



2025 RRBC Conference Closing Remarks

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Rivanna Conservation Alliance

Rivanna Conservation Alliance Background

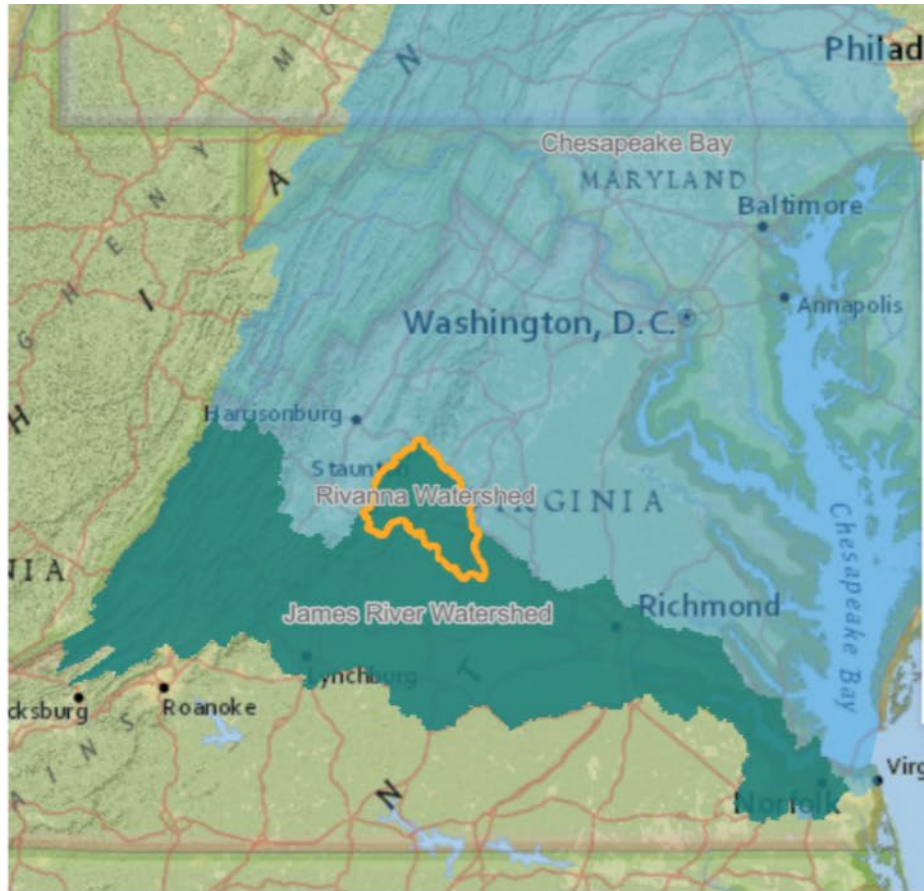
Working in the Rivanna watershed for 35 years

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



Rivanna River Watershed



What Makes a Stream Healthy?



Photo from: <http://www.omafra.gov.on.ca>

- Physical Characteristics – stable banks, rocky substrate, adequate vegetation, shade, organic matter
- Water Quality – clean, clear, and cool water
- Aquatic Life/Biological Health – a diversity of organisms

Healthy Waterways Matter!

