Section 319 Nonpoint Source Pollution Control Program

South Branch Bacteria Reduction Project

2005-2009

Final Report

Prepared by Megan Kranz-McGuire, Project Coordinator

This project was conducted in cooperation with the State of Minnesota Pollution Control Agency and the United States Environmental Protection Agency.

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Grant Project Summary

Project title: South Branch Whitewater Watershed -- Bacteria Reduction Project

Organization (Grantee): Whitewater Joint Powers Board (Whitewater River Watershed Project)

Project start date: October 1, 2005 Project end date: June 30, 2009 Report submittal: August 6, 2009

Grantee contact name: Megan Kranz-McGuire Title: Project Coordinator

Address: P.O. Box 39

City: Lewiston State: MN Zip: 55952

Phone number: 507-523-2171 x110 Fax: 507-523-2171 E-mail: megankm@charterinternet.com

Basin (Red, Minnesota, St. Croix, etc.): Lower Mississippi Basin County: Winona and Olmsted

Project type (check one):

- ☐ Clean Water Partnership (CWP) Diagnostic
- ☐ CWP Implementation
- ☐ Total Maximum Daily Load (TMDL) Development
- X 319 Implementation
- ☐ 319 Demonstration, Education, Research
- ☐ TMDL Implementation

Grant Funding

Final grant amount: $174,660 Final total project costs: $147,466.65

Matching funds: Final cash: $ 0 Final in-kind: $ 297,463.58 Final Loan: $54,471.50

Contract number: CFMS Contract No. A 87968 MPCA project manager: Bill Thompson

For TMDL Development or TMDL Implementation Projects only

Impaired reach name(s): South Branch Whitewater River

AUID or DNR Lake ID(s):

Listed pollutant(s): Fecal Coliform

303(d) List scheduled start date: Scheduled completion date:

AUID = Assessment Unit ID
DNR = Minnesota Department of Natural Resources

Executive Summary of Project (300 words or less)

The South Branch of the Whitewater River is impaired for recreation from fecal coliform bacteria. Monitoring data shows the Whitewater River Watershed having the highest fecal coliform levels in the Lower Mississippi River Basin. Through the Section 319 Grant Program, the Whitewater Watershed Project implemented a South Branch Bacteria Reduction Project. The project utilized education, technical assistance and financial assistance to address high bacteria levels.

Using the Regional TMDL Implementation Plan as a guide, project team focused its efforts to 1) educate watershed residents and local official, 2) develop customized maps on sensitive features and setback requirements for livestock farmers, 3) offer low interest loans for septic system upgrades and 4) utilize existing cost share programs to increase

the adoption of targeted BMP's for the reduction of fecal coliform bacteria pollution. Work began in June 2005 and continued through June 2009.

The project made significant progress toward addressing an extremely complex pollution problem. Outreach efforts reached many watershed residents, increasing knowledge and awareness of the problem and potential solutions. Farmers installed BMPs on hundreds of acres, and five feedlots were brought into compliance with pollution standards. 72% of feedlot operators with between 10 and 1000 animal units met to discuss personalized maps showing sensitive features on their farms. Residents replaced failing septic systems through our low-interest loan program.

We hope to build off the lessoned learned during this project in continued efforts. In the future, we plan to address bacteria impairments using strategies that worked during this project, while also trying new strategies for increased success. Through strengthened partnerships, increased contact with farmers and residents, and growing awareness of pollution issues, local partnerships like the Whitewater Watershed Project can work to address water quality concerns and build momentum toward watershed restoration.

Goals (Include three primary goals for this project.)

1st	Goal:	This project will increase replacement of failing septic systems and promote proper maintenance of ISTS's to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.
2nd	Goal:	This project will lead to increased knowledge and understanding of bacterial pollution by South Branch Whitewater Watershed residents, farmers and municipalities.
3rd	Goal:	This project will increase adoption of low-cost feedlot fixes to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.

Results that count (Include the results from your established goals.)

1st	Result:	Seven residents used CWP loan funds to improve or replace ISTS; twenty-five attended ISTS maintenance classes.
2nd	Result:	Provided site-specific maps of Sensitive Features for Manure Application to 89% of feedlots between 100 and 1000 animal units. Met individually with 72% of feedlot operators between 100 and 1000 animal units to discuss their maps and MPCA manure spreading guidelines. Provided brochures, Do-It-Yourself Septic Evaluations, and other materials to 300 residents. Discussed stormwater management with local city officials. Designed two rain gardens for the City of St Charles to be installed in Fall 2009 with cost share funding from the Winona SWCD. These rain gardens will utilize native plants and will be buffering the river as it flow through the city.
3rd	Result:	Used matching funds from a Minnesota Clean Water Legacy grant to provide cost-share for xx feedlots with less than 300 animal units. BMPs included: roof gutters, clean water diversions, filter strips, etc. Whitewater cost share total $19,000. The cost to landowners and other cost-share sources was approximately $118,000. Landowners typically paid 50% or more of the cost.

Picture (Attach at least one picture, do not imbed into this document.)

Description/location:

Tour of rain gardens with local city officials.

Acronyms (Name all project acronyms and their meanings.)

WWP: Whitewater Watershed Project

SWCD: Soil and Water Conservation District

NRCS: Natural Resources Conservation Service

ISTS: Individual Sewage Treatment System

Partnerships (Name all partners and indicate relationship to project)

Winona County: Feedlot Officer and County Water Planner provided technical assistance and other in-kind support; Winona County also sponsored the CWP low-cost loan for ISTS improvement and replacement

Winona SWCD: Feedlot technician provided technical assistance and matching funds for feedlot fixes, runoff control, and native buffer plantings

Olmsted County: County Water Planner provided technical assistance and other in-kind support

Olmsted SWCD: Feedlot technician provided technical assistance and matching funds for feedlot fixes and runoff control

NRCS: NRCS staff provided technical assistance and cost-share assistance for private landowners

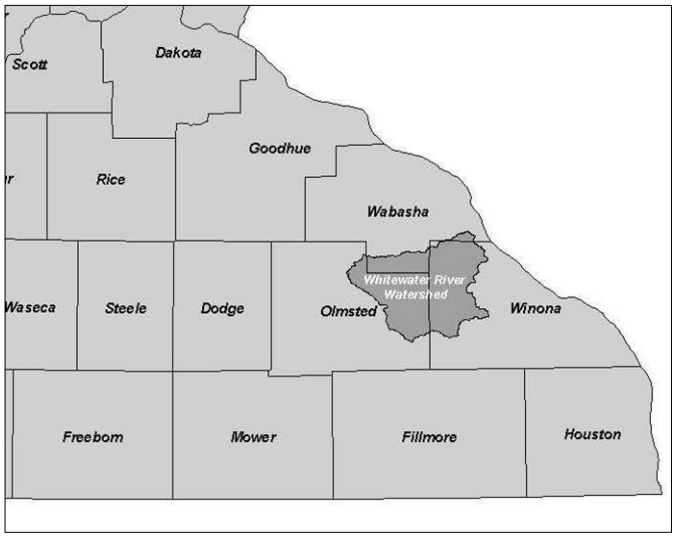
Landowners: private landowners provided funding for feedlot fixes, runoff control practices, and other BMPs

City of St. Charles: the city has worked with Winona SWCD to plan two native buffer plantings along the river. The plantings will be installed in Fall 2009 with cost-share assistance from the SWCD.

Introduction

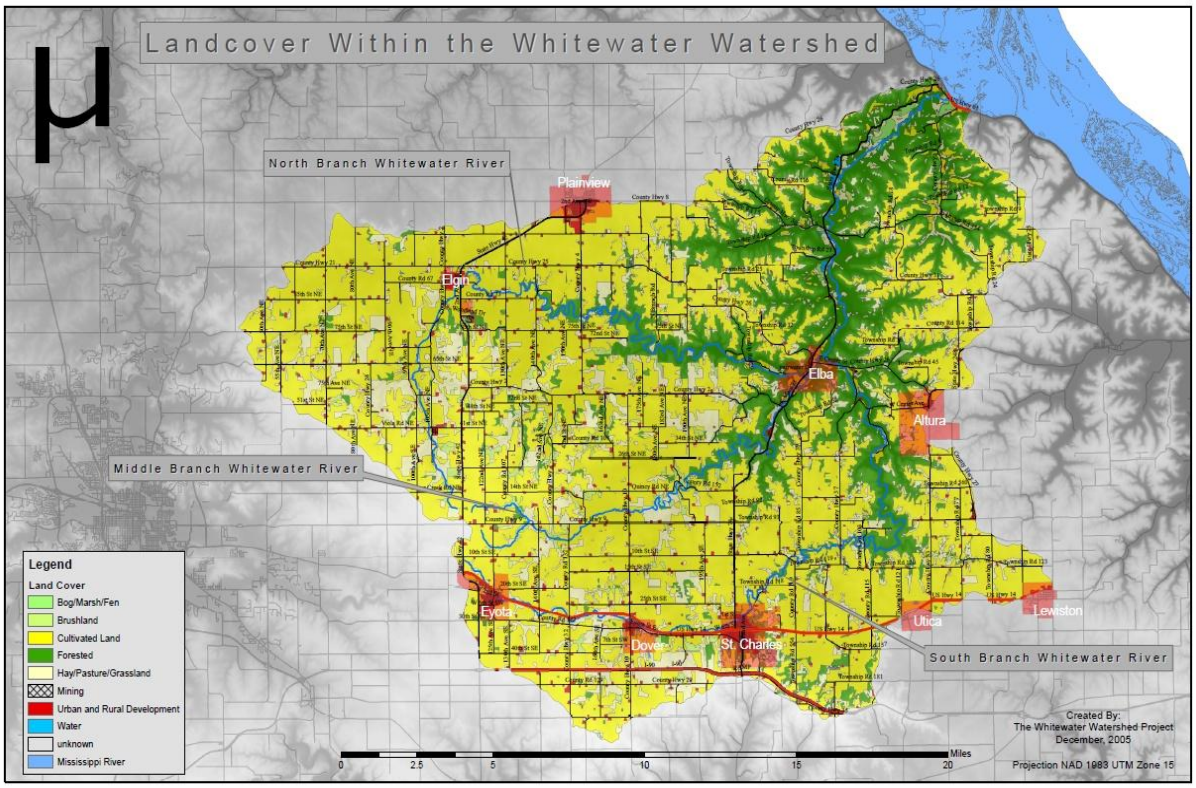
Background

The Whitewater Watershed drains 205,000 acres in the Driftless Area in Southeast Minnesota. Underlain by limestone, sandstone, and shale, the watershed contains many karst features such as sinkholes and losing streams.



