

The Monetary Value of Citizen Volunteer Data

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Background

- 1996: DEQ started work with volunteer groups
- 2008: Began tracking volunteer mileage
- 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 conducted

Survey Design

- Participants can complete in less than 5 minutes
- Two part design for greater accuracy
 - First part with questions for project managers
 - Second part with questions for volunteers
- Sent to citizen groups through multiple channels
 - 227 responses from 60 monitoring groups
 - Represent 1,293 active volunteers sampling at 867 sites

Monitored Parameters

Parameter	Responses
Algae (Chlorophyll a)	9.68%
Bacteria (E. coli, Enterococcus, etc.)	67.74%
Benthic Macroinvertebrates	61.29%
Field Readings (DO, pH, Temperature, etc.)	70.97%
Nutrients (Nitrate, Orthophosphate, etc.)	38.71%
Water Clarity/Turbidity	64.52%
Other (Metals, Color, etc.)	12.90%

- 58% of groups monitor for bacteria, field readings, and water clarity

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	\$611,000	

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

Paid Staff Costs

- To coordinate volunteers or for 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**

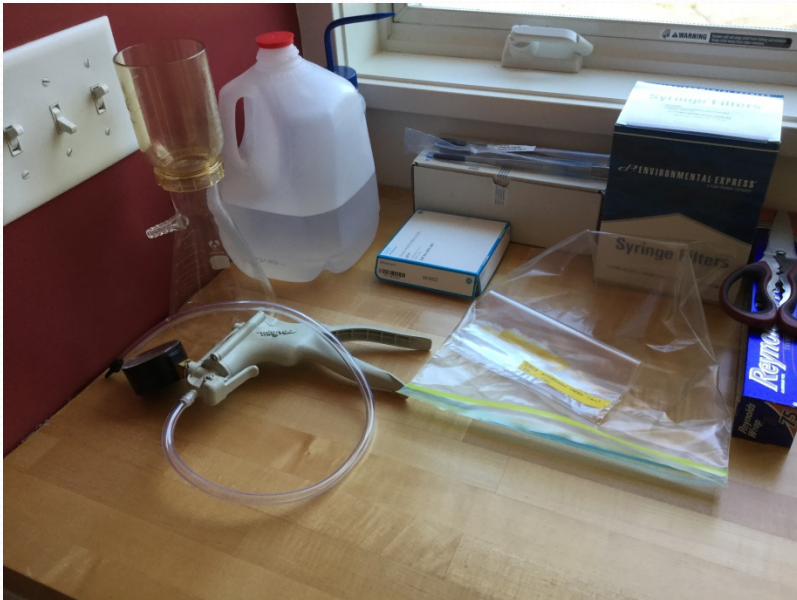
Value of Volunteer Time

Average volunteer hours worked per month	5.28
Total volunteers represented in survey	1,293
Estimated hours worked per year	81,924.48
National volunteer in-kind hourly rate	\$24.69
Estimated equivalent wage	\$2,022,715



Volunteer Expenses

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



Survey Totals

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

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

Value to DEQ

- 1,958 citizen stations submitted for the 2018 305(b)/303(d) report covering:
 - 3,655 stream miles
 - 41.6 square miles of estuaries
 - 29,891 acres of lakes
- Provided 23% of total stations in the report
- \$250,000 per year in DEQ grants and staff support

Value to Localities

- Multiple Virginia localities use volunteer data
 - Stream water quality inventory
 - MS4 reporting
 - Identify TMDL sources
 - Gauge BMP performance
 - Determine bacteria levels for recreational contact
- In return localities often help cover monitoring and coordination costs

Questions



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Report available at:

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