

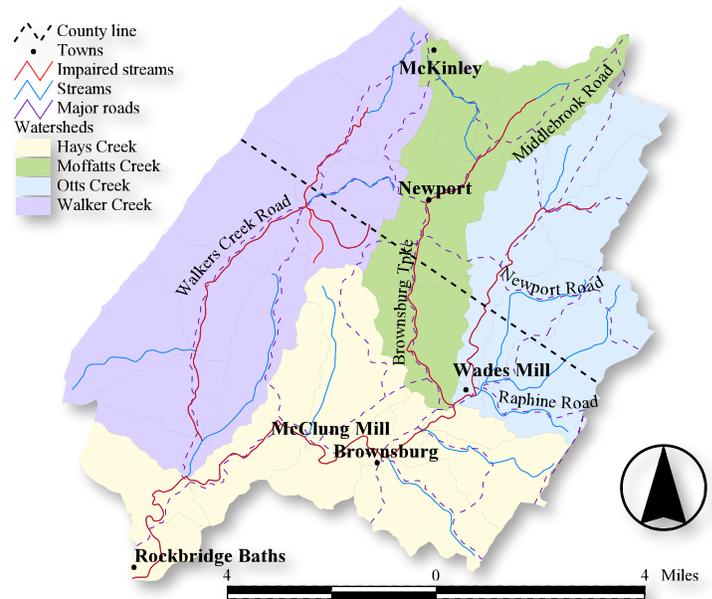
# 319H TMDL Implementation Project Report

## HAYS, MOFFATTS, OTTS & WALKERS CREEKS

## Virginia Nonpoint Source MANAGEMENT PROGRAM

### Project Location and Background

The Hays Creek watershed is located in the Upper James River Basin in Augusta and Rockbridge counties, Virginia. The watershed is approximately 51,500 acres in size and land use is predominantly forest and agricultural. Hays Creek and its tributaries (Otts, Moffatts and Walker Creeks) were listed as impaired on Virginia's 1998 Section 303(d) Total Maximum Daily Load Priority List and Report due to violations of the State's Water Quality Standards for fecal coliform bacteria and violations of the General Standard (benthic). The Hays Creek TMDL was completed in January 2008 and a TMDL implementation plan was completed in December 2010. An implementation project for all four creeks began in July 2012 and has continued through 2015.



**Table 1.** Hays, Moffatts, Otts and Walker Creeks BMP Summary: July 2012 – June 2015

Control measure	Units	Needed	Installed	%
<b>Agricultural</b>				
Livestock exclusion fencing	F	353,062	23,903	7
Livestock exclusion fencing	S	115	14	12
Riparian buffer		275	18	7
Improved pasture management	A	23,356	0	-
Reforestation of pasture or cropland	A	1,000	0	-
Sod waterways	A	49	0	-
Continuous no till	A	502	0	-
Veg. buffer on cropland	A	73	0	-
Veg. cover on cropland	A	-	65	-
Manure storage	S	11	1	9
<b>Residential septic</b>				
Septic tank pumpout	S	66	7	11
Septic system repair	S	90	0	-
Septic system installation	S	28	1	4
Alternative waste sewage system	S	57	1	2

NOTE: BMP counts only include 319 funded projects, and BMPs funded by the VA Agricultural Cost Share and Conservation Reserve Enhancement Programs; A = Acres, S = System, F = Feet

### Implementation Highlights

The Hays Creek TMDL implementation project is administered by the Natural Bridge Soil and Water Conservation District (NBSWCD) in partnership with the Headwaters SWCD. The project area spans the coverage areas of the two SWCD's, allowing for a collaborative approach to implementation. Table 1 shows BMPs implemented since the project began in July 2012 and overall implementation goals for the project areas.

The agricultural program has been well received in the watersheds, particularly with respect to livestock exclusion practices offered with 100% cost share. The NBSWCD was awarded additional funds to support the agricultural program in 2015 after expending all of their allocated cost share funds for livestock exclusion practices. However, the residential program has had comparatively limited participation in the watersheds to date. Between July 2014 and June 2015, three livestock stream exclusion projects were completed totaling 5,630 linear feet of fencing and five acres of riparian buffers. In addition, 41 acres of permanent vegetative cover on cropland and 387 acres of cover crops were established. In the residential program, two septic tank pumpouts and one replacement were completed between July 2014 and June 2015.

### Pollution Reductions

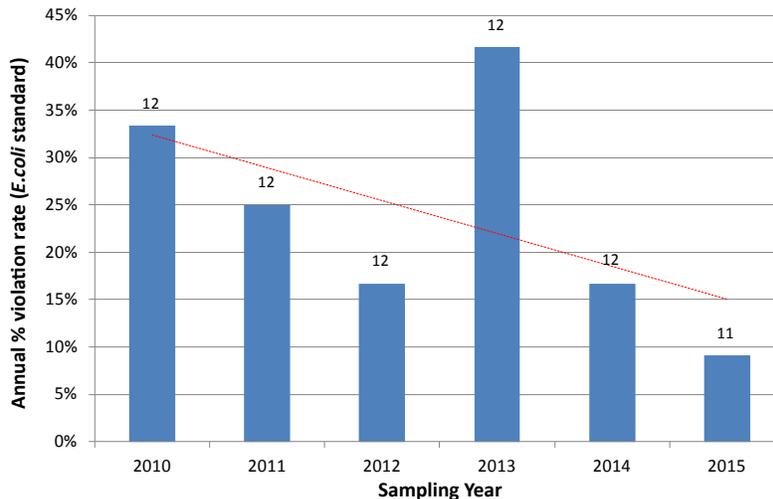
Pollution reductions for bacteria, nitrogen, phosphorus and sediment for BMPs installed during the project period are summarized in Table 2.

**Table 2.** Pollution Reductions for Hays, Moffatts, Otts and Walker Creeks: July 2012-June 2015

Period	Pathogens: coliform (cfu/100mL)	Nitrogen (lbs/yr)	Phosphorous (lbs/yr)	Sedimentation-Siltation (T/yr)
July 2014-June 2015	4.33E+14	4,490	805	820
July 2012 -June 2015	2.01E+15	12,349	2,352	12,258

### Water Quality Monitoring Results

**Hays Creek (2-HYS001.41)**  
% Violation rates: *E. coli* standard



Water quality data collected by VADEQ from 2010 through 2015 was analyzed to determine the impact of BMPs implemented in the project area on *E. coli* violation rates and associated long term trends.

The bar graph above shows the percent violation rate for samples collected annually at monitoring station 2-HYS001.41, located near the mouth of Hays Creek, that did not meet the water quality standard of 235 cfu/100 mL. The number of samples collected each year is shown above each bar. The linear regression fitted to the data shows a decreasing trend in violation rates over the sampling period, indicating improvements in water quality in Hays Creek.

This Virginia Nonpoint Source Management Program is managed by Virginia Department of Environmental Quality and is funded, in part, through grants from the U.S. Environmental Protection Agency, under the Clean Water Act Section 319.

For more information regarding Virginia's Nonpoint Source Management Program, please visit us on the web at: <http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/NonpointSourcePollutionManagement.aspx>

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