Whitewater Watershed in Southeast Minnesota

The western portion of the watershed is part of the Rochester Plateau, with gently rolling land that is heavily row cropped. The eastern portion of the watershed is dissected by steep valleys with wooded slopes. The crop fields in the Eastern portion are smaller, with more hay and pasture present. Dairy and beef are the major livestock types in the watershed. The watershed consists of 82% private lands and 18% public lands. Whitewater River enters the Mississippi River at Weaver Bottoms.



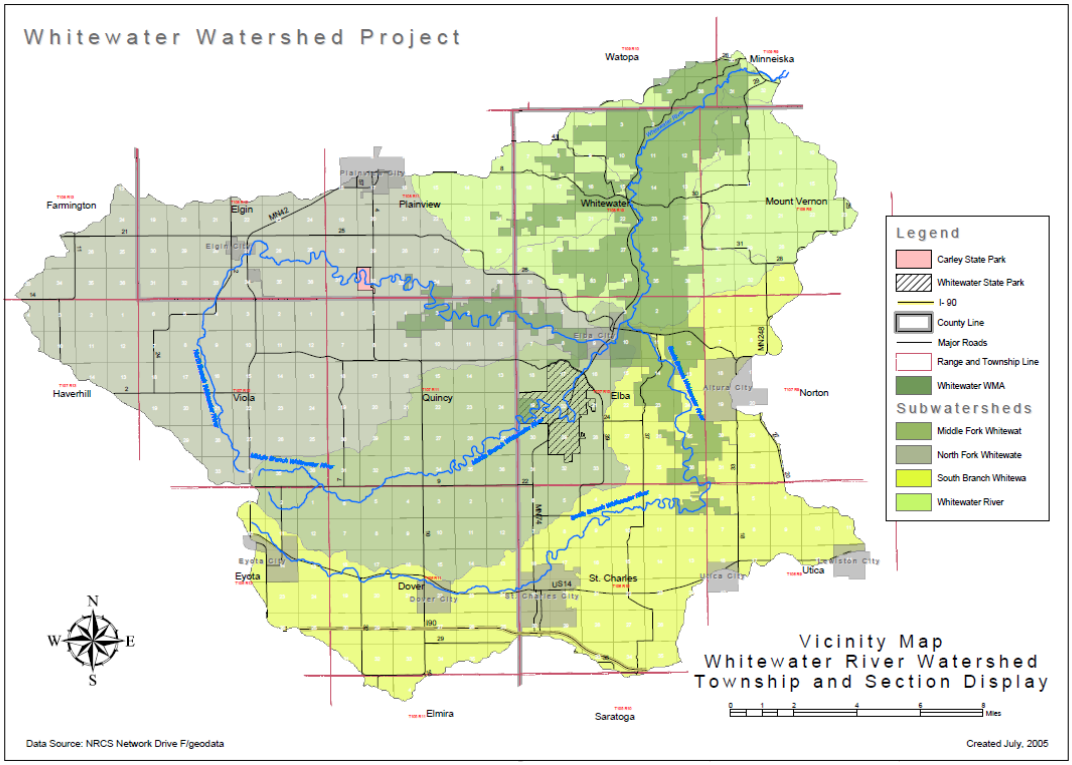
The Whitewater Watershed (HUC #07040003) contains three main branches—the North, Middle, and South Branches. This project focused in the South Branch to address the especially high levels of bacterial pollution in this sub-watershed. The South Branch of the Whitewater River Watershed is located in Winona and Olmsted counties, in Southeast Minnesota, and is 93 square miles in size. Overall the South Branch is 64% cropland, 16% forest, 10% pasture, and 10% wildlife and urban/suburban. 70% of the urban population of the Whitewater Watershed is in the South Branch, and includes the rapidly growing cities of St. Charles, Dover and Eyota.

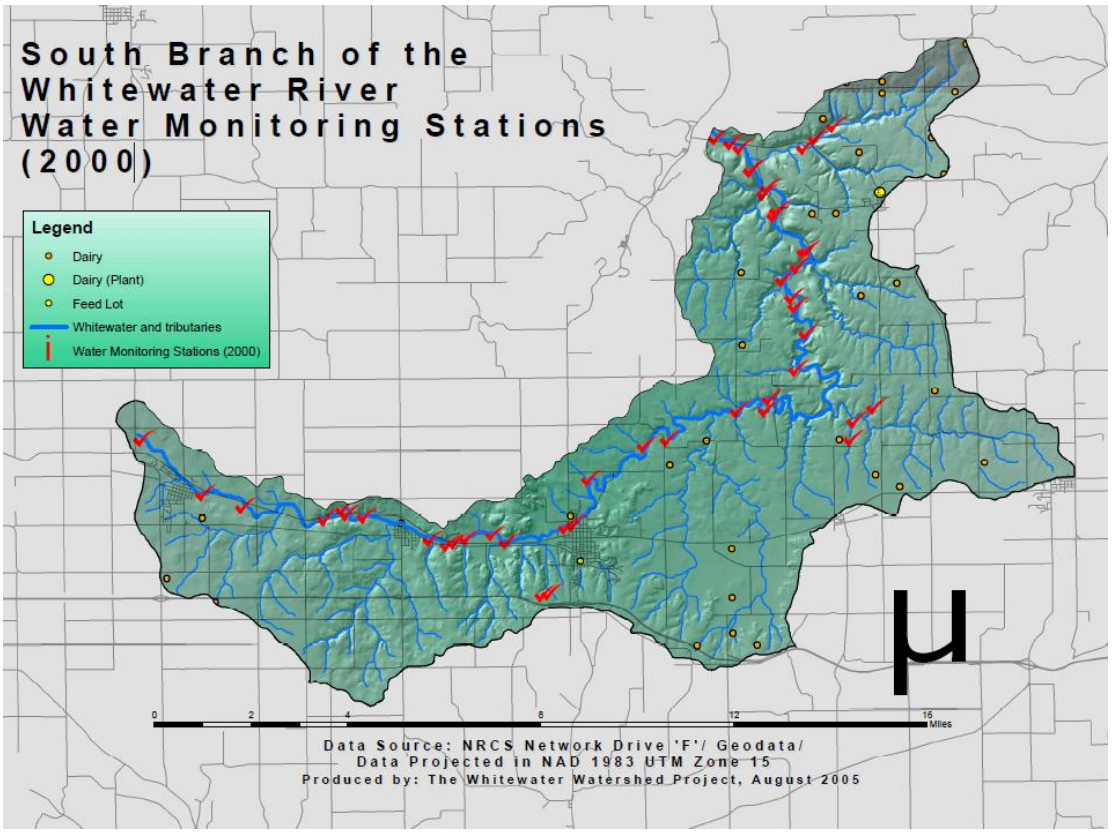
The lower third of the South Branch of the Whitewater River supports a healthy population of brown trout, and flows through the 27,000 acre Minnesota Department of Natural Resources Whitewater Wildlife Management area. The majority of the WMA is located along the main stem of the river in the lower portion of the watershed, but it extends upstream along the North and South Branches along steep wooded valleys. The DNR's Crystal Springs Fish Hatchery is located in the lower portion of the South branch. The South Branch enters the main stem of the Whitewater River near the town of Elba, then flows northeast, through the Whitewater Wildlife Management Area, and discharges to the Mississippi River at Weaver Bottoms, a nationally significant waterfowl staging area that is impacted by pollutants delivered by the river.

Weaver Bottoms at the Mouth of the Whitewater River

The Whitewater Watershed experienced severe flooding and soil erosion during the early twentieth century. The town of Beaver was flooded so severely that the entire town was abandoned. After the impacts of decades on flooding and sediment deposition, much of the valley became public land. The Whitewater Watershed was the focus of the second conservation district in the nation, through what eventually became the Soil Conservation Service, and today is called the Natural Resources Conservation Service. Despite intense rainfall events and floods, the valley has not experienced erosion and human settlement destruction for over half a century, due to improved farming practices and increased perennial vegetation along bluff slopes and in the floodplain.

Historic erosion in the Whitewater Watershed


Whitewater Watershed Project
Watopa
Minneiska
Farmington
Elgin
Plainview
Whitewater
Mount Vernon
Haverhill
Viola
Quincy
Elba
Norton
Eyota
St. Charles
Dover
Utica
Elmira
Saratoga
Legend
Carley State Park
Whitewater State Park
I- 90
County Line
Major Roads
Range and Township Line
Whitewater WMA
Subwatersheds
Middle Fork Whitewat
North Fork Whitewate
South Branch Whitewa
Whitewater River
N
W
E
S
Vicinity Map
Whitewater River Watershed
Township and Section Display
Miles
Data Source: NRCS Network Drive F/geodata
Created July, 2005


South Branch of the
Whitewater River
Water Monitoring Stations
(2000)
Legend
Dairy
Dairy (Plant)
Feed Lot
Whitewater and tributaries
Water Monitoring Stations (2000)
0
2
4
8
12
16
Miles
Data Source: NRCS Network Drive 'F'/ Geodata/
Data Projected in NAD 1983 UTM Zone 15
Produced by: The Whitewater Watershed Project, August 2005

Nonpoint Source Pollution and TMDL Implementation

The South Branch of the Whitewater River is listed as impaired for full body recreation and aquatic life because of multiple water samples that exceed the fecal coliform and turbidity standards. Monitoring data shows the Whitewater River Watershed having the highest fecal coliform bacteria levels in the Lower Mississippi River Basin. The May geometric mean is 1,988 CFU/100ml and the summer mean is 1,070 CFU/100ml, compared to the state chronic water quality standard of 200 CFU/100ml. Impairments from fecal coliform bacteria limit the rivers uses; posing a threat to human health from pathogen exposure, decreasing the river's suitability for livestock and wildlife drinking water, and reducing the recreational suitability of this important trout stream. The Whitewater Watershed Project diagnostic study found fecal coliform bacteria contamination of surface and ground water to be a significant problem, and set goals and objectives to address the problem. The project goals and objectives include education, cost-share, and incentives – and were the focus of this project.

