

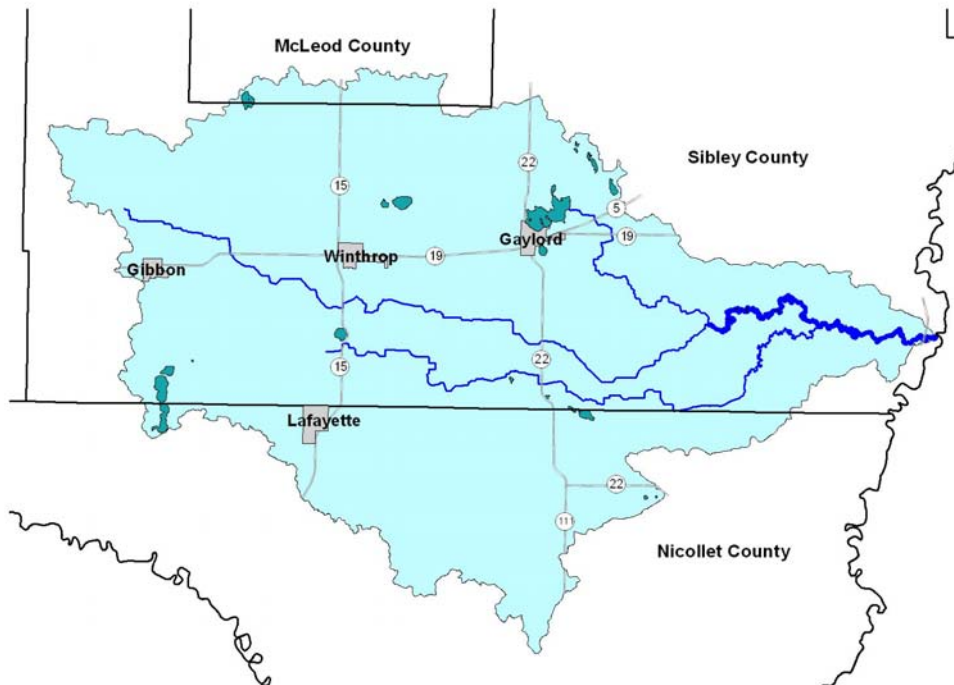
Rush River Assessment Project

Summer 2004

Fecal Coliform Bacteria in Rush River a Widespread Problem

Water quality testing during the past several years in Rush River Watershed has revealed elevated concentrations of fecal coliform bacteria. Fecal coliform bacteria are a group of bacteria that pass through the fecal excrement of humans, livestock and wildlife. Fecal coliform bacteria indicate the presence of sewage contamination of a stream or ditch and the possible presence of disease causing organisms. Fecal coliform can enter streams and ditches through direct discharge of waste from mammals and birds, runoff from feedlots, manure applied fields, and through city storm water. Another important source is untreated human sewage from noncompliant septic systems. The Environmental Protection Agency's recommendation for body-contact recreation is less than 200 colonies/100 mL sample - about 1/3 cup.

Rush River Watershed



All monitored sites in the Rush River Watershed were frequently over the EPA standard. The highest FC concentrations were seen during storm runoff. The monitoring site with the highest bacterial levels was the middle branch of the Rush River, with 84% of samples exceeding the surface water standard. The average concentration of the middle branch Rush River was 1000 colonies/100 ml. sample (5 times the surface water standard). Even the lowest FC concentration site, the south branch Rush River, saw 65% of the samples exceed the surface water standard, with an average concentration of 400 colonies/100 ml.

Reduction of fecal coliform bacteria in the Rush River and its tributaries will be a key goal of RRAP. Low interest loan funding will be sought for upgrades to noncompliant septic systems. In addition, cost share funding will be sought to implement best management practices that reduce runoff of manure, as well as encouraging manure management plans for feedlots in the watershed.

"Become a Volunteer Monitor"



Both the High Island Creek Watershed Implementation Project and the Rush River Assessment Project are looking for help to collect valuable water quality monitoring data. Due to tight funding and limited staffing, there is a strong need for additional assistance with gathering information on how healthy the rivers, creeks and lakes are in our backyards.

