



Loudoun Wildlife Conservancy
aulland@loudounwildlife.org



Loudoun Watershed Watch
info@loudounwatershedwatch.org

March 28, 2022

Mr. Stuart Torbeck, Water Quality Data Liaison
Virginia Dept. of Environmental Quality
629 East Main Street
Richmond, VA 23219

Sent via E-mail: charles.torbeck@deq.virginia.gov

Subject: Citizen Nomination for Stream Monitoring

Dear Mr. Torbeck:

Loudoun Wildlife Conservancy and Loudoun Watershed Watch are pleased to provide several nominations for additional stream monitoring locations to be considered for inclusion in DEQ's Water Quality Monitoring plan for calendar year 2023. This year we met virtually as a committee starting with 8 candidate sights. We used a comprehensive interactive map with stream monitoring data and stream impairments, past stream monitoring nominations, and past DEQ stream monitoring plans.

The map includes past stream monitoring results by:

- Citizen stream monitoring groups
- VADEQ
- Other organizations

The map is available to the public at
<https://arcg.is/0rzT4y>

The scoring matrix includes seven criteria for nominations as follows. On January 10, 2022, eight committee members from Loudoun Wildlife Conservancy met and determined scores and made the final nomination list.

Review and prioritize stream selection criteria - scale 0-3, low to high

ID	Criteria to Consider for DEQ Nomination	Importance (group input) Scale: 0-3	Total	Final Weight (avg)
A	Easy access to the stream site for public events to engage, educate, and raise awareness			
B	Proximity to LWC stream monitors (short drive, central location)			
C	Historic benthic VASOS Stream scores available			
D	Potential for habitat restoration (e.g., location conducive to plantings, riparian buffers)			
E	Currently Impaired for Aquatic Life			
F	Risk of future impairment based on site knowledge (e.g., development plans)			
G	Meets DEQ Nomination Criteria: 1-The nomination shows a need for DEQ sampling 2-Budget and staff availability 3-No recent DEQ sampling has occurred 4-Safe access for staff 5-Sampling is meant to assess water quality			

<i>Final Scores of Streams Nominated for DEQ Monitoring</i>	
1	Tuscarora Creek - at W&OD trail, Leesburg – Final Weighted Score: 38
2	Tuscarora Creek - at Westpark Golf Club, Leesburg - Final Weighted Score: 34
3	Town Branch - near 7-11 on Dry Mill Rd, Leesburg - Final Weighted Score: 33
4	Big Spring Creek - Tuscarora HS, Leesburg - Final Weighted Score: 37
5	Goose Creek – Riverside Parkway, Leesburg - Final Weighted Score: 34
6	Beaverdam Run – Ashburn - Final Weighted Score: 37
7	Horse Pen Run - between River Bend MS & Potomac Falls HS, Countryside - Final Weighted Score: 33
8	Broad Run - in Willowsford, Aldie - Final Weighted Score: 37

The detailed rating scores are provided in the Appendix.

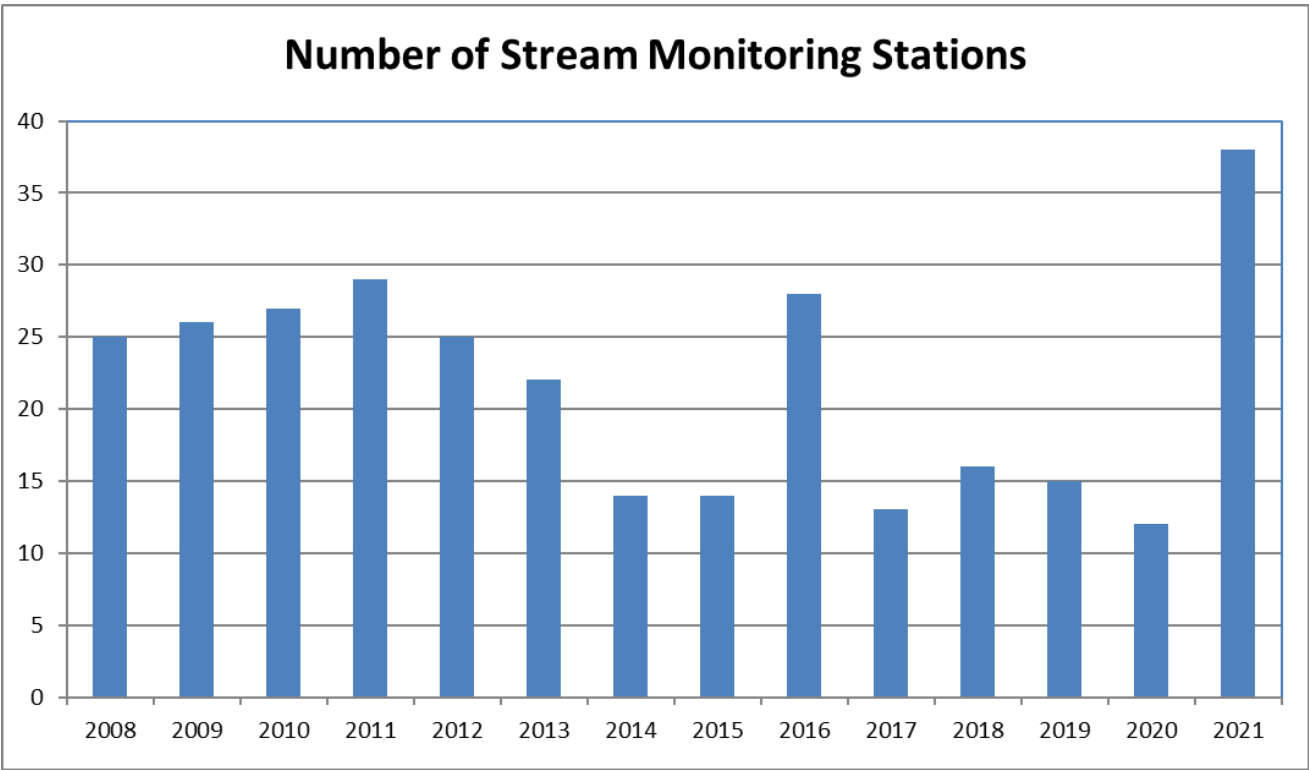
After review of the weighted scores, the committee decided against nomination of Broad Run.