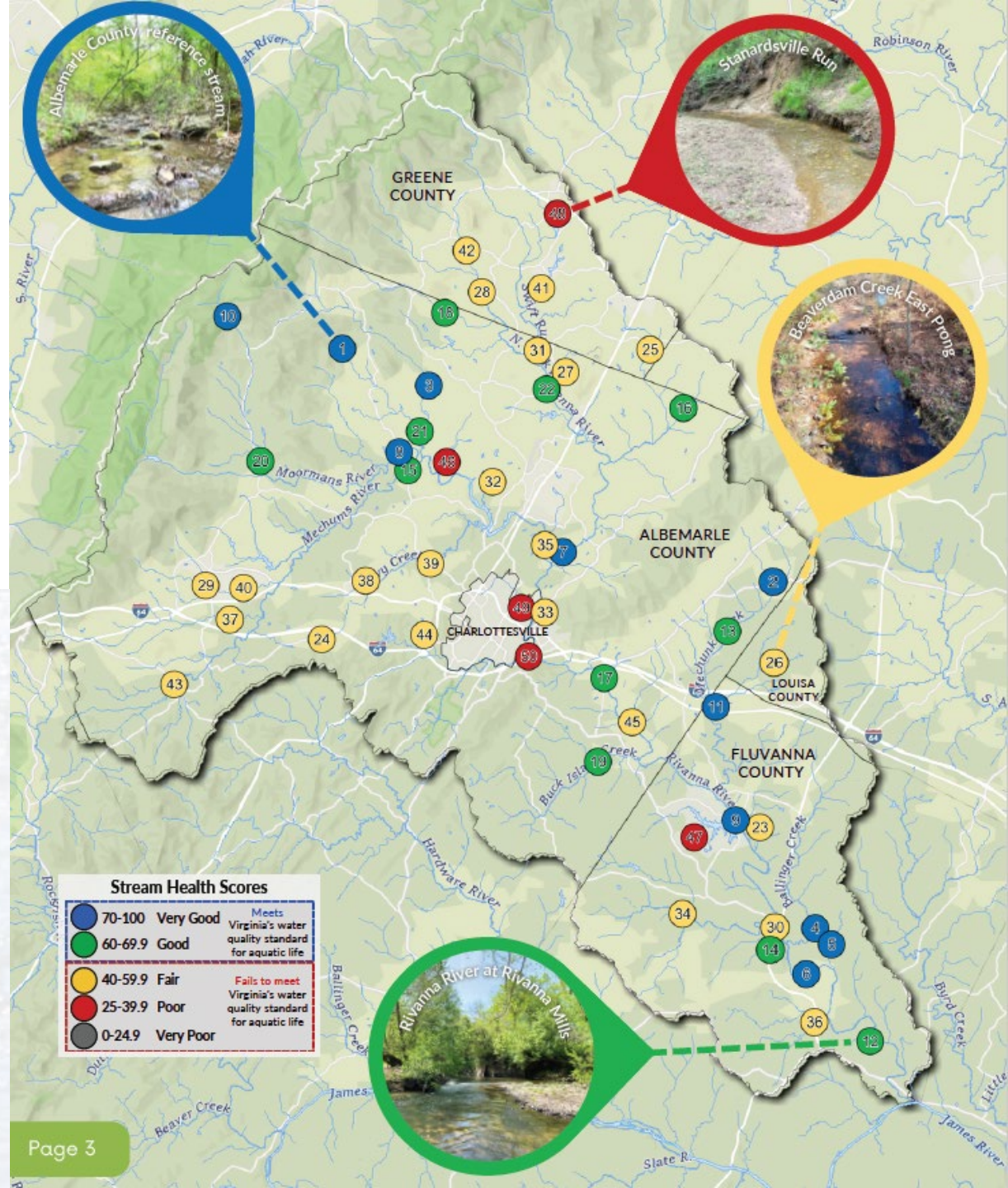
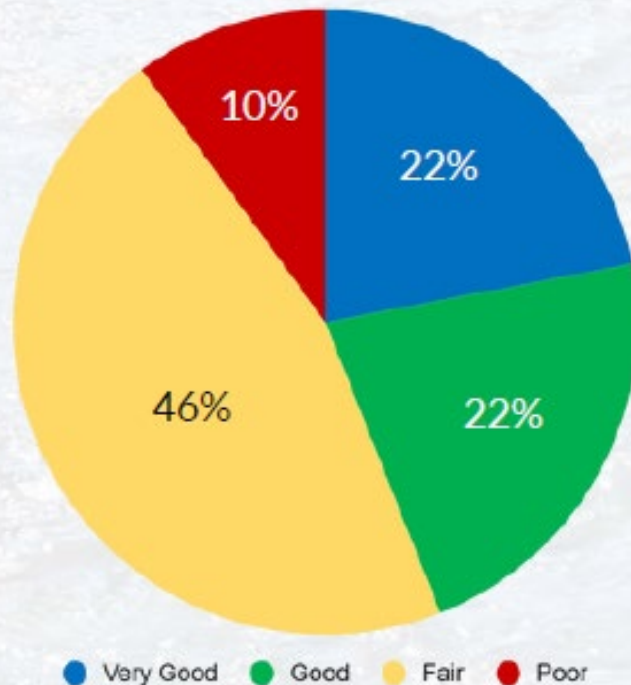


How Do We Measure Stream Health?