Volunteers will have a chance to become more involved with these two water quality projects by:

- ✓ Recording precipitation amounts using a rain gauge,
- ✓ Observing water quality clarity by the use of a transparency tube or secchi disk,
- ✓ Taking visual estimate of water level or a measurement using a staff gauge,
- ✓ Observing the appearance and recreational suitability of the river or lake.

Volunteers are needed to gather data on water quality for both streams and lakes. Observations are normally recorded on a bi-monthly basis and after major storm events.

For more information on this program contact: Scott Matteson at **507-237-5435** ext. 105

High Island Creek Watershed Project Receives Implementation Funding

The High Island Creek Watershed Assessment Project was recently funded \$300,000 in grant and \$825,000 in low interest loan dollars for phase II implementation activities. HICWAP was a three year water quality study of the High Island Creek Watershed, from 2000 through 2002.

HICWAP, now called the High Island Creek Watershed Implementation Project (HICWIP), received funding from the Minnesota Pollution Control Agency and local sponsors, this past spring. The grant funding is being used to promote best management practices in the watershed, which will help reduce sediment and nutrients from entering streams and lakes.

Over the next three years, watershed residents can take advantage of a variety of programs, such as; manure and nutrient management workshops, cover crops, cost share for open tile intake alternatives, and incentive payments for structural practices (terraces, gully structures, etc) and vegetative practices (wetland restorations, filter strips, riparian buffers, etc.).

In addition, the low interest loan dollars are available to residents needing to upgrade noncompliant individual sewage septic systems. These loans dollars are available at 3% interest, over a ten year payoff period.

The Rush River Assessment Project will be seeking Implementation funding for the Rush River Watershed this October. If successfully funded, similar programs will be offered to residents of the Rush River Watershed, starting in 2005. For questions about the High Island Implementation Project, contact Scott Kudelka, HICWIP Coordinator, at 507-237-5435 ext. 103 or scott.kudelka@mn.usda.gov.

Rush River Hydrologic Study

By Robert Barth,
Bonestroo, Rosene, Anderlik & Associates

Reducing flow and retaining water runoff is an important concern of people living and working in the Rush River Watershed and has been the focus of a hydrologic study prepared by Bonestroo, Rosene, Anderlik & Associates. Funded by the Rush River Assessment Project, this "H-Study" was conducted to determine what actions can be taken to reduce flow in the Rush River and its tributaries.

FINDINGS - Water retention areas should be tailored into the landscape of Rush River. Each acre of retention should receive the water runoff from approximately eight other acres. The study shows that applying this to 40% of the Rush River watershed could significantly reduce the peak flows in the Rush River following storms. Applying to 80% of the watershed would reduce the peak flows even more.

A change in the type of crops, a historic drainage of wetlands and the continuing expansion of an agricultural drainage system has led to an extensively modified Rush River and watershed. Even through some bank cutting and erosion would have been normal in the river during pre-agricultural times, this increased flow has caused a transformation of the Rush River that continues today.

In order to quantify existing flows a sophisticated hydrologic and hydraulic model was used. A number of factors were plugged into the model, including watershed features, characteristic land use and generated runoff. In addition the model looked at the operation of tile intakes and field storage, along with current tillage practices. The study also included all three tributary branches, significant structures like culverts, bridges and roadway crossings, and rainfall events. Rainfall is an important component due to the size of the watershed and its extended distance west to east.

To compliment the RRAP goal of reducing pollution and improving water quality, the H-Study looked more closely at volume reduction versus pure rate reduction. Storage of water is the major focus, even though no subwatershed or reach can be singled out as a primary contributor to excessive flow in the Rush River. The only distinguishing retention feature is Lake Titlow, which serves as an important role in reducing flow on the north branch.

The H-Study emphasizes a programmatic approach over one concentrating on individual projects. This is the result of there being no "magic bullet" or small group of projects providing even a small reduction in flow.

Ultimately the ability of the land area to meet this criteria (interception and holding of volume without discharge) and a willingness of the landowner to participate will be more important than the size of the project.



Bank failure is an indication that the River is transforming itself in response to increased flows.

