2026

RIVANNA RIVER WATERSHED STREAM HEALTH REPORT

MONITORING PROGRAM RESULTS FROM 2025



RIVANNA
CONSERVATION ALLIANCE

Our Mission – Working with the community to conserve the Rivanna River and its watershed through water quality monitoring, restoration, education, and stewardship.

Our Vision – We envision a healthy Rivanna River and watershed that benefits and is sustained by the community.

LETTER FROM LEADERSHIP

Dear Friends of the Rivanna,

As many of you know, community involvement is central to our mission at RCA, and it is the driving force behind the success and longevity of our water quality monitoring program. The community supports our program in many critical ways – volunteering to collect samples, supporting the program financially, permitting site access, and providing technical advice. In turn, our program strives to support the community, not just by providing timely data from our long-standing biological and bacteria monitoring sites, but also by using our monitoring program to address emerging community data needs.

In this year's report, we feature four community partnerships (Page 2) for which RCA's monitoring program collected data in 2025 and 2026. As in previous reports, we also summarize the latest data collected by RCA's Level III Bacteria Monitoring Program (2025 data, Page 6) to determine whether sites are meeting Virginia's recreational water quality standard. Though results indicate that all 22 monitoring sites either failed to meet this standard in 2025 or lacked sufficient data to make a determination, this doesn't tell the whole story. In summer 2025, more than 80% of water samples from the Rivanna River tested below the 410 MPN per 100 mL threshold.

This report also shares data collected through RCA's Level III Biological Monitoring Program in 2025 (Page 4). Typically, we combine and summarize the previous three years of data to determine if sites are meeting Virginia's water quality standard for aquatic life. However, due to a slight change in methodology required by the Virginia Department of Environmental Quality (VADEQ) in 2025 - switching from 1500uM nets to 1000uM nets - we are keeping the data separate until we can determine through comparative studies what effect this change has on scores, if any.

So far, the new nets do not appear to have significantly affected scores overall. Looking just at data collected in 2025, 42% of sites scored high enough to meet Virginia's water quality standard for aquatic life (Page 4). By comparison, 44% of sites met this standard in our last report, when looking at data collected from 2022 to 2024.

We are deeply grateful for the continued support of our community, the opportunity to partner with new groups, and the privilege to continue collecting critical long-term data about the condition of our beloved streams and rivers. Together, we're building a healthier, more resilient future for the Rivanna River watershed.

With gratitude,

Lisa Wittenborn, Ph.D.
Executive Director

Claire Sanderson, Ph.D.
Director of Monitoring



2026 PARTNER SITES

An important goal of RCA's water quality monitoring program is to use our resources and expertise to support the special monitoring needs of community groups and agencies located within the Rivanna River watershed. Below we feature four monitoring partners, with whom we collected stream data in 2025 and 2026.



In 2021, RCA began monitoring the Schenks Branch tributary that runs through the **Botanical Garden of the Piedmont**. The goal was to start collecting high-quality baseline stream health data in advance of a major stream restoration effort carried out in 2023. The restoration addressed excessive erosion and contribution of pollutants to Meadow Creek and the Rivanna River by regrading the steep and deep streambanks; adding meanders, riffles, and other natural stream features; and stabilizing the banks with extensive native plantings. RCA has continued sampling the restored stream twice a year to collect "post" restoration data, and in 2026 also started collecting monthly bacteria samples at the site.

With planned upgrades to the **Rivanna Water and Sewer Authority's (RWSA)** drinking water distribution network, the North Fork Rivanna River drinking water plant is slated to be decommissioned. In partnership with the U.S. Fish and Wildlife Service, RWSA plans to remove the plant's low-head dam as part of that process. While design work and other ecological studies are underway, RCA has stepped in to help assess the impact of the dam's removal on overall stream health. RCA began biological monitoring just below the dam in November 2025 and will continue to sample this site twice a year through the dam's removal and beyond.