- Benthic macroinvertebrates are the primary indicators
 - Found in all aquatic environments
 - High exposure to stream conditions
 - Known pollution tolerance values
- The abundance and diversity of macroinvertebrates determines a stream health score
- Biological monitoring gives a broader, longer-term picture of stream health



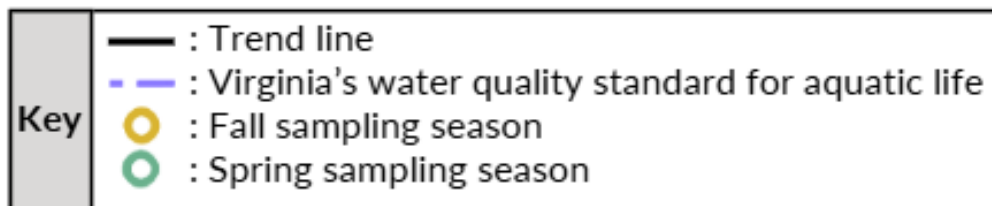
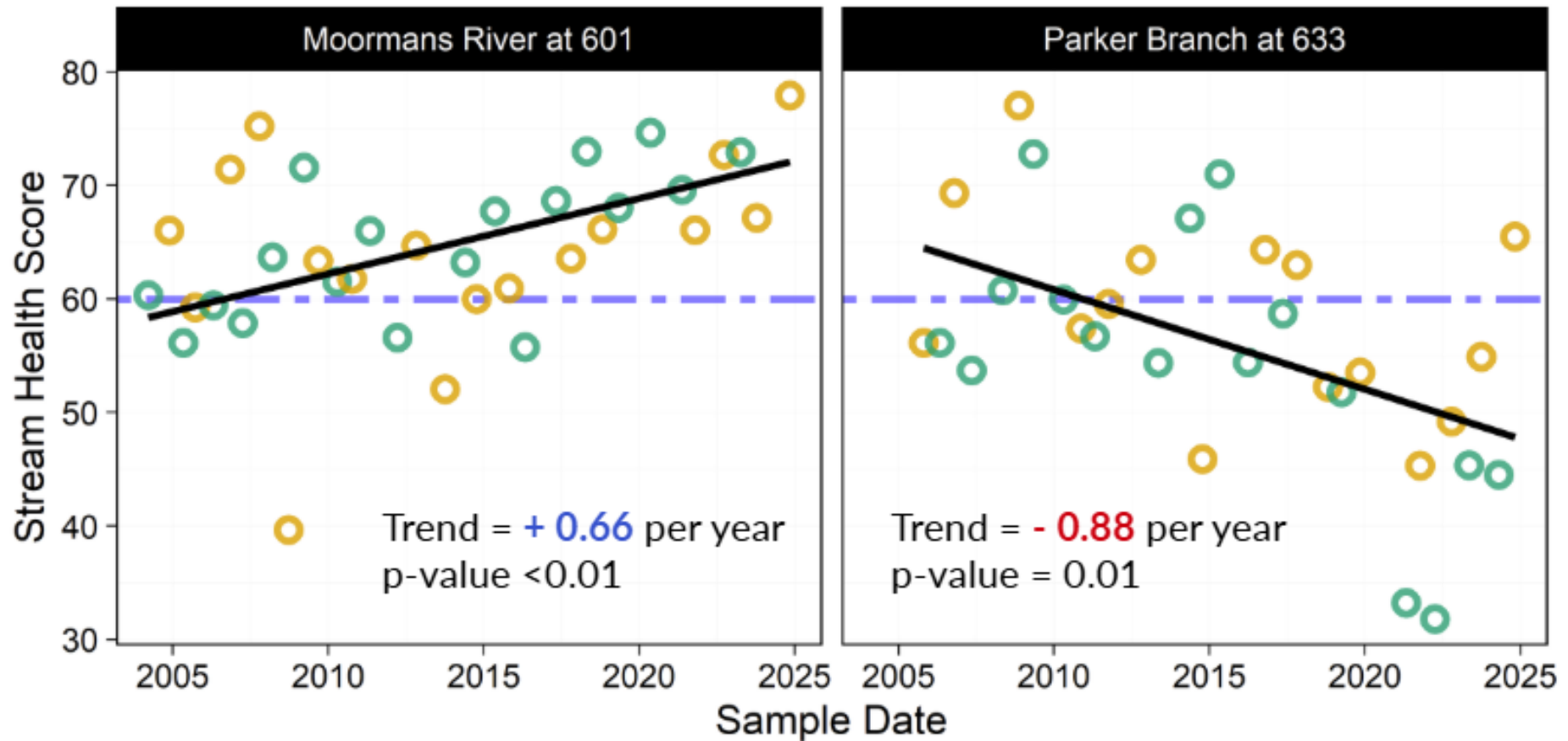
RCA's Biological Monitoring 2022-2024



