide information about:

Stream Monitoring and Other Data Collection Activities:

- Citizen Stream Monitoring Network
- Biological Monitoring (Surveys of fish, invertebrates, and mussels)
- Stream Stage and Water Chemistry Data
- Updated Dye Trace Maps

Locations of Special Interest:

- Judicial Ditch #1
- Forestville/Mystery Cave State Park
- Ironwood Landfill
- County Road 5 Erosion Control and Fish Habitat Project
- Rifle Hill Quarry - Mathy Construction

Kids' Activities

- Model Stream Table
- Tying Trout Fishing Flies

Free Water Testing for Nitrates

(see inside for details)

Refreshments will be served

STREAM MONITORING WHEN THE HIGH WATER COMES

By Johannah Vreeman, Citizen Stream Monitoring Volunteer

Stream monitoring is about done for most of us this year as the rivers are low and clear, about the same each week.

It was a different story this spring. We received four inches of water in a short time so rivers were high and dirty. Water raised up above flood stage in a short time. Then a few days later we had another two inches. The river stages varied from one day to another with lots of debris and loaded with silt and good top soil.

As we have river bottom pasture and woodland along the Root River, we had a summer's job of piling and finally burning debris that had floated down and settled on our nice green pasture. The high water not only cuts into the banks and washes away the soil but changes the streams from one year to another.

I wish there was some way of slowing down the flow of water when it is high because when it gets to our land there is quite a body of water coming from northwest of Ostrander or a starting point where all the smaller tributaries are flowing into it. You can only imagine what it does to our two line fences which cross the river. It takes several days before you can even replace them. You just have to hope that the cattle don't find the open fences and stay in the pasture.

TRIALS, TRIBULATIONS AND FUN OF STREAM MONITORING

By Carol Kohn, Citizen Stream Monitoring Volunteer

Why does one volunteer for stream monitoring? For me, I want to help in some way to keep the water, above and below, clean and healthy. Another reason is I like the out-of-doors.

As I stand at the river's edge, it is nice to see small fish swimming when the water is clear, hear the frogs, and feel a soft breeze in my face. Occasionally, I might see a muskrat, turtle, or a few ducks or geese swimming.

On July 20, 1999, it wasn't all that nice. It had been raining quite heavily and the creeks were rising. Spring Valley had been sandbagging and the South Branch of the Root River one mile north of Ostrander and three miles northwest was rising rapidly. A friend and I went to measure the two sites. The first site north of Ostrander was 5'7" above what it is normally. We also noticed an old cottonwood tree that had floated down the river earlier in the year. It had gotten closer to the bridge but was now caught on the shoreline. At the second site the water was getting close to some large round hay bales sitting along the edge of the field. The water here was 8'2" above what was normal.

A couple of hours later, it was back to check the sites again. This time, as we checked north of Ostrander, the river had risen to 6'3" above normal. Just as I was measuring the height, that big old cottonwood started for the bridge. When it hit, it shook the bridge, making one wonder if it would stay standing. The water had now almost covered the cow pastures and had some cattle pinned in a higher area. The water was also lapping at the bottom of the bridge. I had not seen the river this high since the bridge was built in 1970.

Now on to the second site. By this time the water had started crossing the road in two different places. Luckily, one area we didn't have to cross. The other was a different story. Off came the shoes and socks, roll up the pant legs and start walking. Being very careful, we crossed the flowing water and made it to the bridge to measure. It was now 8'6" above normal. As we stood there, the water was rising. The bales of hay were now surrounded by water, bean fields were being covered as were pastures. Wading back to the vehicle, the water had risen from ankle deep to mid-calf deep. It was time to get back as we may have been stranded or caught in a more powerful current. It was a crazy thing to do, but just had to get that measurement! Since it was getting dark another check was not done.

Some days it is a pain to go out and get the testing done. Other times, or should I say most times, it is fun! It also gives me a feeling of satisfaction knowing I am helping in some way to preserve good water quality.

HIGH WATER FROM A FISHERIES PERSPECTIVE

By Bob Moody, DNR Fisheries

The last summer of the 20th century in southeast Minnesota will long be remembered for the amount of precipitation experienced in this landscape. Take August for example. More than six inches of rain fell onto the landscape during the first three weeks, making it the ninth wettest month in the Southeast since 1909. On August 18th, southeast Minnesota experienced record setting rainfall with 2.4 inches falling in Rochester and almost twice that amount (4.1 inches) further to the south in Lanesboro. Most of this rain came in less than two hours. Farmers and anglers alike experienced many difficulties in plying their respective trades under "Mother Nature's" extended deluge. Flooding and high water levels were observed throughout most of the summer. Only within the past couple of weeks have many of our best trout waters cleared to the point where anglers can be effective with fly-fishing techniques.