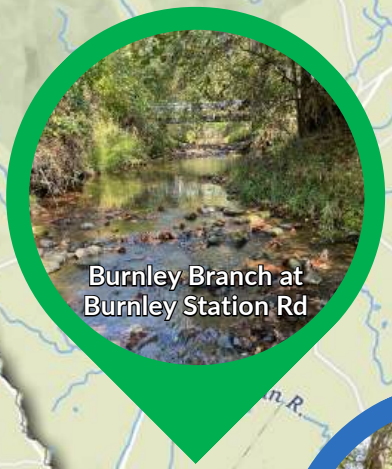
The **International Rescue Committee's (IRC) New Roots** program helps provide food security to low-income families by offering opportunities to learn about and practice urban agriculture in community green spaces. One New Roots farm is located along Moores Creek, adjacent to RCA's Azalea Park bacteria monitoring site, and it uses water pumped from Moores Creek for irrigation. In 2025, RCA started testing bacteria levels in the irrigation tanks and hoses to support the program's safe water use and healthy farming practices. RCA shared results with IRC staff and farmers, and created an outreach flyer summarizing results and safe water use recommendations. RCA continues to support the IRC as requested.

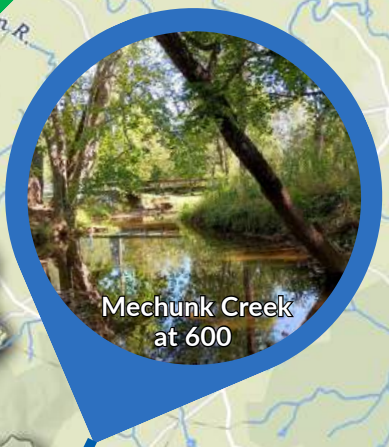
In 2026, local nonprofit, **Historic Batesville**, reached out to RCA for help monitoring Whiteside Branch and Stillhouse Creek due to concerns over water quality and recreational safety. RCA staff trained and certified nine Batesville volunteers, who collected 14 weekly samples from three locations as part of RCA's summer bacteria monitoring program. RCA staff tested the samples and shared the results on our website and directly with Historic Batesville, who posted results on their website and two community bulletin boards. Starting in 2027, RCA plans to add one of these locations to our list of regular summer weekly sampling sites, ensuring that data collection will continue.



BIOLOGICAL MONITORING 2025









GREENE COUNTY

ALBEMARLE COUNTY

LOUISA COUNTY

FLUVANNA COUNTY

CHARLOTTESVILLE

Robinson River

S. River

Moormans River

Mechums River

Rivanna River

Hardware River

Ballinger Creek

Byrd Creek

Beaver Creek

Slate R.

