MILL CREEK OF THE SOUTH BRANCH OF THE POTOMAC FINAL REPORT

NPS1294 FY09

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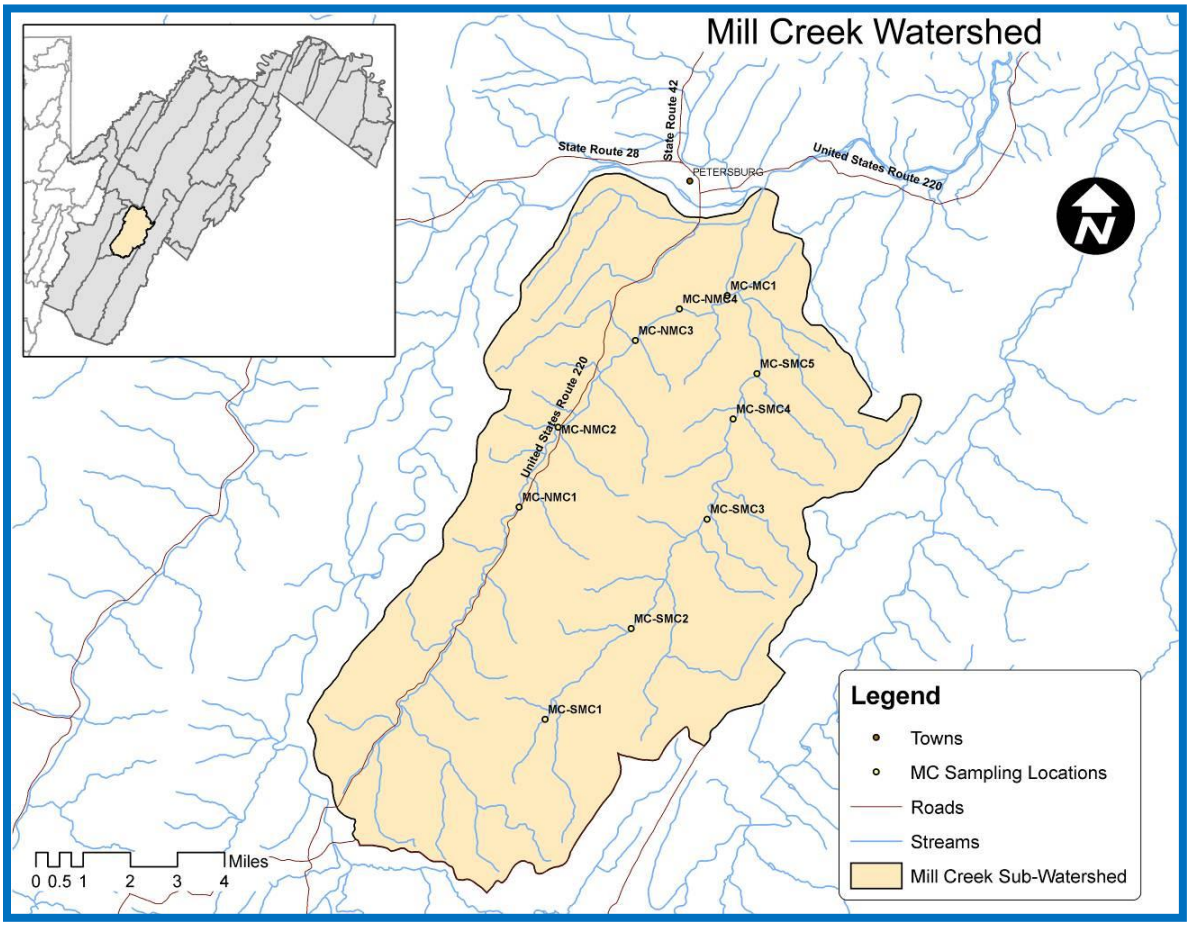
Mill Creek of the South Branch of the Potomac Final Report

FINAL REPORT

Introduction

The Mill Creek of the South Branch is a 103.9 square mile watershed that lies within Grant and Pendleton counties, West Virginia. The watershed includes North and South Mill Creeks, as well as the Mill Creek main-stem, and originates in Pendleton County, WV. Both tribs flow northeast and converge into Mill Creek just north of Dorcas, in Grant County. Mill Creek then flows approximately 2.4 miles further until it joins the South Branch of the Potomac. This river continues north until it joins the North Branch of the Potomac River and then onto the Chesapeake Bay.



TMDL

A TMDL was developed (EPA 1998) that reported the need for fecal coliform contamination to be reduced by 37.7% to achieve the State was quality standards, not exceeding 200 cfu/100mL for a 30 day geometric mean of five or more samples or not exceeding 400 cfu/100 mL for an instantaneous sample. The TMDL described the load reduction needed for the non-point source pollutants to be as follows:

Table 1. Non-point Source Load Reductions to Meet TMDL Allocation (EPA, 1998)

Land Use	Annual Allocation (cfu)	% Reduction
Agriculture and Pasture	9.1869×10^{14}	37.7
Urban	1.6429×10^{12}	0
Forest	4.3364×10^{13}	0

Non point sources of fecal coliform bacteria can enter the stream through direct deposition or via surface runoff from the watershed's lands. The non point sources identified in the Mill Creek TMDL (USEPA, 1998) included animal agriculture, human, wildlife, and domestic animals. The TMDL did not consider fecal coliform bacteria from failing septics or urban or forest land uses to be significant contributors to the fecal coliform problem. However, the project team felt otherwise and septics were included in the best management practices outlined in the watershed based plan as a reduction factor. The Watershed Based Plan working group considered proximity of any potential fecal coliform source to a receiving water to be the most important indicator that a potential source could become an actual cause of fecal coliform impairment in Mill Creek, and considered all reasonable sources in the stream corridor rather than limiting its focus to either agriculture in general, or poultry in specific. This project compliments the efforts West Virginia is currently making to meet the newly released Chesapeake Bay TMDL.