So what are some of the possible effects of the summer floods on our streams? Anglers can expect that some of their favorite fishing holes may have been changed. In some areas, such as riffles, rocks have been scoured clean, removing an important food resource for trout in the form of aquatic insects. Large woody debris has also been removed and deposited further downstream in some cases, creating fish holding cover in some areas while destroying it in others. Extended periods of sedimentation, from soil being washed off of upland areas will have caused some pools to become shallower and filled in undercut banks and other "holes."

Young-of-the-year trout, smallmouth bass and other small fishes such as minnows can be washed out of their preferred habitats and left stranded after flooding. Early summer flooding is particularly hard on recently hatched smallmouth fry.

Fortunately, most streams in the area appear to have come out of the summer floods in pretty good shape. Fall electrofishing will give us a better picture of just how well the trout and bass survived. Stay tuned!

BACTERIA MONITORING IN THE SOUTH BRANCH ROOT RIVER

By Lee Ganske, MPCA

On August 2 Citizen Stream Monitoring volunteers assisted monitoring efforts in the South Branch Root River watershed project by collecting water samples that were analyzed for fecal coliform bacteria. Fecal coliform is an important water quality indicator as it can tell us if there is excessive human or animal manure in our water. Human and animal manure may contain disease causing organisms such as E. coli. A recent E. coli outbreak at a county fair in New York State killed a 3-year-old child and sickened many others. Investigators believe a heavy rainstorm caused runoff from manure piles at the dairy barns on the fairgrounds. That runoff then seeped into the goundwater which supplied the wells used for drinking water and food preparation.

For drinking water, a zero-tolerance standard has been established for fecal coliform. No fecal coliform should be present in private wells or public water supplies. For surface waters such as the Root River, the standard is a bit more complicated. A standard violation occurs when:

- the geometric mean (average) of 5 samples in a calendar month exceeds 200 organisms per 100 milliliters (ml) of water OR
- ten percent of the samples in a calendar month exceed 2000 organisms per 100 ml of water

The table below shows the results from the August 2 monitoring. While not directly comparable to the surface water quality standard, any value greater than 200, and certainly any value greater than 1000, indicates excessive human and/or animal waste in the water.

Site	Fecal Coliform (organism/100 ml)
South Branch Root River at Mieghen Store (SB-1)	1,000
South Branch Root River below Forestville Housing, Development (SB-2)	250
South Branch Root River at County 5 Bridge (SB-2A)	1,400
South Branch Root River at Mystery Cave (SB-2B)	260
South Branch Root River at Bridge just NW of Etna (SB-3)	460
South Branch Root River 1.5 miles NE of Ostrander (SB-4)	530
South Branch Root River 1 mile N of Ostrander (SB-4B)	83
South Branch Root River 3.5 miles NW of Ostrander (SB-4A)	190
Judicial Ditch 1 at mouth (JD-1A)	460
Canfield Creek near mouth (CN-1)	460
Forestville Creek near mouth (F-1)	1,600

The results of this bacteria monitoring should raise concerns in at least 3 areas -

- The South Branch Root and its tributaries are used for body-contact recreation such as swimming, wading, and fishing. There is at least a small risk of exposure to disease.
- There are connections between surface water and groundwater that are stronger in southeastern Minnesota than in much of the rest of the state. Drinking water wells have been contaminated by river and stream floodwaters.
- Human and animal manure has impacts on water quality that are not directly related to human health concerns. Manure, for example, can deplete the oxygen from water that fish need to survive.

As the South Branch Root River watershed project progresses, we hope to learn more about the extent and sources of bacterial contamination. Ultimately, we hope to bring bacterial levels within a range that will make us all more comfortable using and enjoying the beautiful water resources of the South Branch.

EQIP PRIORITY AREA UPDATE

By Kevin Scheidecker, Fillmore SWCD

The South Branch of the Root River recently received priority area funding from the Natural Resources Conservation Service (NRCS) for the Environmental Quality Incentives Program (EQIP). The EQIP program is a federal program that allows landowners to address all the resource concerns on a tract of land such as soil erosion, water quality and animal feedlots. $250,000 was received and was allocated during a sign-up period in the spring of this year. The following is a summary of the applications that were funded in the watershed in both Mower and Fillmore Counties.

Conservation Cropping Rotation	805.7 acres
Conservation Tillage	1196.9 acres
Nutrient Management	1213.1 acres
Pest Management	681.1 acres
Manure Management	280.0 acres
Grasses Waterways	16,183.0 feet
Prescribed Grazing System	353.0 acres

Other practices that are eligible for the EQIP Program are terraces, sediment basins, diversions, farmstead shelterbelts, livestock waste storage facility and filter strips. The 5-10 year EQIP contracts can be funded up to $50,000. Most of the practices are cost-shared at 50 to 75%.