The need for targeted bacteria reduction efforts in the South Branch of the Whitewater River Watershed has been demonstrated in multiple studies and monitoring efforts. The South Branch of the Whitewater River is identified as impaired for aquatic life and recreation from fecal coliform and turbidity pollutants in the Clean Water Act Section 303(d) Total Maximum Daily Load (TMDL) list of impaired waters. Feedlot agriculture and manure production is particularly high in the South Branch. The South Branch sub-watershed supports approximately 110 feedlots and 700 tons manure/day (1996 Whitewater River Feedlot Analysis). The South Branch sub-watershed has a higher amount of manure per acre of cropland per year (about 6.6 T/ac/yr), when compared to the other sub-watersheds within the Whitewater Watershed (North = 3.0, and Middle = 2.7).

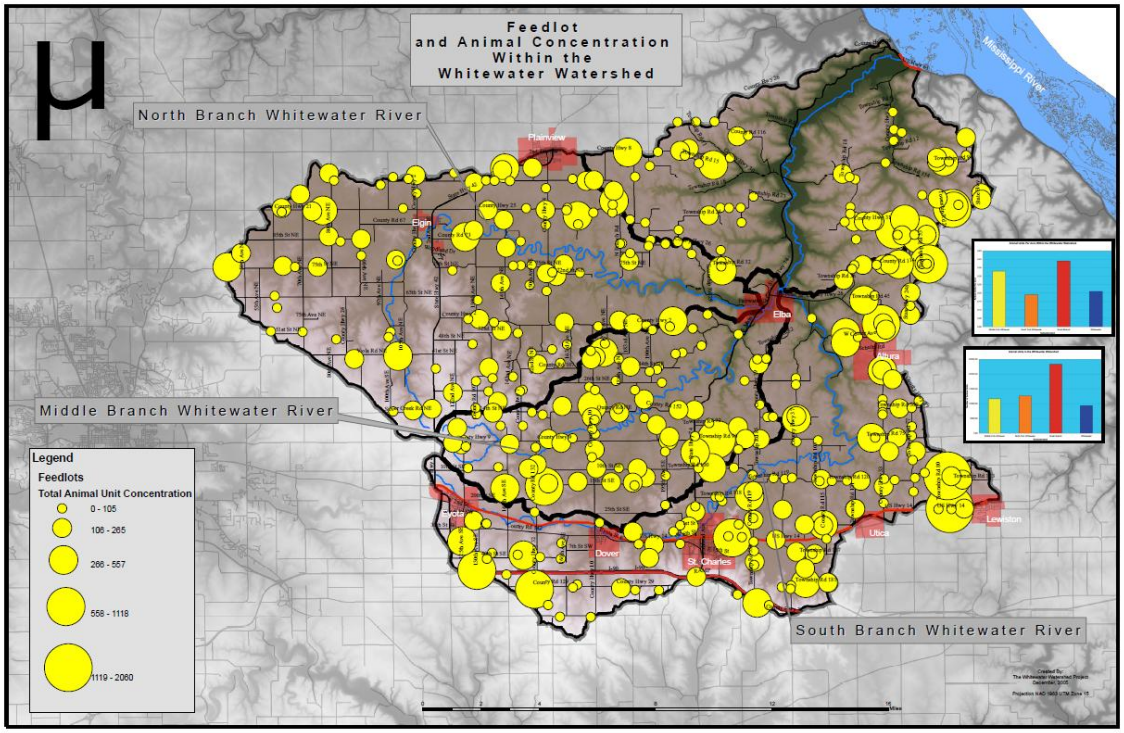
The Regional TMDL Study of Fecal Coliform Bacteria Impairments in the Lower Mississippi River Basin of Southeast Minnesota Implementation Plan cites the Whitewater River Watershed as a critical watershed where high levels of fecal coliform impairment warrant additional implementation, and identifies it as a priority area for all management measures. Two types of critical areas are identified as priority areas for implementation: watersheds where the level of fecal coliform impairment is considerably higher than the basinwide level of impairment and sensitive landscape positions throughout the basin. This project addressed both those concerns.

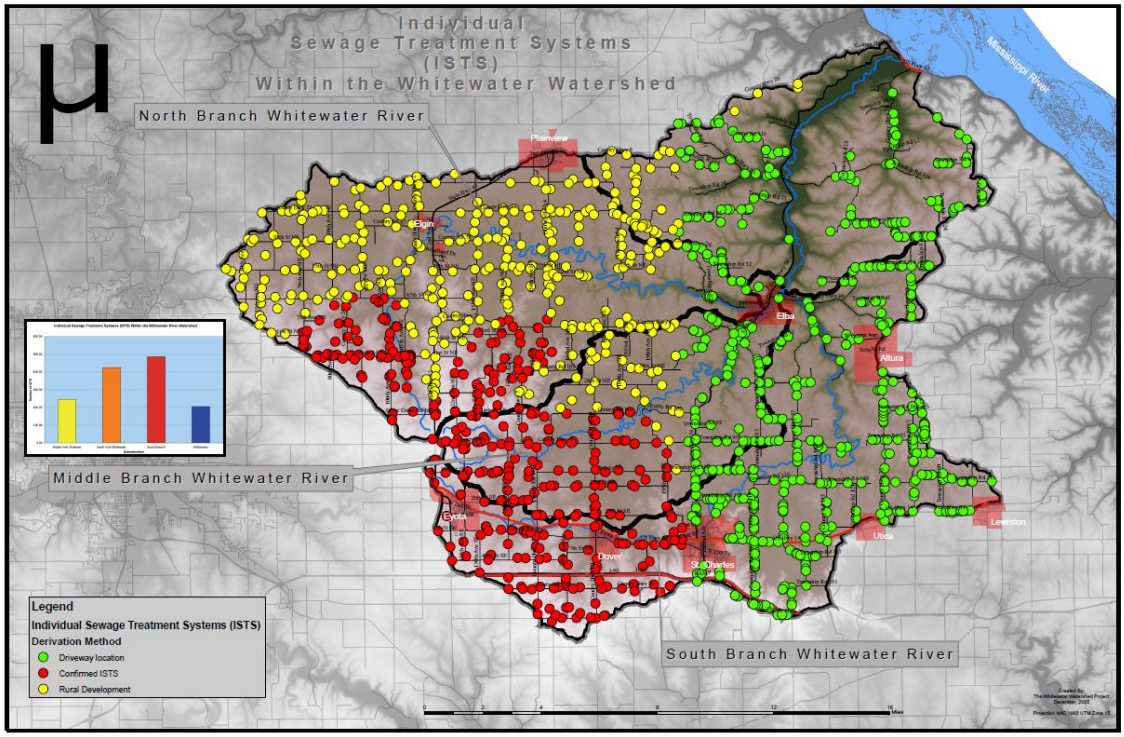
Manure pile at the top of a dry run

The Regional Plan cites failing septic systems and animal manure to be the two largest sources of bacterial pollution in the watershed. There is no comprehensive survey of septic systems in the watershed, so the exact number of failing systems is unknown. Feedlots register their operations, and we have good information regarding their locations and size. Feedlots are not the only source of animal waste pollution. Manured fields and overgrazed pastures may contribute significantly to bacterial pollution in the watershed. However, there is no quantifiable data regarding these and other sources and their relative contributions to the impairment of the Whitewater River.

Feedlot in stream

The South Branch Bacteria Reduction Project addressed recommendations and Best Management Practices in Minnesota's Nonpoint Source Management Program Plan. Specifically, the project addressed NPS issues related to Individual Sewage Treatment Systems (ISTS), feedlots, and urban runoff. The project utilized BMPs outlined for each of these high priority issues to address bacterial pollution in the South Branch.





Project Description

Through the Section 319 Grant Program, the Whitewater Watershed Project (WWP) implemented its South Branch Bacteria Reduction Project. The project utilized education, technical assistance and financial assistance to address high bacteria levels in the South Branch of the Whitewater River. Using the Regional TMDL Implementation Plan as a guide to focus our efforts, we targeted our resources on failing residential septic systems, unprotected feedlots, manured fields, sensitive features, and urban storm water runoff sources. We strived to bring these sources of pollution into conformance with state rules and best management practice guidelines for fecal coliform.

More specifically the project team focused its efforts in the South Branch of the Whitewater River Watershed to 1) educate watershed residents and local officials about fecal coliform bacteria pollution, 2) develop customized maps on sensitive features and setback requirements for most livestock farmers, 3) offer low interest loans for individual sewage treatment system upgrades and 4) utilize existing cost share programs and watershed staff to increase technical and financial assistance utilization for the adoption of targeted BMP's for the reduction of fecal coliform bacteria pollution. The project utilized existing partnerships and fostered new collaborations. Work began in June 2005 and continued through June 2009.

Main Report

Section I – Work Plan Review

Changes in Staff and Work Plan

There were several major changes to the Bacteria Reduction Project over the years. The original work plan end date was September 30, 2008. The Work Plan was extended to end June 30, 2009. There were two major staff changes during the course of the project. First, the crop advisor, Paul Brietzke, who had been contracted to provide Sensitive Features Maps and manure management advice, left the project in June2007 to work for the MPCA. An RFP was sent to local environmental consulting firms, and McGhie and Betts was selected to finish the remainder of the mapping tasks. In December 2008, Lind Dahl, the Whitewater Watershed Project Coordinator for five years, left the Project to work for the Southeast Minnesota Water Resources Board. The next Project Coordinator worked only a month before leaving to work for the Wabasha SWCD. The current Project Coordinator began working for the Whitewater Watershed Project at the end of February 2009.

Activity/Task Report

The project goals, objectives, and associated tasks are listed below, as written in the work plan. The tasks for each objective are discussed below the task list for that objective, including activities completed, difficulties, delays, etc.

Goal 1 This project will increase replacement of failing septic systems and promote proper maintenance of ISTS's to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.

Objective 1A Twenty five failing septic systems will be brought into compliance with state standards by November 30, 2007.

Task A: Provide low-interest loans for failing ISTS replacements.

Sub-task 1: Develop loan eligibility criteria with help of counties with existing programs.

Sub-task 2: Work with Winona County to develop loan implementation strategy.

Sub-task 3: Develop internal loan tracking spreadsheets.

Sub-task 4: Advertise loan availability through local newsletters and newspapers.

Sub-task 5: Obtain General Obligation Note.

Sub-task 6: Rank applications for eligibility and forward to county staff.

Task B: Educate watershed residents about septic system maintenance and upgrade options.

Sub-task 1: Plan outreach strategies with water planners and ISTS staff.

Sub-task 2: Make a direct-mailing to rural residents regarding loan availability.

2a: Develop mailing list.

2b: Obtain Do-It-Yourself septic evaluation publications.