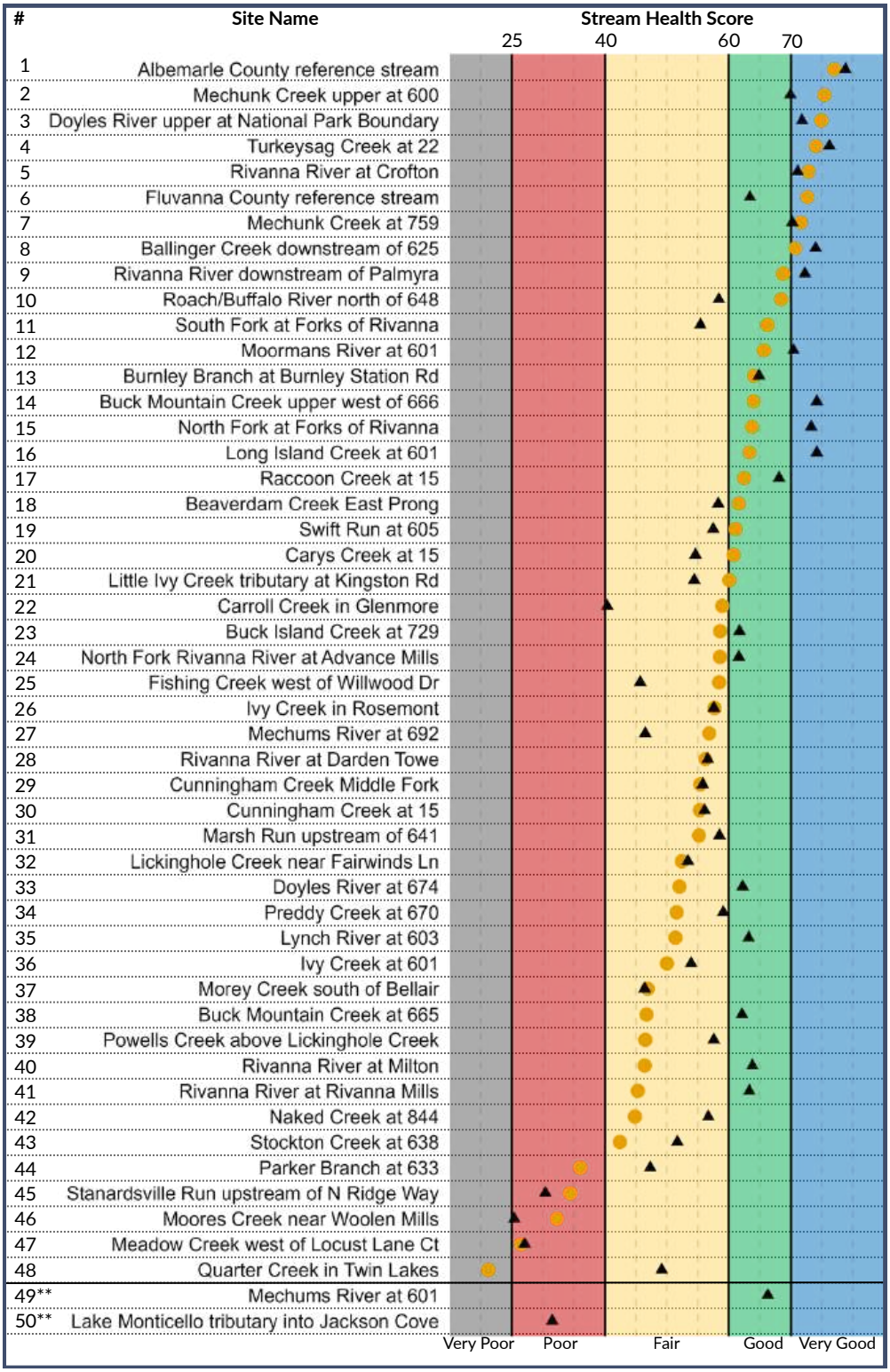
James River

Buck Island Creek

45 44 10 48 35 3 1 19 31 34 15 14 13 38 12 25 49 33 42 11 24 36 21 39 32 43 26 37 47 28 46 27 40 22 23 2 4 18 7 5 6 50 29 30 8 16 17 9 20 41

Stream Health Scores

70-100	Very Good	Meets Virginia's water quality standard for aquatic life
60-69.9	Good	
40-59.9	Fair	Fails to meet Virginia's water quality standard for aquatic life
25-39.9	Poor	
0-24.9	Very Poor	
No Valid Data for 2025**		



Key:
- Average 2025 Score (2025 Data)
- Previous Score (2022-2024 Data)

*In this Report, only one year of stream health scores (2025 data) were analyzed due to a protocol change implemented by VADEQ in 2025. See Page 1 for more information.

**In 2025, RCA was unable to obtain valid samples for two long-term monitoring sites, Mechums River at 601 (#49) and Lake Monticello tributary into Jackson Cove (#50), due to inclement weather and low water levels, respectively.

Past Reports can be found at **rivannariver.org**





Humpless casemaker caddisfly (*Brachycentridae*) collected at Buck Mountain Creek upper west of 666 (#14) in Fall 2025

Biological Monitoring Protocol



At each site, monitors follow protocols approved by VADEQ to collect benthic macroinvertebrates using a kick net.



