

# The Value of Citizen Volunteer Data

James Beckley

Virginia Department of Environmental Quality

# DEQ's Volunteer Program

- 1998 DEQ began to solicit citizen volunteer monitoring data
- In 2002, the Virginia General Assembly approved [§ 62.1-44.19:11](#)
  - Solidified DEQ's role as a leader of citizen water quality monitoring and technical assistance program
  - DEQ grant recipients must meet certain monitoring requirements
  - Limited how citizen data can be used by Virginia
- The agency developed a three level system to review and use submitted data

# The Three Levels and Uses

- Level 1- No quality assurance or no WQ Standards
- Level 2- Some quality assurance and methods similar to DEQ
- Level 3- Follows same methods as DEQ
- Education, pollution red flags, baseline data
- All items above & prioritize areas for DEQ sampling, track improvement
- All items above & assess waters, list or delist waters from 303(d) list

# Ways DEQ Does Not Use Citizen Data

- Submitted data is never used by DEQ for enforcement or similar “regulatory” actions
  - Codified in [§ 62.1-44.19:11](#)
- Data is not assessed if collected from permitted mixing zones or discharge pipes
- Submitted data not used by itself to develop TMDL Implementation Plans



# DEQ Citizen Monitoring Support

- 1.5 FTE staff to train and review citizen data
- Annual \$88,000 in grants
  - Awards cover coordination, training and monitoring costs
  - Grants typically \$1000 - \$5,000
  - Data is submitted to DEQ and must meet QA requirements
- ~\$2,000 in special grants for 319 (TMDL) based projects



# Benefits of Citizen Monitoring to DEQ

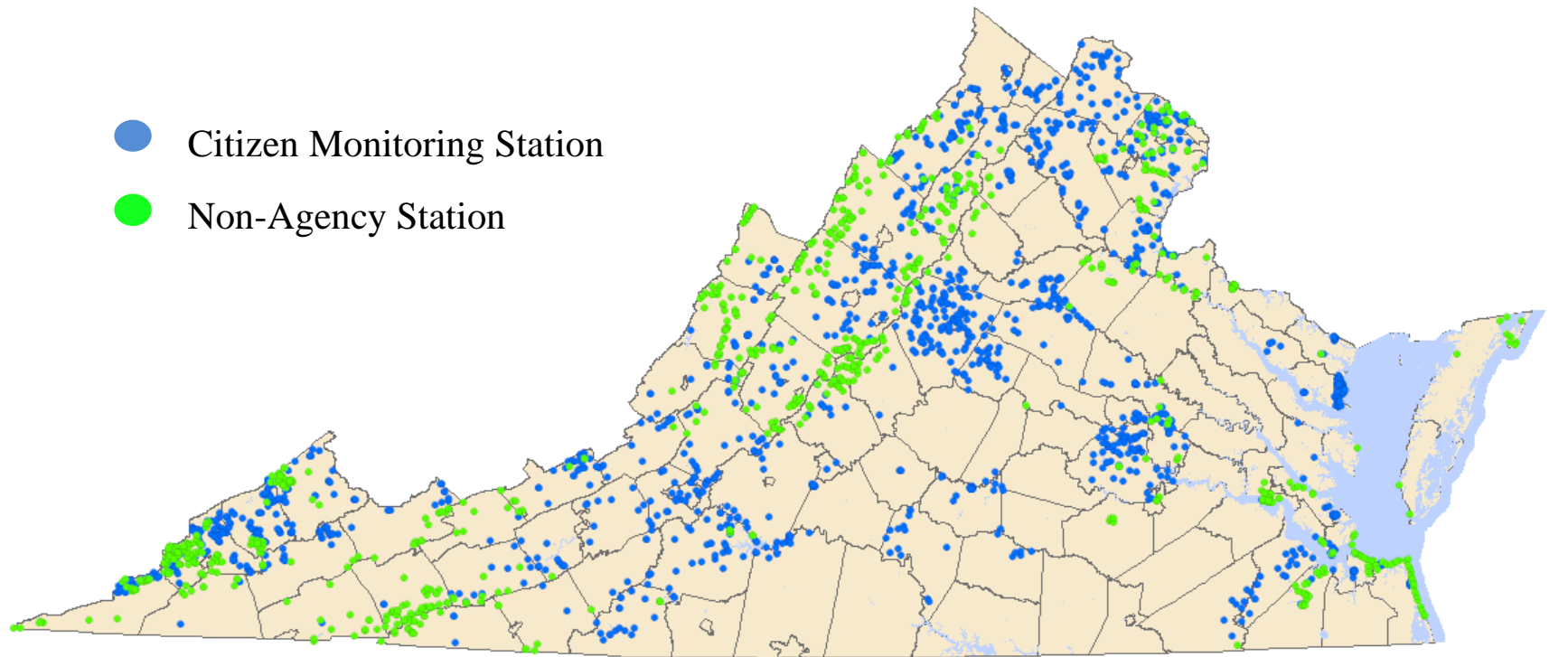
- Increase water quality assessment
- Identify pollution “Hot Spots”
- TMDL and BMP performance monitoring
- High return of investment on agency funding and staff time