2c: Draft letter on upgrade options, loan availability and contacts.

2d: Mail publication and letter to rural residents.

Discussion of Object 1A Activities:

All sub-tasks were completed for Task A. WWP worked with Winona County to obtain a general obligation note for Clean Water Partnership low-interest loan funds, develop loan eligibility criteria, and develop an implementation strategy. Loans were only offered in Winona County because Olmsted County was able to meet demand for low-interest loans through its own programs. Internal loan tracking spreadsheets were developed. Loan availability was advertized through newsletters, newspapers, and the Whitewater website. Several applications were received, ranked, and forwarded to county staff.

Over the course of the project, it became clear that most residents were not interested in updating or replacing septic systems unless obliged to do so. However, Winona and Olmsted Counties do not have active inventory or enforcement programs. Winona County does not require a compliance check at the time of a property sale, as some counties do. Without the threat of enforcement, few people are eager to incur the cost of septic replacement or repair. Since there is no comprehensive inventory, we cannot accurately estimate the number or locations of failing systems.

Loan funds were not fully utilized. Some applicants were not eligible because they were not located in the South Branch. This was frustrating to applicants because the South Branch is a small area, but many residents outside the sub-watershed received notice of the loan availability through newspapers and newsletters. Few people know exactly where watershed and sub-watershed boundaries lie, and many residents do not know which sub-watershed their homes are located in. With the hope of using the remaining loan funds, Winona County and the WWP recently have applied for a one-year extension on loan availability. However, without increased enforcement, demand for loans will likely remain lower than we would prefer.

All sub-tasks were completed for Task B: Educate watershed residents about septic system maintenance and upgrade options. A direct mailing was sent to all rural South Branch residents. County staff assisted with the development of a mailing list based on GIS and property records. Mailings included a Do-It-Yourself septic evaluation developed by the University of Minnesota, a letter on loan availability, and information on upgrade options. The mailing reached approximately 300 residents. WWP also hosted three septic

maintenance classes with Doug Malchow, University of Minnesota Extension. The first class was popular, with 25 in attendance. However, the second and third classes had only one attendee, despite advertisement in local newspapers and flyers included in local utility bills. Weather may have played a role. Or perhaps all interested residents were reached by the first class.

Goal 2 This project will increase adoption of BMP's to reduce bacteria pollution to the Whitewater River.

Objective 2A Five farms will adopt best management practices for pastures; Five farms will complete managed grazing plans; twenty five livestock farms will adopt manure application best management practices; and five farms will establish vegetated buffers in the river corridor, along intermittent streams, and in sensitive areas by September 30, 2008.

Task A: Promote existing BMP cost share and incentive opportunities.

Sub-task 1: Develop fact sheet on bacteria pollution.
Sub-task 2: Print fact sheets.
Sub-task 3: Develop South Branch mailing list and print labels.
Sub-task 4: Mail BMP fact sheet to South Branch residents.
Sub-task 5: Promote cost share opportunities through County Ag newsletter articles, local newspapers and landowner visits.
Sub-task 6: Make personal farm visits via mapping contractor, County Feedlot Officers and NRCS technicians to discuss resources available.
Sub-task 7: Prepare reporting spreadsheets for tracking BMP implementation.
Sub-task 8: Technical assistance for implementing BMP's is available through NRCS, County Feedlot Officers, and SRF Engineers.

Discussion of Object 2A Activities:

All sub-tasks were completed for Task A. A fact sheet on bacterial pollution was developed and was mailed to all South Branch residents. Cost-share opportunities were promoted through County Ag newsletters, newspapers, and personal landowner visits. The Project Coordinator also spoke about bacterial pollution at a Pasture Walk hosted by the Land Stewardship Project.

NRCS technicians, County Feedlot Officers, SWCD Feedlot Technicians, and the mapping contractors all made personal visits to landowners in the watershed. These technical professionals also provided technical assistance for BMP selection and installation. A reporting spreadsheet for tracking BMP implementation was prepared. Only landowners receiving cost-share assistance for BMP implementation were tracked. Some landowners may choose to install BMPs without cost-share if they do not wish to follow government specifications and requirements that accompany financial assistance.

Despite completing all tasks, adoption of pasture, buffer, and manure application BMPs were not high. This may be because the tasks and objective for this goal are not a good fit.

The activities completed did not provide strong enough incentives for farmers to adopt these BMPs. Farmers do not adopt BMPs because they read a fact sheet on bacterial pollution, and many are aware of cost share opportunities already. There are many conservation-minded farmers who have already adopted BMPs due to economic savings, personal conviction, or regulation. If farmers have not adopted certain BMPS, it is unlikely they will do so until they are convinced it makes sense economically or they are required to by regulation. Education and outreach can influence a few individuals in the middle of the spectrum, but it must be delivered in a convincing format. One-on-one interactions with peers who have tried BMPs and found them successful may be one of the most effective means of outreach. WWP is looking into models for this type of outreach program in the hope of developing more effective means of BMP promotion.

Goal 3 This project will lead to increased knowledge and understanding of bacterial pollution by South Branch Whitewater Watershed residents, farmers and municipalities.

Objective 3A Understanding of bacterial pollution sources and pollution prevention measures will be increased for 50% of watershed residents by June 30, 2008, to be assessed through participation in project activities.

Task A Promote existing BMP cost share and incentive opportunities.

Sub-task 1: Develop fact sheet on bacteria pollution.

Sub-task 2: Print fact sheets.

Sub-task 3: Develop South Branch mailing list and print labels.

Sub-task 4: Mail BMP fact sheet to South Branch residents.

Task B: Promote cost share opportunities through County Ag newsletter articles, local newspapers and landowner visits.

Discussion of Object 3A Activities:

All sub-tasks for Tasks A and B were completed. The fact sheet on bacterial pollution was sent to all South Branch residents, urban and rural. The tasks in this objective are discussed under other objectives, including ISTS loans and BMP adoption.

It is difficult to assess the success of outreach efforts by participation rates. Approximately half or more of South Branch residents live in urban areas. These residents have no reason to participate in either ISTS fixes or agricultural BMPs. Perhaps if there had been more urban activities we could have better assessed the percentage of residents reached by the project activities.

Objective 3B Improved knowledge by 90% of livestock farmers in the watershed regarding sensitive area setback requirements on their individual farms, will be attained by April 30, 2008.

Task A Develop individualized sensitive area setback maps for livestock farmers in the South Branch of the Whitewater Watershed.

Sub-task 1: Hire contractor for sensitive area mapping.

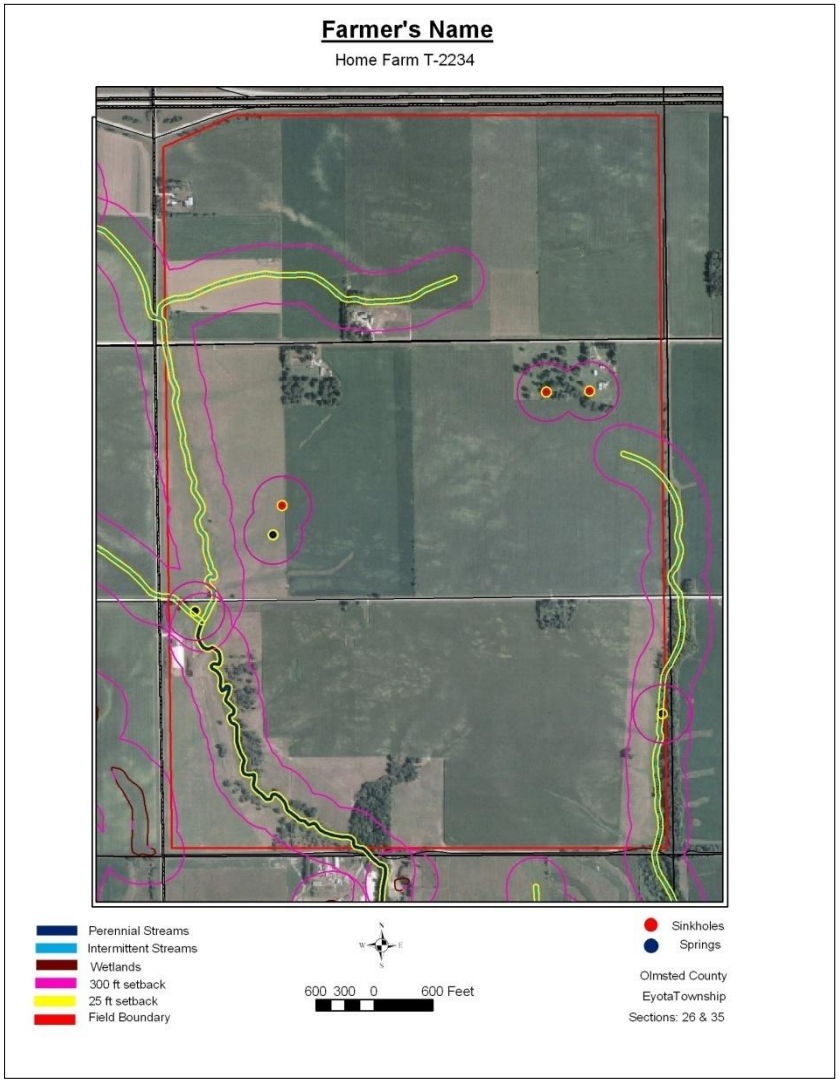
Sub-task 2: Develop a list of farmer owner and operator contacts

Sub-task 3: Make initial contacts via phone or visit
Sub-task 4: Develop sensitive area setback maps using GIS
Sub-task 5: Meet with farmers individually to provide and discuss maps and current relevant information from the MPCA and other sources.

Discussion of Object 3B Activities:

All subtasks for Task A were completed. As discussed earlier, Paul Brietzke left the Bacteria Reduction Project to work for the MPCA. Unfortunately, he refused to provide maps, a list of landowner contacts, a list of completed projects, and other essential information. The Whitewater Board requested this information numerous times, but was never answered.