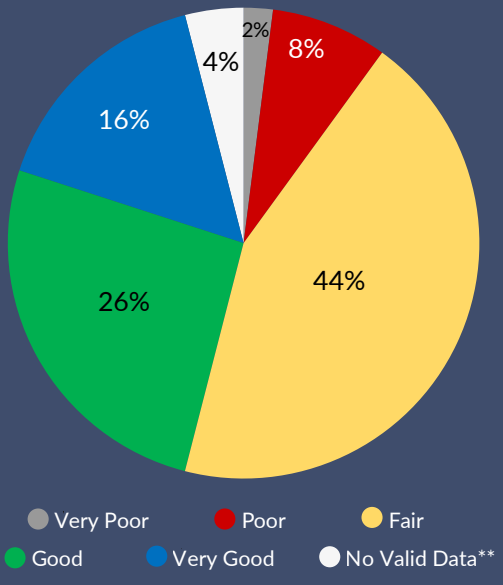
Volunteers sort, count, and identify the organisms to the family level. A minimum of 200 organisms are collected in each sample.



The number, types, pollution sensitivity, and diversity of organisms at each site are used to calculate a stream health score (0-100).



RCA typically analyzes three years of stream health scores to determine the overall rating for each site.*



Streams rated as *Very Good* and *Good* meet Virginia's water quality standard for aquatic life. Those rated as *Fair*, *Poor* and *Very Poor* fail to meet this standard.

In 2025, 58% of streams sampled by RCA failed to meet this important benchmark.

BACTERIA MONITORING 2025

RCA's Level III Bacteria Monitoring Program analyzed *Escherichia coli (E. coli)* levels at 22 locations within the Rivanna River watershed in 2025. Water samples were collected monthly from March through November, and sites with high recreational use along the Rivanna River were tested weekly throughout the summer from Memorial Day to Labor Day. In addition, RCA collected weekly data at nine sites in the spring to evaluate their compliance with Virginia's revised recreational water quality standard, which requires more frequent sampling.

E. coli are naturally occurring bacteria found in the guts of humans and other animals. They signal the presence of waste pollution and suggest other pathogenic organisms may also be present. Heavy rainfall can temporarily elevate *E. coli* levels. When *E. coli* levels are too high, swimming and wading in the water are considered unsafe.

In an urban area like Charlottesville, sewer overflows, damaged sewer pipes, and animal waste are typically the most significant sources of bacteria contamination. RCA's bacteria monitoring helps protect public health and water quality by identifying these issues in our local waterways.

To view all of RCA's bacteria monitoring data, please visit **rivannariver.org/bacteria**.

Bacteria Monitoring Protocol



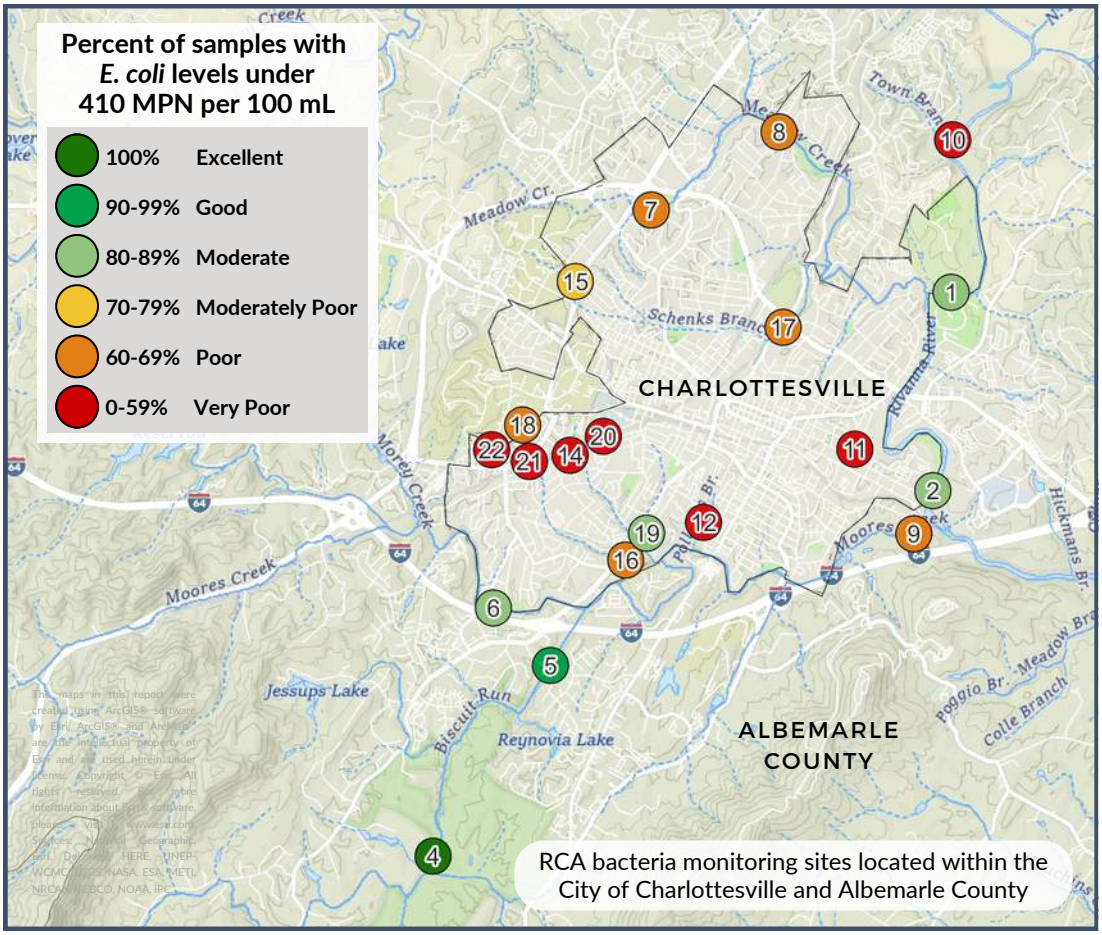
At each site, volunteers follow VADEQ-approved protocols to collect water samples using sterile bottles. The samples are returned to RCA's certified lab for testing.