For information on future EQIP application periods, contact the Fillmore or Mower County Ag Service Center at 507-434-2603 or 507-765-3878.

Monitoring Activities

Three monitoring sites have been established along the main stem of the South Branch of the Root River. Stream stage is being recorded automatically by dataloggers like the one pictured to the right. They are placed well above the high water level and are connected to depth measurement pressure transducers placed in the river. The pressure transducers contain a pressure-sensitive membrane. The deeper the water, the more pressure exerted on the membrane. Computer software in the datalogger convert the pressure readings to water depth. Measurements are recorded every 15 minutes. The data are stored in the datalogger until downloaded into a computer for analysis. The datalogger at the middle site north of Etna is also connected to a rain gauge.

Photo by Donna Rasmussen

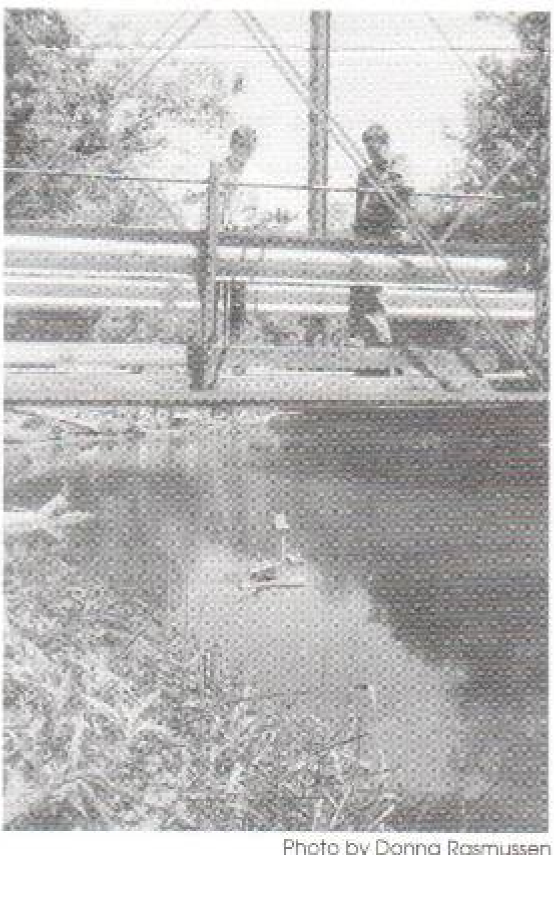


Photo by Donna Rasmussen

At left, staff from the Minnesota Pollution Control Agency are measuring water flow using a flow meter lowered from a bridge. Water flow is being measured at varying stream stages. Data about the depth and width of the stream are also collected so the volume of water can be calculated for a given stream stage at each of the monitoring sites.

Water chemistry data is also being collected at the three sites along the main stem as well as five sites along the tributaries. Samples are collected on a regular basis during normal flow conditions and also after rainfall events. The samples are analyzed for nitrates, ammonia, phosphates, total suspended solids and turbidity. Dissolved oxygen, water temperature and specific conductance (the dissolved ions in the water that can conduct an electrical current) are measured each time samples are collected.

All of the data being collected will help in understanding how the river reacts to rainfall events, how long it takes to return to normal conditions, and how water chemistry changes under high flow conditions.

High Water in the Watershed

On the evening of July 18, heavy rains fell in southeastern Minnesota. The middle monitoring station on the South Branch one mile north of Etna recorded over 6.5" of rain in 24 hours, including 1.71" in one 15-minute interval. Within a short time the river was 8-9' above normal. The picture below is taken from Steve and Diane Hafner's residence on the north side of the river. Normally, they cannot even see the river from their house.