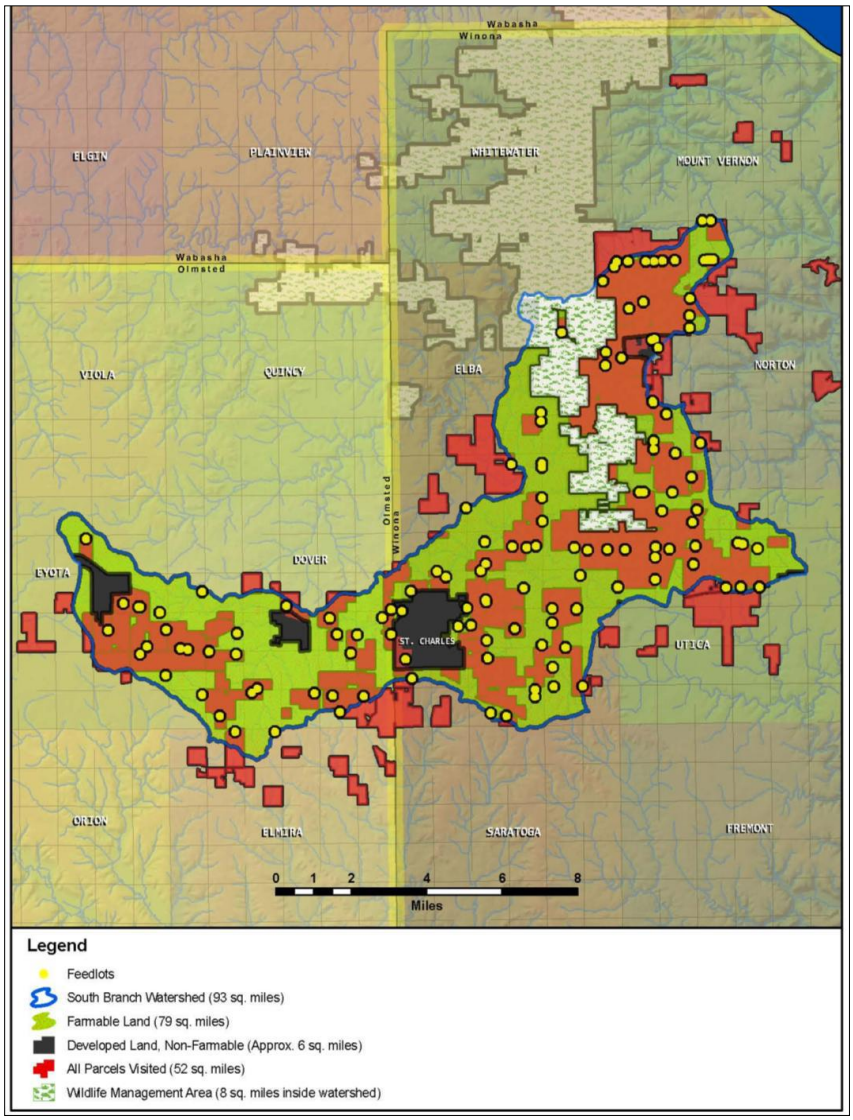
A second mapping contractor was hired to complete the project. The firm McGhie and Betts completed the majority of landowner contacts, maps, and individual meetings between December 2008 and May 2009. Their staff asked landowners if they had worked with Mr. Brietzke previously and whether they had received maps from him. At the end of the project, 89% of livestock farmers between 10 and 999 animal units were provided maps of the sensitive features and setback areas for their operation. 1,000 was chosen as the upper limit for mapping activities because farms over this size are required to have a Comprehensive Nutrient Management Plan because they are permitted as a point source.72% of farmers met individually to discuss their maps and manure application recommendations.



Example Map

Response to the maps and meetings varied. Many farmers were excited to receive detailed maps of their farms, especially the up-to-date aerial photos. Some farmers who chose not to participate indicated that they had Nutrient Management Plans, which usually include maps of sensitive features. Some felt that they were doing a good job managing their manure, but felt frustrated that their neighbors were not following recommendations and requirements. Others cited a lack of storage capacity as a major obstacle to following recommendations—if they could not store several months' worth of manure, they were forced to apply manure on frozen soils in winter. Installation of manure storage structures is very expensive. Farmers indicated that they would be forced out of business if they were required to install these structures.

We tried to make contact with all feedlots with addresses in the South Branch watershed. It may have been more effective to work with all feedlot operators within a certain buffer area around the watershed. Farmers may bring manure in or out of the watershed, as can be seen in the map to the right. The areas in red indicate parcels operated by farmers who met with project staff to review their maps. Perhaps we would have covered more land within the watershed if we had looked outside the watershed for sources of manure.



Parcels reached by mapping project.

Source: Mc Ghie and Betts

Objective 3C Increased knowledge of stormwater pollution issues by city officials within the cities of St. Charles, Dover and Eyota.

Task A Attend Dover, Eyota and St. Charles city council meetings to discuss urban stormwater issues.

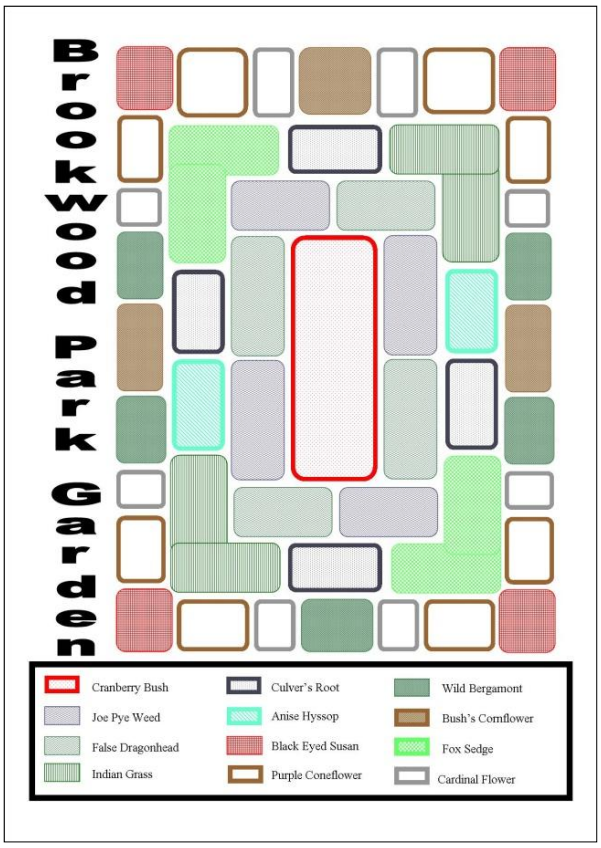
Task B Meet with city staff, DNR staff, & MPCA staff to discuss possible cooperative stormwater project.

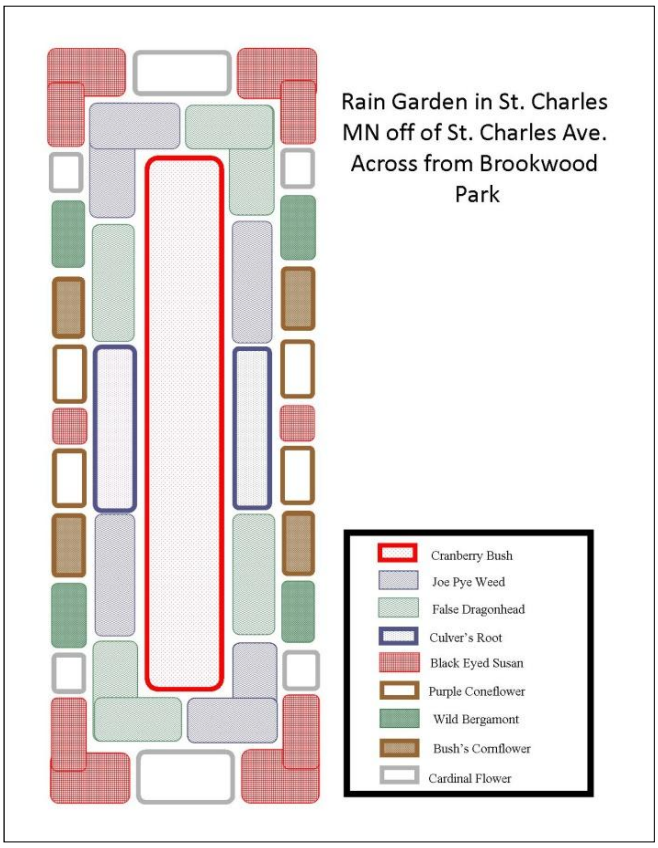
Task C Provide assistance to interested cities, along with Co. Water Planners and MECA for the development of stormwater management plans.

Discussion of Object 3C Activities:

Tasks A, B, and C were completed. Meetings were held with local city officials. The Whitewater Project Coordinator met with staff from the City of St. Charles, the MPCA, and the DNR to discuss stormwater management. A tour Maplewood rain gardens with St Charles city staff and engineer was planned and conducted. The Whitewater Project Coordinator completed a planting plan for two demonstration rain gardens using native prairie plants as a stream buffer. The buffer planting plans are for two separate city park sites, totaling 4.8 acres (2500 feet of stream) to be installed along the South Branch as is flows through the city. The Winona Soil and Water Conservation District has been working with the City to provide cost-share through the Native Buffer Program. St. Charles plans to install the planting this fall. A local Master Gardener has volunteered to provide education and outreach in connection with the rain garden, including interpretive materials

Rain Garden Designs





Goal 4 This project will increase adoption of low-cost feedlot fixes to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.

Objective 4A Ten feedlots will be brought into compliance with the Open Lot Agreement by April 30, 2008, meeting the 2010 Open Lot agreement deadline.

Task A Provide low-interest loans for low-cost feedlot fixes.

Sub-task 1: Develop loan eligibility criteria with help of counties with existing programs.
Sub-task 2: Work with Winona County to develop loan implementation strategy.
Sub-task 3: Develop internal loan tracking spreadsheets.
Sub-task 4: Advertise loan availability in Winona and Olmsted County local newsletters and newspapers.
Sub-task 5: Obtain General Obligation Note.
Sub-task 6: Rank applications for eligibility and forward to county staff.

Task B Promote existing BMP cost share and incentive opportunities.

Sub-task 1: Develop fact sheet on bacteria pollution
Sub-task 2: Print fact sheets.
Sub-task 3: Develop South Branch mailing list and print labels.
Sub-task 4: Mail BMP fact sheet to South Branch residents.
Sub-task 5: Promote cost share opportunities through County Ag newsletter articles, local newspapers and landowner visits.
Sub-task 6: Make personal farm visits via mapping contractor, County Feedlot Officers and NRCS technicians to discuss resources available.
Sub-task 7: Prepare reporting spreadsheets for tracking BMP implementation.
Sub-task 8: Technical assistance for implementing BMP's is available through NRCS, County Feedlot Officers, and SRF Engineers.