The samples are processed using Colilert (IDEXX), an EPA-approved method that accurately quantifies *E. coli* levels in water samples.



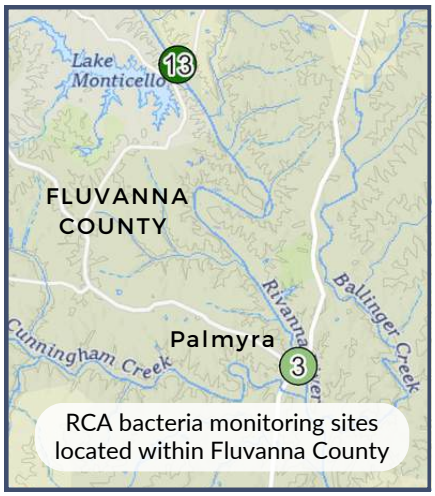
After the samples are incubated for 24 hours, *E. coli* results are read under UV light and recorded as the **Most Probable Number (MPN)** of *E. coli* per 100 mL of water.



RCA bacteria monitoring sites located within the City of Charlottesville and Albemarle County

In freshwater, VADEQ considers *E. coli* concentrations under **410 MPN per 100 mL** to be safe for recreation.

In summer 2025, more than 80% of water samples collected from Rivanna River sites had *E. coli* levels under this threshold.