#	Site Name	Change
1	Albemarle County reference stream	
2	Turkeysag Creek at 22	
3	Buck Mountain Creek upper west of 666	
4	Ballinger Creek downstream of 625	▲
5	Long Island Creek at 601	▲
6	Rivanna River downstream of Palmyra	▲
7	North Fork at Forks of Rivanna	▲
8	Moormans River at 601	▲
9	Rivanna River at Crofton	▲
10	Doyles River upper at National Park Boundary	
11	Mechunk Creek at 759	▲
12	Rivanna River at Rivanna Mills	▲
13	Mechunk Creek upper at 600	
14	Raccoon Creek at 15	
15	Mechums River at 601	▲
16	Burnley Branch at Burnley Station Rd	
17	Rivanna River at Milton	▲
18	Lynch River at 603	
19	Buck Island Creek at 729	▲
20	Doyles River at 674	
21	Buck Mountain Creek at 665	▲
22	North Fork Rivanna River at Advance Mills	▲

23	Fluvanna County reference stream	
24	Ivy Creek in Rosemont	
25	Preddy Creek west of Rosewood Dr	
26	Beaverdam Creek East Prong	
27	Marsh Run upstream of 641	
28	Roach/Buffalo River north of 648	
29	Powells Creek above Lickinghole Creek	
30	Cunningham Creek at 15	
31	Swift Run at 605	
32	Naked Creek at 844	
33	Rivanna River at Darden Towe	
34	Cunningham Creek Middle Fork - Bell Farms Ln	
35	South Fork at Forks of Rivanna	
36	Carys Creek at 15	
37	Stockton Creek at 638	
38	Little Ivy Creek Trib at Kingston Rd	
39	Ivy Creek at 601	
40	Lickinghole Creek near Fairwinds Ln	
41	Quarter Creek in Twin Lakes	
42	Parker Branch at 633	▲
43	Mechums River at 692	
44	Morey Creek south of Bellair	
45	Carroll Creek in Glenmore	▲
46	Fishing Creek west of Willwood Dr	
47	Lake Monticello Trib #1 into Jackson Cove	
48	Stanardsville Run upstream of N Ridge Way	
49	Meadow Creek west of Locust Lane Ct	
50	Moore's Creek near Woolen Mills	

Example Significant Trend Plots



2019 and 2025 Stream Health Trends

	2019 Long-Term Trends Results		2025 Long-Term Trends Preliminary Results	
Long-Term Monitoring Site	Data Range (No. of Samples)	Trend: Change in Stream Health Score Per Year	Data Range (No. of Samples)	Trend: Change in Stream Health Score Per Year
Buck Island Creek at 729	2004-2019 (28)	+ 0.84 *	2004-2024 (35)	+ 0.25
Marsh Run upstream of 641	2009-2019 (14)	- 2.67 *	2009-2024 (22)	- 1.30 *
Meadow Creek west of Locust Lane Ct	2004-2019 (26)	+ 0.56 *	2004-2024 (35)	+ 0.17
Mechunk Creek upper at 600	2005-2019 (23)	+ 0.47	2005-2024 (32)	+ 0.78 *
Moores Creek near Woolen Mills	2004-2019 (23)	+ 1.07 **	2004-2024 (32)	+ 0.34
Moormans River at 601	2004-2019 (28)	+ 0.45	2004-2024 (35)	+ 0.66 **
North Fork at Advance Mills	2004-2019 (28)	+ 0.46	2004-2024 (36)	+ 0.58 **
Parker Branch at 633	2005-2019 (23)	- 0.34	2005-2024 (31)	- 0.88 **
Rivanna River at Milton	2004-2019 (30)	+ 1.04 *	2004-2024 (38)	+ 0.76 **
Overall Watershed	2003-2019 (1129)	+ 0.21	2003-2024 (1537)	+ 0.11
Overall Watershed (Flow-adjusted)	2003-2019 (1129)	+ 0.31 *	2003-2024 (1537)	To be conducted

Sites with statistically significant trends (2019 and 2025 studies). Blue: significant positive trends. Red: significant negative trends. Grey: nonsignificant trends. *significance at $p < .05$, **significance at $p < .01$.

What is Driving These Trends?

- Improvements likely from:
 - Large-scale stream restoration efforts
 - WWTP upgrades
 - Riparian buffer planting
- Degradation likely from:
 - Agricultural land uses
 - Inadequate buffers
- Retrospective land use case studies will help isolate possible causes



Meadow Creek restoration area in 2020

Good Water Supply Planning Matters!



Thank you! Questions?

