# Virginia Trout Stream Sensitivity Study:



# Topics

- 1) VTSSS program overview
- 2) 2021 survey schedule
- 3) Coordinator responsibilities
- 4) Sample collection materials
- 5) Site documentation
- 6) Sample collection and handling

# **VTSSS Stream Sampling Sites**

#### 384 Survey Sites

4 Weekly Sample Sites



- 2021 Survey Site
- Routine Monitoring

# **Primary VTSSS Findings**

Although substantial reductions in acidic emissions and acidic deposition (sulfate) have been achieved, and surface water recovery has occurred in other affected regions, western Virginia brook trout streams have experienced limited or no recovery.



# 2021 Survey Schedule

January	VTSSS 2021 website updated
January	Sample collector recruitment begins
February	<b>Online Collection Coordinator Training</b>
March/April	Online Training for collectors (optional)
March/April	<b>Collection materials distributed</b>
April 23-April 30	Primary sample collection window
May 1-May 7	Extended sample collection window

# **Collection Coordinator Responsibilities**

- \* determine number of volunteers needed for adopted sites
- recruit and assign volunteers to adopted sites
- email Ami (alr8m@virginia.edu) with updates to site assignments, at least weekly, so she can update website listing
- distribute sample collection materials to collection volunteers
- instruct volunteers in sample collection methods
- **\*** anticipate and resolve problems, including site access questions
- notify collection volunteers when to collect samples
- \* monitor progress of sample collection
- coordinate sample delivery to VTSSS project lab at UVA

# **Collection Materials**

- ✓ pre-labeled, pre-washed, pre-packaged sampling bottles
- ✓ Styrofoam coolers with bag for ice
- ✓ a soft-leaded pencil for completing forms
- ✓ backpack for sites requiring hikes (not provided)
- ✓ GPS unit and camera (both optional, not provided)
- ✓ site folder for each sampling site
  - *site location report* (waterproof paper)
  - **sample collection forms** (waterproof paper)
  - Notes and Instructions for Sample Collectors

Each sampling site will have a Site Documentation and Record folder. The site location report will be included in each folder, providing site descriptions, travel directions, maps, and photos.



Note the descriptions and maps for each site were generated in 2010, so there may be differences in site access and/or appearance and the tag tree may be have fallen or be obscured.

#### Site details and written directions



#### **NPSTORET Stations**

University of Virginia non-NPS watersheds



#### **ID:** RB17 Name: Reservoir Hollow Tree tag, quarter sized Primary Type: River/Stream Latitude: 37°42'55.044" North (37.71529°) Longitude: 79°20'7.728" West (79.33548°) Geo. Method: GPS-Unspecified Datum: North American Datum 1983 Map Scale: 1:24000 Acc: Elevation: 1160 ft Method: Topographic Map Interpolation Datum: Elevation From Mean Sea-Level Acc: County: ROCKBRIDGE State: VA HUC: 02080201 NRSC ID: NHD: Water Depth: 0.5 ft Est. Date: Drainage Area: Contributing Drainage Area:

Description: Reservoir Hollow above Reservoir Hollow Trail crossing.

Access from public walking trail (Reservoir Hollow Trail) at southeast end of Buena Vista. It is about 1.25 mile hike to site from parking area. Waders may be necessary.

Г	Tag #: 788
	Tag tree: 18" DBH Beech tree on left bank looking downstream at trail crossing.
Travel Direc	tions: From Buena Vista, head south on VA501. Turn left, heading east, on 13th Street. Go to the end of 13th
	Street, and make right turn on Pine Avenue. Continue to bar-gated entrance to public walking trail (Reservoir
	Hollow Trail). Walk on trail to the third crossing of the main channel, and fourth crossing overall. The first
	two crossings are of main Reservoir Hollow channel, and the next crossing is of smaller tributary. After
	crossing the tributary the trail diverges. Continue on left trail which heads upslope, away from stream. Site is
	about 0.5 mile past the tributary crossing, 1.25 mile from parking area.
Secondary II	D:
Projects:	VT3S1987: 1987 VTSSS Statewide Survey
	VT3S2000: 2000 VTSSS Statewide Survey
Groups:	
WQ Standar	ds:
Pictures:	

### Road Map



### Terrain Map



#### Topographic Map



### Site photos

P4140433.JPG, 4/14/2009

#### upstream view



Looking southeast from trail. Tag tree on right. Trail continues on opposite bank.

#### Site photos

P4140434.JPG, 4/14/2009

# downstream view



Looking southwest, and downstream at site. Tag tree on left in image. Reservoir Hollow Trail on opposite bank.