RCA bacteria monitoring sites located within Fluvanna County

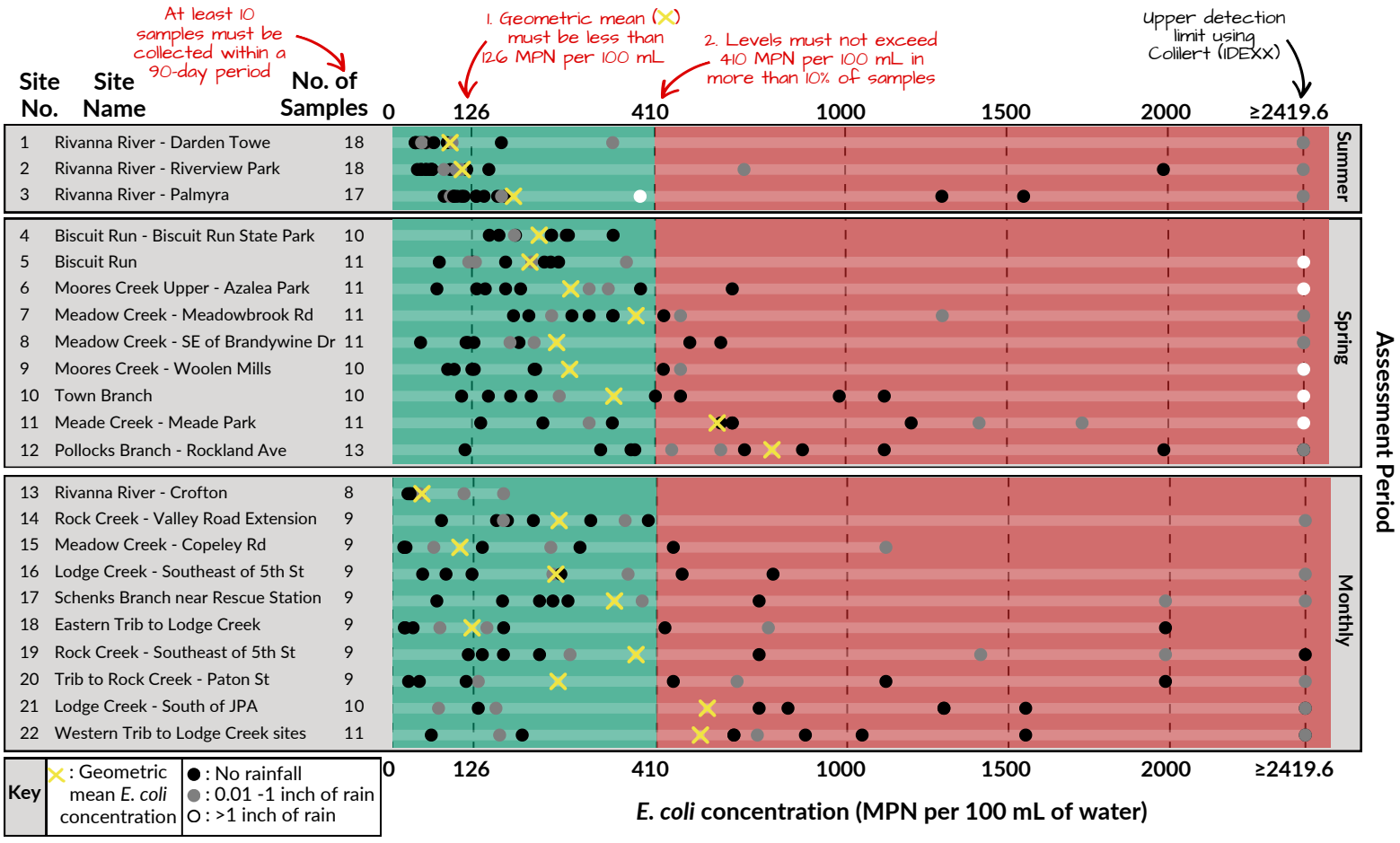
VADEQ uses specific criteria to determine if a site meets or "supports" Virginia's revised recreational water quality standard (shown in red text below). Sites support the standard if 10 or more samples are collected in a 90-day period and both of the following hold:

1. The geometric mean *E. coli* concentration does not exceed 126 MPN per 100 mL.
2. *E. coli* levels do not exceed 410 MPN per 100 mL more than 10% of the time.

When fewer than 10 samples are collected in a 90-day period, a site will fail to meet the standard if *E. coli* levels exceed 410 MPN per 100 mL in two or more samples. If sites have fewer than two exceedances, more data is needed to assess their compliance.

During spring and summer, 10 or more samples were collected within 90 days at 12 RCA monitoring sites (#1-#12). All 12 sites had either geometric mean *E. coli* levels greater than 126 MPN per 100 mL, or two or more samples with *E. coli* levels exceeding 410 MPN per 100mL. Due to these exceedances, all 12 sites failed to support Virginia's water quality standard for recreation in 2025.

All monthly monitoring sites (#13-#22) had fewer than 10 samples collected within a 90-day period. While one monthly site, Rivanna River @ Crofton (#13), had no exceedances, it had insufficient data to determine compliance with the standard. Nine monthly sites (#14-#22) had two or more exceedances and therefore failed to meet the standard.