# Citizen Volunteer Assessment Mileage

Assessment Cycle	Monitoring Year	Citizen Sites Submitted	Sample Events	Stream Miles	Estuary Mi <sup>2</sup>	Lake Acre
2008	2001-2006	1,175	15,605	2,372	73.7	9,726
2010	2003-2008	1,485	23,420	3,499	37.5	30,053
2012	2005-2010	1,774	30,829	4,124	40.2	27,975
2014	2007-2012	1,645	31,871	3,560	34.5	24,860
2016	2009-2014	1,902	32,859	3,767	89.3	15,478
2018	2011-2016	1,958	33,133	3,655	41.6	29,891

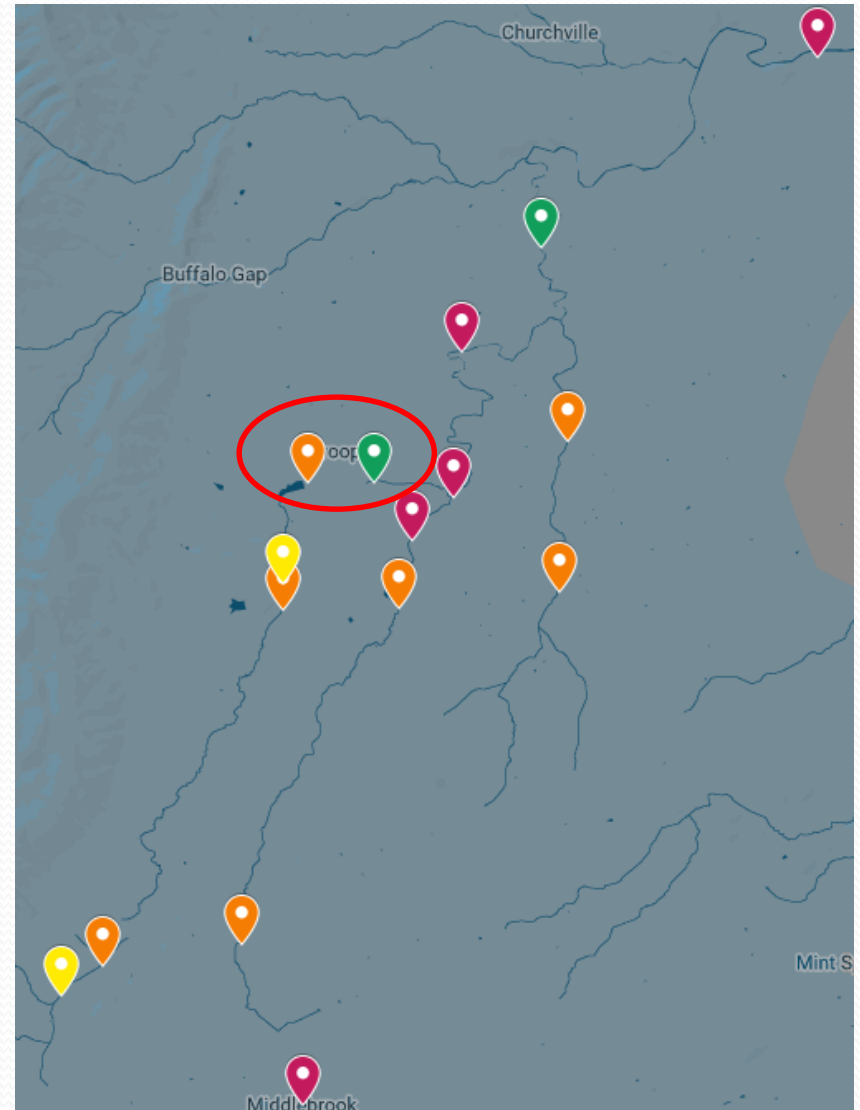
# Map of Sample Sites





# Identify TMDL “Hot Spots”

- Data from Friends of Middle River
- Heavy agriculture watershed
- 3 year E. coli survey using Coliscan Easygel (Level II data)