Discussion of Object 4A Activities:

Task A was not completed. After discussions with the Winona County staff, it was determined that feedlots could not be eligible for Whitewater's Clean Water Partnership low-interest loans. The ISTS loans were secured through a lien on the resident's property. However, the County determined that there would be problems with placing liens on property for feedlot fixes. The loan money planned for feedlot fixes was directed to ISTS loans instead.

All sub-tasks for Task B were completed; several have been discussed earlier in this report. As part of the effort to reduce bacteria in the watershed, the Whitewater Watershed Project applied for and was awarded a Clean Water Legacy 2007 grant from the Minnesota Board of Water and Soil Resources. This grant allowed the organization to provide cost-share for feedlot fixes that would reduce runoff and bacterial pollution. The cost-share was limited to producers with 300 animal units or less. This grant was successfully completed June 30,

2009. Information on the BMPs, locations of projects, and financial assistance was entered into eLink. A total of ten projects were completed. Of those, five feedlots were brought into compliance with Minnesota's Open Lot Agreement. Whitewater provided $18,863.07 in cost-share, and landowners and other agencies contributed $118,410.02. Landowner share was approximately $68,000, or approximately 50%.

Goal 5 Project Administration, Evaluation

Objective 5A

Sub-task 1: Hire GIS mapping contractor
Sub-task 2: Set up fiscal tracking spreadsheets
Sub-task 3: Facilitate bacteria monitoring efforts in South Branch Whitewater River
Sub-task 4: Set up practice tracking spreadsheets
Sub-task 5: Ongoing fiscal tracking
Sub-task 6: Ongoing practice tracking
Sub-task 7: Evaluate and report on project results
Sub-task 8: Distribute final project report

Discussion of Object 5A Activities:

With the completion of this report, all sub-tasks for this objective will be complete. A GIS mapping contractor was hired. When he moved on to other employment, a second contractor was hired. An intern was hired in 2007 to conduct monitoring activities throughout the summer. The intern collected many water samples and assisted with other tasks such as map creation and data entry. Fiscal tracking was completed throughout the project and a final Budget/Expenditures Spreadsheet is attached. Practice tracking was completed throughout the project as well. Bacteria monitoring was conducted at five sites in the South Branch in 2007, 2008, and 2009. The geometric mean for E. Coli was calculated for July 2007 and June 2009. A report with charts depicting sampling results is attached.

Section II – Grant Results

Goal Achievement

- Goal 1 This project will increase replacement of failing septic systems and promote proper maintenance of ISTS's to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.
- Goal 2 This project will increase adoption of BMP's to reduce bacteria pollution to the Whitewater River.
- Goal 3 This project will lead to increased knowledge and understanding of bacterial pollution by South Branch Whitewater Watershed residents, farmers and municipalities.
- Goal 4 This project will increase adoption of low-cost feedlot fixes to reduce non-point source pollution in the South Branch of the Whitewater River Watershed.
- Goal 5 Project Administration, Evaluation

All goals of the project were addressed to some degree, some more than others. Septic system replacement increased due to low-interest loan availability. Residents were educated about septic maintenance through mailings and classes. However, our objectives were to reach more people through these programs. Septic maintenance and replacement can be very expensive, and without strong regulations, many people chose to delay or avoid improvements. Ideas for increased ISTS compliance were discussed at the 2009 Sewage Summit. We are exploring these ideas to see whether any can be applied in Whitewater.

BMP adoption in the watershed was increased, but the specific BMP objectives for pasture management, fencing, and stream buffer installation were not met. Farmers implemented many BMPs on hundreds of acres in the watershed, but our objectives for targeted, bacteria-reduction BMPs were not met. Famers chose other BMPs that prevent soil erosion and hold water on the landscape. These practices do help reduce bacterial pollution by preventing runoff from reaching public waters. However, targeted BMPs, such as pasture management, may have been more effective at reducing bacteria delivery to streams.

Outreach and education efforts were successful. Many residents were reached through mailings, newspaper articles, open houses, and other events. Famers in particular were reached through the mapping project and through cost share opportunities.

Many feedlot fixes were installed. A total of ten feedlots used Whitewater cost share to implement fixes, and other found cost share funding through other sources or implemented changes on their own. Five feedlots achieved compliance with the Open Lot Agreement. Our goal to increase feedlot fixes was one of the most successful of our goals, perhaps because of feedlot regulation and enforcement. This conclusion is supported by the fact that Olmsted County had far fewer feedlots sign up for cost share than Winona County. Olmsted does not have a County Feedlot Officer, and depends on the MPCA for feedlot enforcement. Without a local contact/enforcement officer, many feedlot concerns are not addressed.

Measurements

The work plan calls for assessment criteria based on outreach, participation, and changes in land use practices. Information was gathered by tracking number of septic and feedlot fixes, number of land use BMPs adopted in the watershed, and other results of activities completed.

Assessment Criteria (from the work plan)

- Number and location of failing septic systems brought into compliance with state standards
    - 7 low-interest loans provided to South Branch residents, totaling $54,471.50
- Number of people reached through septic system operation workshops
    - 26 people attended three workshops
- Track response from educational mailings on septic systems and manure BMPs
    - 15 applications for septic loans, 17 applications for Whitewater feedlot fix cost-share
- Number of farmers adopting pasture BMPs
    - No farmers in Whitewater adopted pasture BMPs through the programs we track. However, other farmers in the area have asked for grazing plans, fencing, and other pasture BMPs. We need to determine how to encourage more farmers in the Whitewater Watershed to adopt pasture BMPs.
- Number of farmers completing managed grazing plans
    - None, see above.
- Number of farmers adopting manure application BMPs
    - Three farmers adopted nutrient management BMPs on a total of 450 acres.
- Number and locations of vegetated buffers established
    - No farmers received cost share for buffer establishment
- Track promotional efforts, such as news articles and direct mailings
    - Cost share opportunities were listed in County Ag Newsletters multiple times
    - Sent 300 mailings regarding ISTS loans and maintenance
    - Advertised three septic maintenance classes in local newspapers
    - Reached approximately 4,000 residents with fact sheets
- Number of personal farm visits conducted
    - 75 farmers met to discuss their sensitive features maps
- Technical assistance provided from NRCS, Feedlot officers and SRF Engineers
    - At least fifty farm visits were conducted as a part of cost share contracts through the NRCS or the SWCDs. Exact number of farm visits by all these staff was not tracked.
- Number of farmers who cooperated in the sensitive area mapping effort
    - 74 farmers either worked with Paul Brietzke or McGhie and Betts
- Number, date and attendance of municipal functions where stormwater pollution information is presented

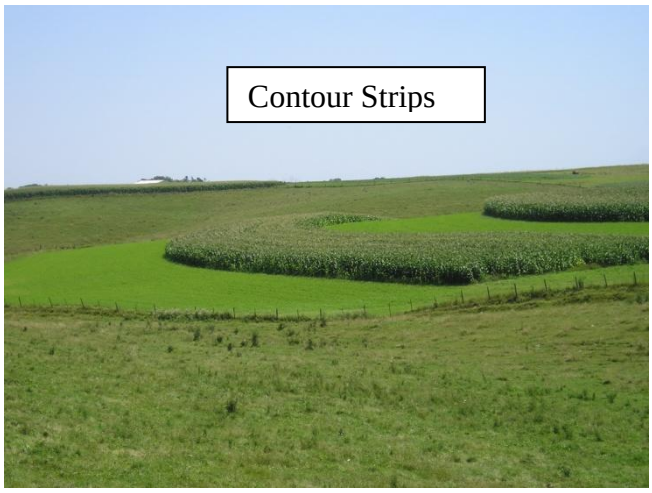
    - Presented to city council, organized tour of rain gardens in Maplewood, MN, met with city staff to plan demonstration rain gardens (exact dates were not recorded)
- Number of feedlots brought into compliance with the Open Lot Agreement
    - 5
- Number of loans entered into for septic and feedlot upgrades, location, dollar amount and practice completed
    - 7 low-interest loans provided to South Branch residents, totaling $54,471.50
- Number of residents and officials who receive information on conservation practices available to landowners.
    - Approximately 4,000

BMPs

Farmers implemented many BMPs during the course of the project. Funds for cost share for these practices was provided through three programs: EQIP, PL-566, and Clean Water Legacy 2007. Each of these programs involves partnerships with other agencies working in on conservation in the area. The Whitewater Watershed Project does not have technical assistance staff available to assist with BMP plans and projects, but by working with other organizations, we have been able to help provide cost share and conservation planning to dozens of farmers in the watershed. During the course of the Bacteria Reduction Project, we were successful in implementing ten feedlot runoff reduction projects, 450 acres of nutrient management, 24 waterways, 40 grade stabilizations, and many other BMPs.

Summary Chart of BMPs Implemented

BMP	Unit	Result
Feedlot BMP	Farm	12
Nutrient Mgt BMP	acres	450
Organic Conversion	acres	117
Contour strips	acres	35
Veg Buffers	acres	0
Forest Improvement	acres	20
Waterways	structures	24
Tree Planting	acres	7.4
Grade Stab	structures	40
Terraces	feet	1250
No-till (3 years)	acres	1318



Examples of BMPs installed through the grant

Installed Pond

New Feedlot roof and gutter system

Liquid leveler, solids filter, vegetated filter strip

BMP Cost Share Programs

PL-566: The Small Watershed Program

For over a decade, the Whitewater Watershed Project has worked with the Minnesota Natural Resources Conservation Service (NRCS) to provide cost-share to farmers in the Whitewater Watershed. Whitewater is one of only two PL-566 projects in Minnesota. The goals of the program are to reduce soil erosion and runoff, improve water quality, and enhance wildlife habitat. For many years, other cost share programs were capped at 50% cost share, but the PL-566 program offered 65% cost share. This was a major incentive for farmers in the Whitewater Watershed to help improve the quality and quantity of water in the river and its tributaries.

EQIP: The Environmental Quality Incentive Program

EQIP is a program of the NRCS with similar goals to the PL-566 program. When the PL-566 program ran out of funding, the MN NRCS offered Whitewater a special watershed-focused EQIP fund so that watershed improvement efforts could continue. In both this and the PL-566 program, NRCS technicians conduct site visits with farmers, design structures, write conservation plans, and provide other technical assistance.