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Rush River Hydrologic Study continued.....

Restoring 5% of wetlands watershed-wide will lead to 12,900 acres of storage or 25,800 acres if 10% is targeted. Today only an estimated 1.7% or 4,460 acres remain in wetlands or shallow lakes. These restored wetlands will retain water for infiltration and evaporation or, in some cases, release it through gated outlet structures after a storm event has peaked. According to the H-Study, these restored areas could potentially reduce 60 to 80 percent of water flow in the Rush River after a major storm.

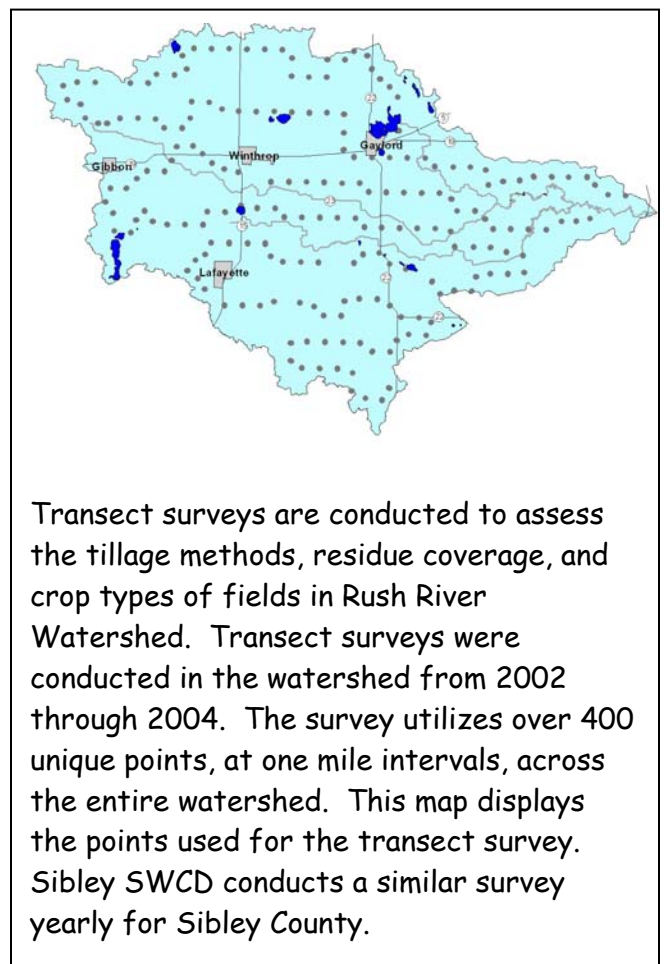
A final plan for the hydrologic study will be completed this September and available on the Rush River website (see back page). A hard copy of the report can be obtained by contacting the Rush River Assessment Project.

Farmers in Rush River Watershed Leaving More Residue

Yearly surveys of plant residue coverage on farm fields in this area have shown steady increases in the number of farmers utilizing conservation tillage practices.

Conservation tillage refers to soil preparation that leaves a percentage of the soil surface covered by some form of plant residue after a crop is established. The minimum portion of surface coverage to qualify as conservation tillage is 30 percent. This residue coverage on the soil surface benefits the environment by reducing the risk of erosion and protects water quality from the degradation caused by runoff carrying sediment and possibly traces of fertilizer, pesticides, or both. Residue coverage, and the lack of stirring the soil through tillage, may increase water intake, reduce water loss by surface runoff, and reduce certain weed pressures. Over several seasons conservation tillage may improve soil structure and organic matter, especially in the upper 2 inches of soil.

Data gathered from field surveys conducted by Sibley Soil and Water Conservation District since 1985, indicates a steady increase in conservation tillage. Surveys indicated approximately 5% of fields were under conservation tillage in 1985. In 1995, 17% of fields were under conservation tillage. Today, 35% of farm fields in this area have at least 30% residue coverage.



Transect surveys are conducted to assess the tillage methods, residue coverage, and crop types of fields in Rush River Watershed. Transect surveys were conducted in the watershed from 2002 through 2004. The survey utilizes over 400 unique points, at one mile intervals, across the entire watershed. This map displays the points used for the transect survey. Sibley SWCD conducts a similar survey yearly for Sibley County.