# Gauge BMP Effectiveness



# The Monetary Value of Citizen Data

- 2012: Survey of groups to estimate monitoring costs
  - High level survey with limited detail in cost breakdown
  - Results suggested at least \$750,000 in volunteer costs
- Fall 2018: Targeted survey to get more details from volunteers and coordinators
  - Received 227 responses from 60 monitoring groups
    - Representing 1,293 volunteers sampling at 867 sites

# Monitoring Budget

Yearly Budget	Groups	% of Total
\$0 - \$1,000 (assume \$500)	12	40.00%
\$1,000 - \$5,000 (\$3,000)	10	33.33%
\$5,000 - \$20,000 (\$12,500)	4	13.33%
\$20,000 - \$50,000 (\$35,000)	0	0.00%
\$50,000 - \$100,000 (\$75,000)	3	10.00%
\$100,000 - \$500,000 (\$300,000)	1	3.33%
Estimated Monitoring Budget	<b>\$611,000</b>	

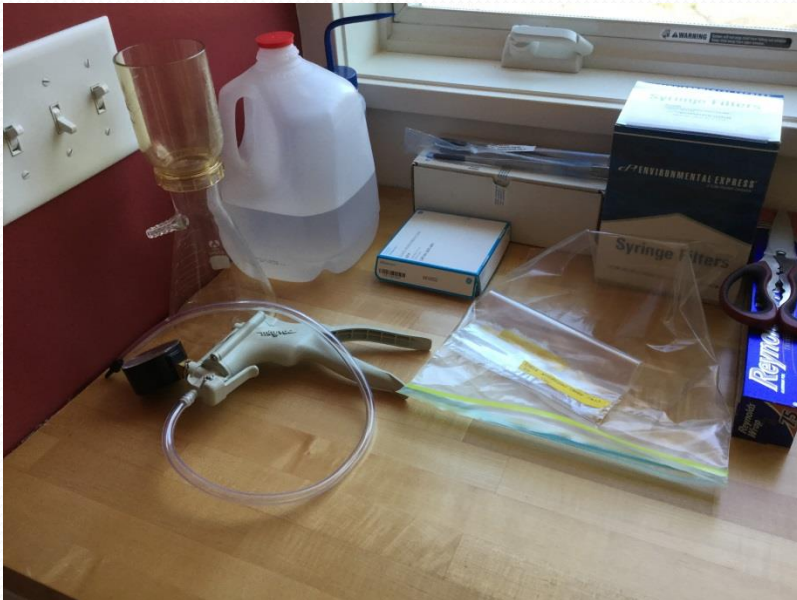
- Majority of responding groups (18 of 30) indicated 50% or more of their budget is due to grants

# Paid Staff Costs

- Paid staff used by some groups for coordinating volunteers or in highly technical (e.g. laboratory) tasks
  - 39 paid staff reported in survey
  - Average 43.6 hours/month in volunteer activities
  - Average pay \$21.54/hour
  - Yearly total **\$439,159**

# Volunteer Expenses

- 454,619 miles were driven by volunteers in 2018
  - **\$63,647** in mileage costs assuming \$0.14/mile
- Average \$89.44 per volunteer in annual expenses
  - **\$115,646** in estimated annual out of pocket expenses



# Value of Volunteer Time

Average hours worked per month by volunteers	5.28
Total volunteers represented in survey	1,293
Estimated hours worked per year	81,924.48
Volunteer in-kind hourly rate (2017 <a href="http://independentsector.org/">independentsector.org/</a> )	\$24.69
Estimated equivalent wage	<b>\$2,022,715</b>



# Total Value

Monitoring Budget	\$ 611,000
Paid Staff	\$ 439,159
Mileage	\$ 63,647
Out of Pocket Expenses	\$ 115,646
Volunteer Time (In-Kind)	\$2,022,715
<b>Total Value</b>	<b>\$3,252,167</b>

- Average monthly cost per volunteer station \$312.59
  - \$118.71 not factoring in volunteer time



# Questions



[James.Beckley@deq.virginia.gov](mailto:James.Beckley@deq.virginia.gov)

Report available at:

<https://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityMonitoring/CitizenMonitoring/Guidance.aspx>