

Project Location and Background

Thumb Run, Carter Run, Great Run, and Deep Run are part of the Rapidan-Upper Rappahannock Basin in the Chesapeake Bay watershed. The Thumb Run, Carter Run and Great Run watersheds are located in Fauquier County, Virginia. The northern portion of Deep Run watershed lies in Fauquier County with the southern portion in Stafford County. The 92,800 acre project area is made up of forest (60%), agricultural (39%) and residential (1%) land uses. A TMDL implementation plan was developed to address a fecal coliform impairment on Thumb Run and *E. coli* impairments on Deep, Carter and Great Runs. Deep Run was first listed as impaired for fecal coliform on the 1996 303(d) list. Thumb, Carter and Great Runs followed in 1998. An implementation project for all four runs began in June 2006. In 2012 only Carter and Thumb Runs were continued, and remained active through June 2015.

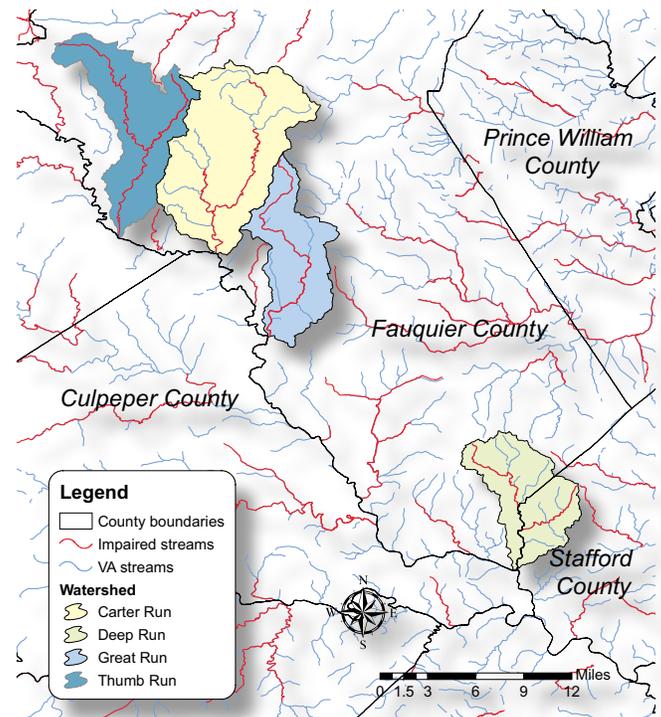


Table 1. Thumb, Deep, Carter and Great Runs BMP Summary: July 2006 – June 2015

Control measure	Units	Need	Instal.	%
Agricultural				
Livestock exclusion fencing	F	421,947	301,235	71
Livestock exclusion systems	S	167	63	38
Riparian buffers	A	-	242	-
Pasture management	A	16,459	317	2
Permanent vegetative cover on cropland	A	-	94	-
Urban/Residential pet waste				
Pet waste landscape	S	2	2	100
Residential septic				
Septic tank pumpout	S	-	241	-
Septic system repair	S	102	65	64
Septic system installation	S	146	15	10
Alternative waste sewage system	S	44	1	2

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

Implementation Highlights

The Thumb, Deep, Carter and Great Runs TMDL implementation project is administered by the John Marshall Soil and Water Conservation District (JMSWCD) and the Fauquier County Health Department. The Health Department was contracted to provide technical assistance and educational outreach to homeowners while JMSWCD delivers the agricultural BMP program and associated education and outreach. Table 1 shows BMPs implemented in the watersheds since the project began in July 2006 and implementation goals established for the project areas. Of note, 57 miles of livestock stream exclusion fencing has been installed in the watersheds. Outreach efforts for the project have included newspaper articles, mailings to landowners in the watersheds, and presentations to community organizations. Between July 2014 and June 2015, five livestock exclusion projects were completed in the watersheds totaling approximately 15,614 feet of streamside fencing. In addition, 44 acres of improved pasture management, three septic system repairs and one septic tank pumpout were completed.

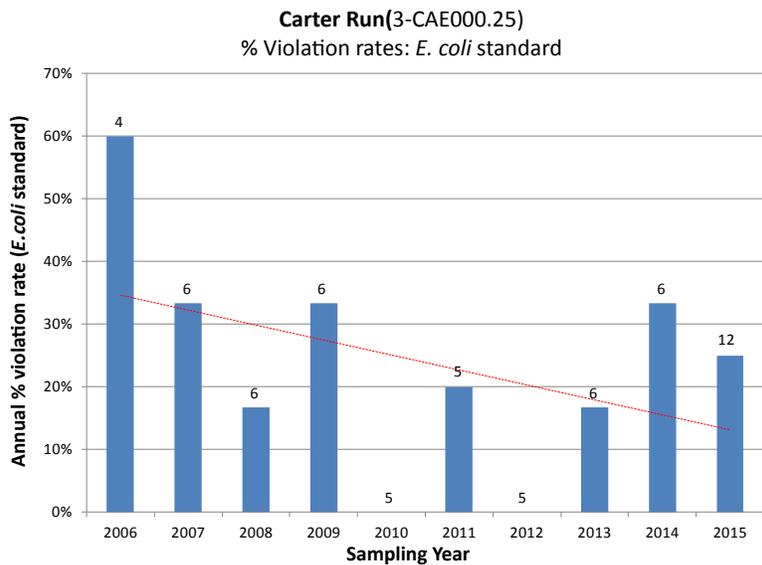
Pollution Reductions

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 Thumb, Deep, Carter and Great Runs: July 2006-June 2015

Period	Pathogens: coliform (cfu/100mL)	Nitrogen (lbs/yr)	Phosphorous (lbs/yr)	Sedimentation-Siltation (T/yr)
July 2014-June 2015	6.12E+14	759	101	126
July 2006-June 2015	9.59E+15	137,401	9,640	12,049

Water Quality Monitoring Results



Water quality data collected by VADEQ from 2006 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 3-CAE000.25 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 significant improvements in water quality in Carter Run.

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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