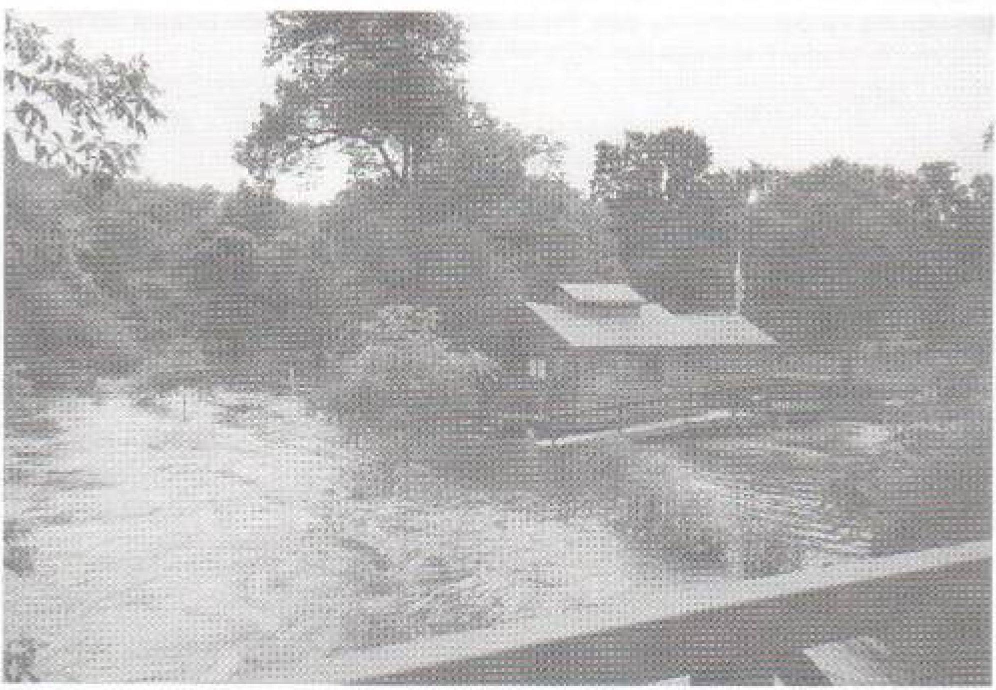
Photo by Diane Hafner

The picture below was taken from the bridge by Hafners looking upstream. Note the bean field on the right that was inundated by the water. The amount of sediment in the water indicated that soil erosion was occuring even though most of the fields had good plant cover.

Photo by Diane Hafner

The picture above is a downstream view from the Hafner bridge. The stream stage gauge mounted on a post in the water under the bridge and the pressure transducer attached to it were slightly damaged by the high water. The post, which is normally about 4' above the water was completely submerged and bent over by the current and debris in the river.

Photo by Diane Hafner



At Mystery Cave the picnic area was awash and the ticket building had become an island

Photo by Park Staff

Water poured over the bridge blocking access to the cave grounds.

Photo by Park Staff

FREE WATER TESTING FOR NITRATES AT THE OPEN HOUSE NOVEMBER 18

Private well owners will have the opportunity to get their water tested free for nitrates at the Open House for the South Branch Root River Watershed Project on Thursday, November 18 in Ostrander (see front page). The testing equipment is provided by the MN Department of Agriculture (MDA). Staff from Fillmore County Water Planning and SWCD will test the samples. Samples can be brought in for testing anytime during the Open House which is being held from 7:00 to 9:00 p.m.

Water samples will be tested for nitrates only. Other contaminants, such as bacteria, cannot be tested for using MDA equipment. The results are very accurate and are available in about 5 to 10 minutes. A 1/2 cup sample is adequate for the test. Put the sample in a Ziploc™ type bag or clean glass or plastic container marked with permanent marker with your name, or an ID number if results are to be kept confidential. Samples should not be more than 24 hours old and should be kept cool until tested. If you have a home water treatment system (other than a water softener), bring in samples before and after treatment to determine if your system is working properly.

Call the Fillmore County Water Plan Coordinator at 765-3305 if you would like more information about the clinics. If you are connected to a city water supply and have a question about water quality, contact the city clerk's office for information about current water tests that have been done for the city water supply.

WATERSHED NEWS

Fillmore County WaterPlan Coordinator
912 Houston St. NW
Preston, MN 55965

Local Residents Serve On Steering Committee & Assist With Grant Process

As the South Branch Watershed Project has progressed, several local people have played a role in guiding that progress by serving on the steering committee.

Diane Hafner	**Farmer & Fillmore SWCD Supervisor**
Dan Terbeest	**Farmer & Bloomfield Township Board**
Sue Schrage	**Fillmore Water Planning Advisory Committee**
Johannah Vreeman	**Farmer & Resident**
Carol Kohn	**Farmer & Resident**

Technical Staff Assisting Watershed Project:

Donna Rasmussen	**Fillmore County Water Plan Coordinator**
Lee Ganske	**MN Pollution Control Agency**
Bev Nordby	**Mower SWCD**
Kevin Scheidecker	**Fillmore SWCD**
Jeff Green	**Regional Groundwater Specialist, DNR**
Bob Moody	**Fisheries Biologist, DNR**
Mark White	**Forestville/Mystery Cave State Park**
Warren Netherton	

South Branch Root River Watershed Project Area

This watershed project has been funded by the Clean Water Partnership grant, Fillmore County Water Planning Grant,and by the SWCD. As work begins on this project, there will be opportunities for other people to become involved in volunteer water quality monitoring efforts, education and informational meetings, surveying, etc. If you would like to know more about the watershed project, please contact Bev Nordby in Austin at (507)434-2603 or Donna Rasmussen in Preston at (507)765-3305.