Based on data from the 2004 transect survey, 57% of fields planted to soybeans and 13% of fields planted to corn are following conservation tillage. Approximately 90% of fields in Rush River Watershed are either corn or soybeans.

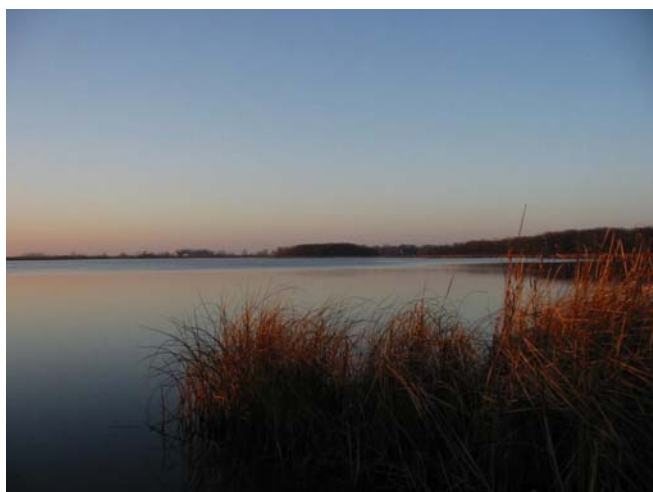
Watershed Initiative Update, Rush River Basin By Scott Sparlin Watershed Initiative Coordinator Friends of the Minnesota Valley

Several specific water resources have been identified as a high priority and being in need of improvement within the Rush River watershed. Concerns of water quality and quantity related to the Rush River have also been at the center of the prioritization process. The Rush River Assessment Project has helped to re-enforce what previous Watershed Initiative team meetings have identified. Now the task is to move forward in a collective effort to address these things in an effective way that is sensitive to the needs of the residents and at the same time allows for existing businesses on the landscape to continue and prosper.

The improvement of Lake Titlow is certainly a high priority among residents, especially those living right in the immediate Gaylord area. In the coming years, important meetings will be held to examine options for improvements to the lake and what they may consist of. Residents will be asked for input in an effort to meet the needs of the greater public with regards to future usage. Participation and degree of interest will of course be the key component to success as it has been in the past on all successful undertakings of this kind. People will also need to gain a greater watershed perspective and awareness with regards to the effects it has on the lake itself.

Funding for land use and management changes that will need to occur in order to accomplish surface water improvements will be sought both at the government and non-government level. After which, willing participants and strategic areas will be sought out to help the process move forward and gain success.

Residents are currently optimistic that improvements are achievable and are willing to help make it become a reality. I look forward to helping foster an atmosphere of cooperation and partnerships that can accomplish much as a group pulling in the same direction. We all stand to gain a great deal.



Public meetings will be held to discuss options for improvements To Lake Titlow.



Water quality and quantity concerns related to the Rush River will also be at the center of the prioritization process.

This newsletter is sponsored by the Rush River Watershed Assessment Project. This publication is issued bi-annually and is funded through the Clean Water Partnership grant program from the Minnesota Pollution Control Agency and various local and state organizations. Questions and comments can be directed to:

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Visit the New Rush River Website

The Rush River Assessment Project now has a website located at:

http://mrbdc.mnsu.edu/major/lowminn/subshed/rush/rr_watershed.html

Visit the website to obtain a variety of information on the Rush River Watershed, including:

- An overview of the watershed, its history and the landscape.
- A description of project activities.
- Results of water quality testing on the Rush River.
- Results of well water testing conducted in 2003.
- Results of citizen stream monitoring and precipitation monitoring.
- Publications, such as reports and past newsletters.
- Maps of the watershed.
- Links to other websites with information related to water quality and the environment.



The Rush River Watershed website is designed and maintained by Minnesota State University, Mankato – Water Resources Center and RRAP.

Photo and Story Request

Do you have historical photos of the Rush River? Stories about living near the Rush River? We'd like to hear about it. Please contact us at 507-237-5435 ext. 103 or scott.matteson@mn.usda.gov