This plot illustrates the *E. coli* concentration of each water sample collected at RCA's 22 monitoring sites in 2025. Each sample is represented by one dot, but some dots overlap, especially at the upper detection limit. Each dot is shaded according to the amount of rainfall recorded within 24 hours prior to sampling. Monitoring sites are grouped into their assessment periods: Summer, Spring and Monthly. Summer and Spring samples were collected over a 90-day period. Monthly samples were collected once a month from March to November.



2025 Funders for RCA's Monitoring Program

• Albemarle County • Anne and Gene Worrell Foundation • Batten Family Fund • City of Charlottesville • Fluvanna County •
• Rivanna Water & Sewer Authority • University of Virginia • Virginia Environmental Endowment •
• Virginia Department of Environmental Quality • Anonymous and Individual donors •

2025 Community Partners for RCA's Monitoring Program

• Albemarle County • Botanical Garden of the Piedmont • City of Charlottesville • Fluvanna County •
• Greene County • Historic Batesville • International Rescue Committee • James River Association •
• Rivanna Master Naturalists • Rivanna Water & Sewer Authority • The Nature Conservancy • University of Virginia •
• Virginia Department of Environmental Quality • Landowners who allow river access •

2025 Data Collected by the Following Volunteer Monitors

McKinley Anders
Carol Baber*
Chris Baca*
Anne Bergin*
Hadley Booth
Peter Boucher*
Rick Bowers
Tammy Bowers*
Lindsay Bragg*
Nick Bragg
Samuel Brandt*
Bill Buchholz
Megan Buetow-Thomas*
Cali Busch*
Tony Busch
Paul Cipriani*
Tina Colom*
Ryan Cordier
Deirdre Curran
Maura Duffy
Philip Dupont
Sam Dupont*
Heather Eggleston
Devon Ericksen
Nancy Fiddner
Ken Fizer
Tate Flowers
Mark Foley*
Raelin Fowley*
Alice Frei*
Olivia Gathright
Rashmi Ghei*
Andrew Gneiting*
Jill Greiner*
Tom Griffin*
Allen Hammer
Kathryn Hanks
Ben Henderson
Liza Ann Henderson
Gareth Hunt
Shaina Huynh*
Megan Juelfs*
Finn Kelleher
Beth Kuhn*
Mark Kutney
Holly Lafferty*
Keggie Mallett
Anna McElhinny*
Courtney McLaughlin*
Neil Means*
Sarah Medley*
Vicki Metcalf*
Sharon Meth*
Jim Nix*
Meredith Noble*
Jeff Pacelli*
Liz Palmer
Sarah Payne
Autumn Pembleton
Dot Preis*
Iain Ramirez
Kristina Reid Black*
Maria Eugenia Romero
Andrea Sahli*
Steve Sayre*
Adam Seroka
Karen Siegrist*
David Smith*
Marilyn Smith*
Cheryl Stephan*
Elizabeth Sutphen
Kim Swartz
Bob Troy*
Laura Troy*
Janet Walker*
Bev Wann
Whitney Westmorland
Barbara Williams
Bobbie Williams
Peyton Williams
Laurel Williamson*
Linda Winkelstern
Jessica Wood
Jane Zimmermann

**Certified Monitor*

2026 Staff Members

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Elizabeth Clark, Director of Development
Sophie Elliott, Operations & Communications Manager
Jean Lea Gazin, River Steward
Bailey Pleasant, Watershed Coordinator
Alana Cohen, Intern

2026 Board of Directors

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David Smith, Vice Chair
Neal Grandy, Treasurer
Martha Beard, Secretary
Nalini Ayya
Justin Barnes
Angus Murdoch
Janet Walker

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Frederick Cheng
Sam Flewelling
Dan Frisbee
Bethany Houchens
John Murphy
Todd Scanlon
Janet Walker
Laurel Williamson



The Rivanna River watershed drains approximately 766 square miles of land from Shenandoah National Park to the confluence with the James River at Columbia, Virginia. The Rivanna River is an invaluable asset to the communities in the watershed, providing drinking water and contributing to our local culture, economy, and recreational and environmental resources. The Rivanna also has regional importance as a tributary to the James River and the Chesapeake Bay.

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Cover photo by George Beller