Clean Water Legacy 2007

As part of the effort to reduce bacteria in the watershed, the Whitewater Watershed Project applied for and was awarded a Clean Water Legacy 2007 grant from the Minnesota Board of Water and Soil Resources. The grant was supported through a new fund created to enhance water quality work in the state. This grant allowed the organization to provide cost-share for feedlot fixes that would reduce runoff and bacterial pollution. The cost-share was limited to producers with 300 animal units or less. WWP worked with SWCD technicians and County Feedlot Technicians to identify farmers and provide technical assistance in BMP design and to inspect the installations. Their expertise in feedlot issues made the grant a success, both for the watershed and for the farmers, five of which came into compliance with Minnesota's Open Lot Agreement Rule as a result of the BMPs that were installed.

Operation and Maintenance

NRCS technicians, SWCD feedlot technicians, and Feedlot Officers provide Operation and Maintenance plans to farmers. The NRCS conducts site checks every few years to ensure that practices are maintained.

Discussion

The Bacteria Reduction Project did not meet its BMPS goals for grazing, pasture management, buffer installation, and other BMPs specific to bacteria reduction. We expect that farmers choose erosion control and runoff reduction BMPs because they recognize the

financial impact that soil loss has on their operations. Bacterial pollution does not impact their bottom line as directly. The NRCS staff cannot prioritize bacteria reduction over soil conservation, and the programs are all voluntary. To increase the implementation of bacteria reduction BMPs, we would need to provide better incentives or more strict regulation.

Information on the feedlot projects completed through Clean Water Legacy can be accessed through Minnesota's eLink program. Due to Freedom of Information Act requirements, information regarding specific projects or farmers involved in NRCS and other federal programs may not be released. Only summary information may be released in this report to comply with these laws.

Monitoring

Fecal Coliform bacteria were originally used as an indicator for potential pathogens in a water system, but at times the bacteria can come from a non fecal origin. More recently the bacteria E. coli has been used as an indicator because it is more fecal specific and is less likely to give a false positive result, therefore; we will be using E-coli as opposed to fecal Coliform sampling.

E-coli is a bacterium that grows from human, livestock and animal feces and can enter a body of water by direct discharge, storm runoff and also untreated human sewage. This bacterium can indicate the presence of potentially dangerous pathogens such as dysentery, typhoid fever, hepatitis A, gastroenteritis and also other water born viruses. By testing for E-coli, it is possible to get an idea of the possible amount of the previously listed pathogens because E-coli is a good indicator of their existence in a body of water. When the bacterium is left untreated it can cause problems in water bodies by the aerobic decomposition of organic matter resulting in the reduction of dissolved oxygen available for plants and animals.

In an effort to better understand the high bacteria counts in the South Branch of the Whitewater River, we conducted a longitudinal study of bacteria levels along the River, between St. Charles and Crystal Springs Fish Hatchery. Samples were analyzed at the Minnesota Department of Health using the Most Probable Number sample technique. A number greater than 2,400 MPN/100 ml could not be obtained without dilution. Therefore, when we expected high sample results we would ask for a 10x dilution, which allowed for a MPN number up to 24,000. At times even this dilution was not sufficient and we received results ">24,000".

Sites

These same sites were first sampled in 2004, by Bill Thompson of the Minnesota Pollution Control Agency. By conducting a longitudinal study we hoped to identify patterns or trends for bacteria levels along the stream length which could help us identify possible bacteria sources.

Station ID: S001-824
- Above St. Charles at Driveway Bridge: Upstream of St. Charles

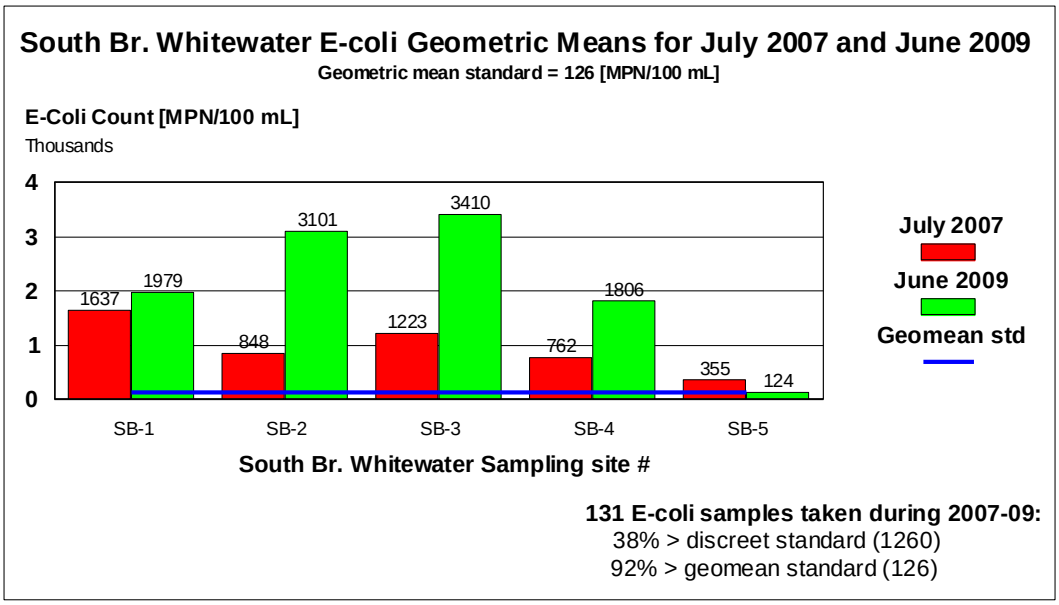
Station ID: S001-826
- Below St. Charles at Richmond Road Bridge: Below the Dover, Eyota, Wastewater treatment plant

Station ID: S000-323
- South Branch Whitewater at County Road 119: 2 miles northeast of St. Charles

Station ID: S000-228
- South Branch Whitewater at MPCA Milestone Site: Lamberton Mill Road Bridge

Station ID: S000-321
- South Branch Whitewater at Crystal Springs Fish Hatchery

We did not recognize many patterns in the sample results. Bacteria levels were somewhat correlated with turbidity levels, but not closely. Results varied widely from site to site one sample dates. Results varied widely for each site across multiple dates. All four sites in the upper portion of the watershed had consistently high results; 95%-100% of the samples from these sites were above the geometric mean standard (126 MPN/ 100 ml). The site at Crystal Springs—the site lowest in the watershed—consistently had the lowest results. We hypothesize that this is due to the input of springs at the base of the bluffs. Groundwater input to the stream must be diluting the pollutants from the upper reaches; both bacteria and turbidity levels are low at this site.



Unfortunately, the water sampling results do not show a decrease in bacteria levels. In fact, the bacterial pollution seems to have increased. Four out of five sites had higher geometric means for E.Coli in June 2009 than July 2008. This may be partly due to higher resolution of data. More samples from 2007 were "<2400" while some samples from 2009 had results greater than 2400 due to dilution. Poor water quality does not necessarily mean that the project was not successful, however. Many of the successes of the project were completed toward the end of the grant, for example, sensitive features mapping and many of the feedlot fixes. The impacts of these changes may not have taken effect yet. Implementation projects take time to build momentum, and bacteria is a particularly difficult pollutant to address. Still, the high E. Coli sample results seem to point to the need for more research into the sources and their relative contributions.

Public outreach and education:

Many people were reached by the education and outreach efforts of this project. Most residents of the South Branch sub-watershed received educational materials on bacteria pollution, its sources, and ways to prevent it. Rural residents received information on maintaining septic systems and loan availability for septic replacements. WWP reached out to the public through newsletters, booths at fairs, open houses, and volunteer recognition events.

Farmers received information regarding cost share opportunities through mailings and County Ag Newsletters. Many signed up for cost share to implement BMPs. The project provided 89% of feedlot operators with maps of sensitive features on their land, and the majority chose to meet to discuss the maps and recommendations for manure application.

Results

Number mailings for ISTS self-evaluation and loan availability notice: 300
Number of people reached by general mailings: approximately 4,000
Number of people attending septic maintenance workshops: 26
Number of people attending Whitewater open house: 23
Hosted nutrient management planning meeting with local experts on 4/25/06
Co-hosted Agri News Farm Show booth
Spoke at a local Pasture Walk
Hosted citizen monitoring volunteer recognition event
Hosted rain garden tour with local officials

Whitewater Open House


Rain Garden Tour

Products

Loan application, routing sheet, approval letter

Loan mailing

Letter to residents

Fact sheet

McGhie and Betts Report

Rain garden plan, map and photos

Monitoring Plan

Monitoring Graphs

Budget/Expense Sheet

Milestone Schedule

CWP Cont App

Long-term results

Capacity Building

Although this project did not meet all its objectives, the WWP was able to build capacity and momentum for continued work. Bacterial pollution is one the most difficult impairments to address due to uncertainty about sources, widely fluctuating levels of bacteria in the water, and lack of public knowledge about the issue. Also, as discussed earlier, farmers have less financial incentive to address bacteria runoff as compared to soil erosion or nutrient impairment, which directly affect their bottom line. Considering these challenges, the project helped build capacity by allowing the WWP to work with more landowners, conduct one-on-one meetings with feedlot operators, and provide cost share to implement BMPs. In addition, the project reached out to residents through education and outreach efforts.

Partnerships

The project also facilitated new and strengthened partnerships. The WWP worked with officials from the City of St Charles to design and install rain gardens along the river as it flows through the city. These rain gardens will be in public parks and will continue to educate the public about water quality problems and solutions. We were also able to work with University of Minnesota Extension to host workshops on septic maintenance, and we hope to work with them on similar projects in the future. Existing partnerships with the NRCS, SWCDs, and counties were strengthened through the work of this project.

Project Continuation

We hope to continue this project in the near future. In June 2009, WWP applied for Clean Water Partnership Continuation Funding to continue the work of the Bacteria Reduction Project and extend it to the entire watershed, which has impairments for fecal coliform in several other reaches. Based on what we have learned from the South Brach Bacteria Reduction Project, we have made several significant changes to our approach and strategy. We hope to make the next phase of the project more effective at meeting objectives and engaging farmers and other residents to implement changes. We are awaiting the decision on our request.

With Winona County, we have applied for a one year extension of the low-interest loan for septic replacements. More than half of the loan has been utilized, but we hope to use more of the loan funds in the months ahead. Several people have begun the application process, but have not completed it. The Whitewater Board and the County Board have both resolved to extend the loan, and the process for the extension is almost complete.

We plan to share the results of the project with project partners after the completion of this final report. Information regarding the results of the sensitive features mapping and monitoring was presented at Whitewater Board meetings. We plan to post a summary of the project and its results on the Whitewater website shortly. We expect other local organizations and state agencies will be interested in the results. Addressing nonpoint source pollution is very difficult and other projects could learn from the outcomes of this project. In addition, some of the material developed through the project may be of use to other projects implementing similar programs.

