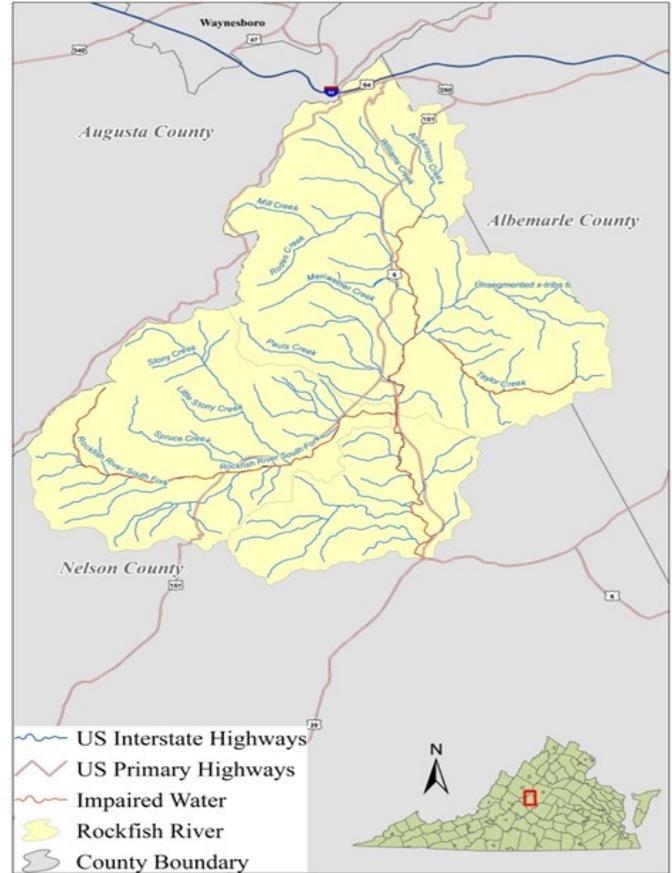


Project Location and Background

The Rockfish River watershed is located in the James River Basin in Nelson and Albemarle Counties, Virginia. The watershed is approximately 67,500 acres in size and land use is predominantly forested (84%) and agricultural. The Rockfish River and its North Fork were listed as impaired on Virginia’s 2006 Section 303(d) Total Maximum Daily Load (TMDL) Priority List and Report due to violations of the State’s Water Quality Standard for fecal coliform bacteria. The South Fork was placed on the List in 2004 violation of the same standard. The Rockfish River TMDL was completed in November 2011, and a TMDL implementation plan was completed in June 2013. The implementation project started in November 2013.



Implementation Highlights

The Rockfish River TMDL implementation project was administered by the Thomas Jefferson Soil and Water Conservation District (TJSWCD). The table to the right shows BMPs implemented since the project began in November 2013 and overall implementation goals for the project area.

The agricultural program proved challenging to implement despite extensive outreach efforts by the TJSWCD. The owners of several large agricultural operations in the watershed who initially expressed interest in the program eventually postponed projects due to concerns about a natural gas pipeline expected to cross through their properties.

Conversely, the residential program received significant interest from landowners and septic issues were addressed at 69 homes.

Table 1: Rockfish River BMP Summary: November 2013—June 2016

Control Measure	Units	Goal	Installed	%
Agricultural				
Stream Exclusion Fencing	F	109,403	10,520	10
	S	47	4	9
Riparian Buffer	A	22	10	45
Improved Pasture Management	A	3,822	0	0
Residential				
Septic Tank Pump-out	S	1,535	51	3
Septic System Repairs	S	154	3	2
Septic System Installation	S	351	14	4
Alternative Waste Treatment System	S	119	1	<1

A = Acres, F = Linear Feet, S = System; Note: BMP counts only include 319-funded and state VACS.

(continued on page 2)

Implementation Highlights— Continued

Pollution reductions resulting from BMP installations since the project’s inception are summarized in Table 2 below.