# **Sample Collection and Handling**

- 1) Do not trespass or take risks
- 2) Do not disturb stream above sampling site prior to sampling
- 3) Follow bottle rinsing and sample collection procedure
- 4) If not sure about location and/or can not find the tag
  - Provide location description of where sample was collected in comments section of form
  - Take photos looking upstream and downstream from collection location and send to your coordinator
- 5) Complete collection form while at site
  - provide collector name and contact info
  - add notes and sketches to improve travel directions and site description if needed
- 6) Keep samples on ice until delivery to project lab

#### VTSSS 2021 Sample Collection Record

	Site ID:	Date:		Time:		
	Stream Name:					
±	Sample Collector					
	Name:		Affiliation:			
	Telephone:	Email:		Volunteer ho	ours:	
	Prior VTSSS collector?	o ⊡yes Wh	at years? (circle a	ill that apply) 1	987 2000	2010
,						
	Was the Site Identification 1	ag Located?	⊡yes 0	⊐no ⊡i	not applicab	le
	Suggested Site Documentation	tion Revisions	(provide details	in comment fie	eld or on bac	:k)
	C coordinates or elevation	site descriptio	n 🗆 travel directio	ns □ photos	□	
[	General Observations					
	Flow Level (check one):	iry stream bed 1igh	□ no flow (discon □ flood	nected pools)	□low □n	ormal
	Stream Clarity 0	<b>D</b> 1	<b>□</b> 2	□3	□ 4	
	(check one) none (c	lear) least _		$\rightarrow$	most (mudd	y)
	General Collection Day Wea	ther (check or al rain □ pers	e): □ cloudless 0 istent rain □ snow	□ partly cloudy r or sleet □	O overcas	t

Comments – please note any conditions at the site or upstream that may affect the sample (e.g. clear-cut, ATV crossing, people/animals in water). Also use this space to write suggested site documentation revisions. Use back of form if more space is needed.



Form completed at each site by the sample collectors.

Sample bottles are pre-washed, pre-labeled, and pre-packaged. A pair of polyethylene gloves are in the zip-lock bag with the bottle.



Put the gloves on prior to sample collection.



Rinse the gloves and then the sample bottle with stream water a few feet below the sample collection point.



Use the rinse water to rinse the inside of the bottle cap. Rinse the bottle and the cap 3 times.



After rinsing, collect the sample a few feet above the rinsing point. Be careful not to disturb the stream bed or stir-up debris. It is not necessary to remove all air space from the sample bottle.







Seal the bag.







# **Delivery to project lab**



Sample Collection Coordinators work with Regional Coordinators to determine most efficient delivery system for samples and forms to UVa.

Personnel who will drop off samples at UVa, email Ami (<u>alr8m@virginia.edu</u>) when you determine your delivery date and general time of arrival, ideally at least a day in advance (earlier the better!)

- Ami will let you know who to contact (typically either Ami or Susie) on your arrival day. Please text or call when you are ~20 min away so we can meet you at the loading dock to receive samples. We can meet any day of the week and during non-work hours, as necessary.

# UVa Clark Hall loading dock



- Park at the loading dock and we'll come out to meet you and pick up the samples and folders.



# More information is provided on the VTSSS 2021 website

#### http://swas.evsc.virginia.edu/ https://uva.theopenscholar.com/vtsss2021

- VTSSS program overview
- Notes and Instructions for Sample Collectors
- County maps with survey site locations
- Listing of survey sites by chapter and county, identify
  - sites not assigned to collectors
  - collection coordinators
- Acknowledgements
- Contacts, events and donation link

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37	VIRGINIA TROUT STREAN STUDY 2021 Fourth decadal water quality survey of native collaboration with the Virginia Council of Tro	M SENSITIVITY Brook Trout streams in ut Unlimited
HOME SAMPLE COLLECT	TION MAPS VOLUNTEER SIGN-UP ACKNOWLEDGEMENTS	
Sample Collection	on	
DTE: Materials below were pre ange for 2021. We will update	pared for 2020 sampling, which was postponed. While most of the information the information on the website in early in 2021.	remains the same, the contact list is subje
Maps		
V1	TSSS 2021 Survey Sites Chapter of County rthem Vigens 8 Saylee prim 9 Reserve Vietry	Sharen Sharen Angel Angel Angel Angel Angel Angel
<ul> <li>Fig</li> <li>Viti</li> <li>Max</li> <li>The</li> <li>The</li></ul>	All Sanuteri S. Vies Volginia anac Jahrson S. Sies Volginia anac Jahrson Hourison Enger Mand Ceutry M. Mountain Enger Mand Search Weley Little Brory Creek In Goung	and a sector

The above map shows the locations of 384 stream sites that will be sampled by volunteers during the VTSSS 2021 decadal survey (an additional 72 sites will be sampled by cooperators as part of the regular quarterly sampling program). The sites are color coded to indicate the Trout Unfimited Chapter to which it has been assigned. The county maps listed below provide more detail on the locations of the survey sites. High-resolution maps and site descriptions will be used to locate the sampling sites during the survey. See example <u>Site Location Report</u>

Albernarle, Alleghany Amherst Augusta Bath, Bedford, Bland, Botetourt, Carroll, Craig, Floyd

Franklin Giles Grayson Greene Highland Madison Nelson Page Patrick Pulaski

Rappahannock Roanoke Rockbridge Rockingham Scott Shenandoah Smyth Tazewell

Warren Washington Wise Wythe

# What happens next?

Samples are analyzed at the UVa SWAS-VTSSS laboratory

- PH, acid neutralizing capacity, acid anions, base cations, conductivity
- analysis ongoing throughout 2021
- data will be quality assured in 2022

Final quality assured data available on SWAS website in summer/fall 2022

Presentations to TU chapters on project findings in fall/winter 2022