Load reductions were estimated using a simple accounting spreadsheet with pollution reduction efficiencies based upon those. According to spreadsheet calculations, if the BMP's were installed at the projected numbers, the percent fecal reductions would be 33.71%. Septic upgrades and wetland restoration were also included in this mitigation project based upon community concern and interest. Conversations with county sanitarians identified at least six potential septics within the floodplain that were out of compliance. Again, the working group felt that these were a contributing source and should be addressed.

Three projects were completed this reporting period (April 1, 2013 through September 30, 2013) finishing this phase of funding:

- 1,900' of exclusion fencing and an alternative watering source in North Mill Creek
- 1,200' of exclusion fencing and an alternative watering source in South Mill Creek
- Alternative watering source to finish out earlier contract in South Mill Creek.

Concrete watering trough installed in the South Mill Creek Watershed in August 2013

This incremental has focused predominantly on getting the cattle away from the surface water. To date, 55,564 linear feet of exclusion fencing has been installed. This has prevented livestock from having direct access to the stream, thereby reducing fecal coliform and nutrient pollution. Alternative watering systems have been installed to replace livestock access. One of the educational goals has been the message that these alternative systems improve surface water quality, improve health of herd by providing a clean source, provide better footing for livestock with a reinforced standing pad around watering tanks, allow multiple watering locations resulting in potentially more uniform pasture utilization and reducing maintenance on ditch and stream banks.

Several livestock feeding areas have been relocated away from the stream banks that are commonly utilized. Riparian buffers are serving to filter the nutrients from these feeding and pasture areas. Three hundred and eighty six acres were enrolled in buffer programs. One poultry producer on North Mill Creek constructed a waste management storage facility where his poultry litter is now safely stored under roof until it is spread on his grassland or marketed. This litter was historically stored in a pile adjacent to the creek.

Wetland restoration rehabilitates a degraded wetland or reestablishes a wetland that has been destroyed. Restoration takes place on land that has been, or still is, a wetland Three acres of wetlands were restored by fencing the sensitive area off from livestock and replacing native hydric vegetation.

Four failed septic systems were prioritized by the county health department and upgraded or replaced to meet code.

Education & Outreach

Significant education and outreach activities entailed:

- Completion of a demonstration rain garden at the Dorcas Elementary School
- Agricultural field day at the same
- Spring Run Water Quality Study in cooperation with landowners, DNR, WVDA & WVDEP
- Guest Speaker at Ruritan Meetings
- Display at Tri County Fair X 2 years
- Voluntary survey to landowners via mail

Alternative water system utilizing solar technology

Wetland restoration

Stormwater management from poultry productions area (top left), exclusion fencing (top right), rain garden demo (bottom)

Reductions

Agricultural Program	**Unit**	**Units Needed**	**# Installed**	**# Goal to date**	Fecal Coliform Reduction CFU's	Nitrogen lbs/yr	Phosphorus lbs/yr
Relocation of Feedlots	systems	3	3	100%	6.90E+12	3861	469.5
Barnyard Runoff Control	systems	2	1	50%	1.15E+12	0	0
Riparian Buffers	acres	400	386.3	97%	2.87E+14	21864.58	2124.65
Streambank Fencing	linear feet	338,000	55564	16%	3.00E+13	822347.2	77789.6
Alternative watering	systems	10	17	170%	2.89E+13	127.16	11.9
Septic Upgrades	systems	6	4	66%	6.5E+12	0	0
Septic Pumpings	systems	0	25	100%	1.04E+12	0	0
Wetland Restoration	acres	3	3	100%	4.86E+12	0	0
Poultry Litter Shed	system	1	1	100%	2.3E+12	1287	156.5
TOTALS					3.69E+14	849486.9	80552.15

This incremental achieved a 40.1% fecal coliform reduction and met the stated goals of the project.

Expenditures

Implementation	Total Contract
Trees	$470.10
Septic upgrade	$5,250.00
Septic upgrade	$3,791.58
Stormwater Upgrade	$8,625.99
Alternative water & fencing	$2,662.50
Alternative water & fencing	$2,983.42
Fencing & alternative water	$12,000.00
Waste Management	$35,265.00
Livestock crossing	$14,602.50
Waste Management	$4,539.75
Fencing	$4,570.46
Alternative water & fencing	$1,997.25
Alternative water & wetland restoration	$10,320.00
septic upgrade	$5,820.27
septic upgrade	$5,829.64
Fencing	$5,071.13
Fencing	$3,119.28
Fencing & alternative water	$2,309.76
Alternative water	$5,694.88
Alternative water	$3,899.49
Septic Upgrade	$5,037.66
Total Contract	**$239,767.77**
Federal Contribution	**$143,860.66**
State Contribution	**$43,999.66**
Local Contribution	**$51,907.45**

"Mill Creek of the South Branch 319 Projects"