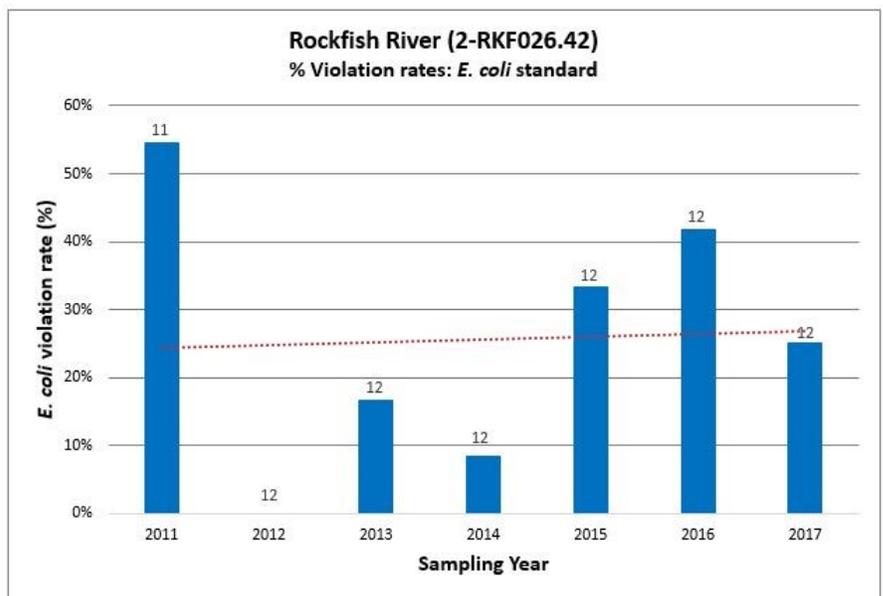
Period	Pathogen (Coliform) (CFU)	Nitrogen (lbs/year)	Phosphorus (lbs/year)	Sedimentation (tons/year)
November 2013-June 2017	2.31E+14	1,260	144	102

Table 2: Pollution Reductions for Rockfish River Watershed

Water Quality Monitoring Results

Water quality data collected by DEQ for the period of 2011 through 2017 were analyzed to determine the impact of BMPs implemented in the project area on *E. coli* violation rates and associated long-term trends, if any, in water quality improvements. The bar graph below shows the percent violation rate for samples collected annually at monitoring station 2-RKF026.42, located downstream of the confluence with the North and South Forks of the Rockfish, which 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 potentially increasing trend in violation rates over the sampling period, largely driven by the number of violations in 2016. Although this increase is slight, it is likely that additional efforts will be needed to meet the bacteria water quality standard in the Rockfish River.

Graph 1: *E. coli* data for Rockfish River (Station 2-RKF026.42), 2011-2017





Photos: (Above) Alternative septic system installation; (Below) before (left) and after (right) views of a livestock exclusion practice in the Rockfish River watershed.



Closeout Analysis

The Rockfish River Implementation Project was funded for three years. Public participation and overall achievement of implementation goals was mildly successful. Highlights of the project include the following:

- ⇒ As shown in Table 1, stream exclusion fencing (linear feet) and the number of systems installed met 10% and 9% of the IP goals, respectively. Forty-five percent of the riparian buffer goal was achieved; however, no improved pasture management programs were implemented. Under the residential program, 3% of septic tank pump-outs, 2% of septic system repairs, 4% of septic system installation/replacement, and less than 1% of alternative waste treatment system installation goals were met.
- ⇒ Landowner interest was the biggest challenge to BMP implementation. Significant public interest and participation warranting continuation of the effort was not realized.
- ⇒ The agricultural program proved challenging to implement despite extensive outreach efforts by the TJSWCD. The owners of several large agricultural operations in the watershed who initially expressed interest in the program eventually postponed projects due to concerns about a natural gas pipeline expected to cross through their properties.

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