Section III – Final Expenditures

Budget

Cash Budgeted	Inkind Budgeted	Total Budgeted
$174,660.00	$214,040.00	$388,700.00

Expenditures

Cumulative Cash Expended	Cumulative Inkind Expended	Cumulative Total Expended	Cash Balance	Inkind Balance	Total Budget Balance
$147,466.65	$297,463.58	$444,930.23	$27,193.35	-$83,423.58	-$56,230.23

Unfortunately, the Whitewater River Watershed Project did not fully utilize all grant funds available. The total amount remaining is $27,193.35. The majority of this unutilized money was budgeted for the GIS Sensitive Area Mapping objective. This item has $15,639.87 remaining in the grant budget. However, despite having such a large amount left over, we did accomplish the objective: 89% of feedlots between 100 and 1000 animal units received maps of the sensitive features on their land, and 72% met individually to discuss their maps and MPCA manure management BMPs. I believe this shows that we were efficient with the allocated funds, and accomplished what we set out to do for less than budgeted.

The remaining $11,553.48 in unspent funds is spread across a number of objectives. There are several reasons for the incomplete utilization of grant funds. First, implementation projects such as this one take time to build awareness and support from watershed residents. People are still calling regarding low-interest septic loans, and we plan to extend the loan for one year to accommodate more applications. Second, the Watershed Project lost its coordinator in 2008 and went several months without any staff while the board worked through the hiring process. As with any change in staff, it took time to learn about all the projects underway and understand the best ways to implement them. This change in coordinator was more difficult than might be expected because at the time, the Watershed Project had only one staff person (the coordinator), so there was no other staff with institutional memory to help with orientation.

In the past five months, since I started working at the Watershed Project, I have attempted to fulfill as many of the grant objectives as possible. My work has included the following: I worked with the City of Elba (an unsewered community in the watershed) to include a brochure on septic maintenance and loan availability with each resident's water bill; provided cost-share for five feedlots to install water quality BMPs, including finding three new contracts; provided 91 feedlot operators with maps of Sensitive Features for manure application on their individual properties; 69 producers had individual meetings to discuss their maps and BMPs for manure spreading; five sites on the South Branch were sampled

seven times each; the geometric mean for June 2009 was calculated for each of the five monitoring sites; and charts summarizing the bacteria monitoring over the past three years were produced.

PROJECT TITLE South Branch Whitewater Watershed - Bacteria Reduction Project
BUDGET/EXPENDITURES AS OF June 30, 2009

Element	Cash Budgeted	Inkind Budgeted	Total Budgeted	Cumulative Cash Expended	Cumulative Inkind Expended	Cumulative Total Expended	Cash Balance	Inkind Balance	Total Budget Balance
Element 1 - ISTS Loans									
A.Loan process development	$1,400.00	$2,000.00	**$3,400.00**	$1,280.00	$3,680.00	**$4,960.00**	$120.00	-$1,680.00	**-$1,560.00**
B.Loan tracking system development	$2,000.00	$0.00	**$2,000.00**	$2,000.00	$1,280.00	**$3,280.00**	$0.00	-$1,280.00	**-$1,280.00**
C.Manage ISTS loans and applications	$3,000.00	$30,000.00	**$33,000.00**	$2,250.00	$8,160.00	**$10,410.00**	$750.00	$21,840.00	**$22,590.00**
D.ISTS technical assistance	$0.00	$8,500.00	**$8,500.00**	$0.00	$7,320.00	**$7,320.00**	$0.00	$1,180.00	**$1,180.00**
E.Direct mailing re: loan availability	$3,000.00	$0.00	**$3,000.00**	$2,781.27	$320.00	**$3,101.27**	$218.73	-$320.00	**-$101.27**
F.ISTS education (brochure, articles, worksh	$6,600.00	$1,000.00	**$7,600.00**	$6,730.32	$325.00	**$7,055.32**	-$130.32	$675.00	**$544.68**
Total Element 1	**$16,000.00**	**$41,500.00**	**$57,500.00**	**$15,041.59**	**$21,085.00**	**$36,126.59**	**$958.41**	**$20,415.00**	**$21,373.41**
Element 2 - BMP Adoption									
A.Tracking system development for BMP's	$2,100.00	$0.00	**$2,100.00**	$1,775.00	$640.00	**$2,415.00**	$325.00	-$640.00	**-$315.00**
B.Manage BMP cost share contracts	$23,000.00	$0.00	**$23,000.00**	$19,906.64	$0.00	**$19,906.64**	$3,093.36	$0.00	**$3,093.36**
C.Develop and print BMP fact sheet	$2,000.00	$0.00	**$2,000.00**	$1,756.50	$0.00	**$1,756.50**	$243.50	$0.00	**$243.50**
D.Feedlot technical assistance	$0.00	$9,300.00	**$9,300.00**	$0.00	$14,880.00	**$14,880.00**	$0.00	-$5,580.00	**-$5,580.00**
E.BMP technical assistance	$0.00	$25,000.00	**$25,000.00**	$0.00	$27,040.00	**$27,040.00**	$0.00	-$2,040.00	**-$2,040.00**
F.BMP landowner cost	$0.00	$126,000.00	**$126,000.00**	$0.00	$215,953.58	**$215,953.58**	$0.00	-$89,953.58	**-$89,953.58**
Total Element 2	**$27,100.00**	**$160,300.00**	**$187,400.00**	**$23,438.14**	**$258,513.58**	**$281,951.72**	**$3,661.86**	**-$98,213.58**	**-$94,551.72**
Element 3 - Outreach									
A.BMP brochure	$2,500.00	$4,000.00	**$6,500.00**	$1,700.00	$1,500.00	**$3,200.00**	$800.00	$2,500.00	**$3,300.00**
B.Bacteria BMP promotion	$3,500.00	$0.00	**$3,500.00**	$1,487.40	$1,000.00	**$2,487.40**	$2,012.60	-$1,000.00	**$1,012.60**
C.GIS sensitive area mapping farm visits	$65,800.00	$6,740.00	**$72,540.00**	$48,575.13	$8,325.00	**$56,900.13**	$17,224.87	-$1,585.00	**$15,639.87**
D.Urban stormwater planning assistance	$12,760.00	$0.00	**$12,760.00**	$12,490.10	$4,940.00	**$17,430.10**	$269.90	-$4,940.00	**-$4,670.10**
Total Element 3	**$84,560.00**	**$10,740.00**	**$95,300.00**	**$64,252.63**	**$15,765.00**	**$80,017.63**	**$20,307.37**	**-$5,025.00**	**$15,282.37**
Element 4 - Administration and Evaluation									
A.Fiscal System set-up	$1,500.00	$0.00	**$1,500.00**	$1,557.50	$0.00	**$1,557.50**	-$57.50	$0.00	**-$57.50**
B.Staffing	$800.00	$0.00	**$800.00**	$800.00	$0.00	**$800.00**	$0.00	$0.00	**$0.00**
C.Project management and ccoordination	$24,500.00	$0.00	**$24,500.00**	$24,388.23	$1,280.00	**$25,668.23**	$111.77	-$1,280.00	**-$1,168.23**
D.Outreach	$6,500.00	$1,500.00	**$8,000.00**	$4,229.50	$500.00	**$4,729.50**	$2,270.50	$1,000.00	**$3,270.50**
E.Monitoring and support	$7,700.00	$0.00	**$7,700.00**	$8,072.26	$320.00	**$8,392.26**	-$372.26	-$320.00	**-$692.26**
F.Reporting, evaluation, project wrap-up	$6,000.00	$0.00	**$6,000.00**	$5,686.80	$0.00	**$5,686.80**	$313.20	$0.00	**$313.20**
Total Element 4	**$47,000.00**	**$1,500.00**	**$48,500.00**	**$44,734.29**	**$2,100.00**	**$46,834.29**	**$2,265.71**	**-$600.00**	**$1,665.71**
Total Expenditures this Period									
ITEMIZED PROGRAM ELEMENT BUDGET									
	$16,000.00	**$41,500.00**	**$57,500.00**	**$15,041.59**	**$21,085.00**	**$36,126.59**	**$958.41**	**$20,415.00**	**$21,373.41**
	$27,100.00	**$160,300.00**	**$187,400.00**	**$23,438.14**	**$258,513.58**	**$281,951.72**	**$3,661.86**	**-$98,213.58**	**-$94,551.72**
	$84,560.00	**$10,740.00**	**$95,300.00**	**$64,252.63**	**$15,765.00**	**$80,017.63**	**$20,307.37**	**-$5,025.00**	**$15,282.37**
	$47,000.00	**$1,500.00**	**$48,500.00**	**$44,734.29**	**$2,100.00**	**$46,834.29**	**$2,265.71**	**-$600.00**	**$1,665.71**
Project Grand Total	**$174,660.00**	**$214,040.00**	**$388,700.00**	**$147,466.65**	**$297,463.58**	**$444,930.23**	**$27,193.35**	**-$83,423.58**	**-$56,230.23**

Section IV--Conclusion

In conclusion, the Whitewater Watershed's South Branch Bacteria Reduction Project made significant progress toward addressing an extremely complex nonpoint source pollution problem. Outreach efforts reached many watershed residents, increasing knowledge and awareness of the problem and potential solutions. Farmers installed BMPs on hundreds of acres, and several feedlots were brought into compliance with pollution standards. The majority of feedlot operators met to discuss personalized maps showing sensitive features for manure application. Residents replaced failing septic systems through our low-interest loan program. Five sites were monitored for water quality over three years.

The project experienced several difficulties and delays, but still completed almost all the planned activities. We hope to build off the lessoned learned during this project. In the future, we plan to address bacteria impairments throughout the watershed using strategies that worked during this project, while also trying new strategies to address objectives where we did not meet our expectations. Through strengthened partnerships, increased contact with farmers and residents, and growing awareness of pollution issues, local partnerships like the Whitewater Watershed Project can work to address water quality concerns and build momentum toward watershed restoration.

Attached Documents

Loan application

Loan routing sheet

Loan direct mailing

General mailing to watershed residents

E-Coli brochure

Rain garden location map

Rain garden planting details

Rain garden plan 1

Rain garden plan 2

Rain garden tour photo

Monitoring plan

Bacteria charts

Final milestone schedule

Whitewater continuation application