The final list of four sites for nomination are:

- 1) Tuscarora Creek - W&OD
- 2) Tuscarora Creek - Westpark
- 3) Big Spring
- 4) Beaverdam Run

In review of DEQ monitoring plans for watersheds associated with Loudoun County, we see an increase in 2021. We understand that this is likely the result of DEQ’s approach using the concept of rotating watersheds.

We understand that only about 30 percent of the stream miles in Loudoun County have been assessed for aquatic life use through benthic monitoring of the macroinvertebrate community in the streams. We understand that VA DEQ began stream monitoring in Loudoun County in 1994. Over the years the number in sites has varied in which a site is typically monitored in both the spring and fall as VA DEQ requires that two benthic sampling be conducted to be included in the water quality assessment as shown in this chart.



In our review of available data, we have worked with DEQ’s EDAS Family and Genus MS Access “PROBMON data and constructed six-year data windows of the average SCI scores (<https://tinyurl.com/mb6rjt9u>). We have examined comprehensive DEQ-approved Loudoun County Stream assessment, conducted in the spring of 2009 (<https://www.loudoun.gov/DocumentCenter/View/5091/Stream-Assessment--Results-Report>). The County data provides a one-time comprehensive coverage at 200 locations.

The goal of our site nominations is to suggest stream reaches that in our opinion are strategic to support

identification of both “healthy” and potentially “impaired” (for aquatic life use) segments. Based on the 2009 Loudoun County stream assessment, 78% of the streams are statistically under stress or severe stress and would be designated as impaired, however, even with 200 monitoring events from the spring of 2009, this comprehensive survey does not provide sufficient coverage of all streams in Loudoun as the goal of the study was an overall assessment and was not designed to analyze each and every segment. Furthermore, the sampling was a one-time event and VA DEQ requires at least two events during the sampling window of the assessment cycle.

Regarding bacteria monitoring, we are not nominating any additional sites as we recognize that there is a high probability (80-90 percent) that streams within Loudoun County if sufficiently monitored would probably fail to meet the recreational use criteria established by VA DEQ.

Loudoun Wildlife Conservancy uses the Virginia Save Our Streams (VA SOS) protocol for biological monitoring of stream health, so our data is accepted by DEQ as Level 2 data. Our stream monitoring program coordinator is both a VA SOS certified monitor and certified trainer.

Loudoun Wildlife currently monitors 19 stream sites around the county – over triple the number of sites we monitored in 2019. Loudoun Wildlife currently has 17 VA SOS certified monitors on our Stream Team, with 4 more people in training for certification.

Loudoun Wildlife became a partner organization of the Izaak Walton League of America’s Salt Watch program in 2021. Since first collecting baseline data in the fall of 2021, we have collected over 100 sodium chloride data points at 15 stream sites. Six stream locations had elevated sodium chloride levels (between 100 and 229 ppm), while four stream locations had toxic sodium chloride levels (over 230 ppm).

Loudoun Wildlife secured a grant to conduct biological and bacterial water quality sampling in the Lucketts area. We are focusing our benthic and E. coli sampling efforts on a segment of Clarks Run to the north of Lucketts and on a segment of an unnamed tributary of Limestone Branch between Stumptown Rd and Limestone School Rd.

We look forward to your response and continued efforts to evaluate stream health in Loudoun County.

Respectfully submitted,

Amy Ulland

This letter and others are posted at
https://loudounwatershedwatch.org/subitem6_3.html

Site 1: Tuscarora Creek - W&OD

REQUEST TO INCLUDE A WATER SEGMENT IN DEQ'S ANNUAL MONITORING PLAN

Name: Amy Ulland Date: 3/13/2022

Mailing Address: PO Box 1892

City: Leesburg State: VA Zip: 20177

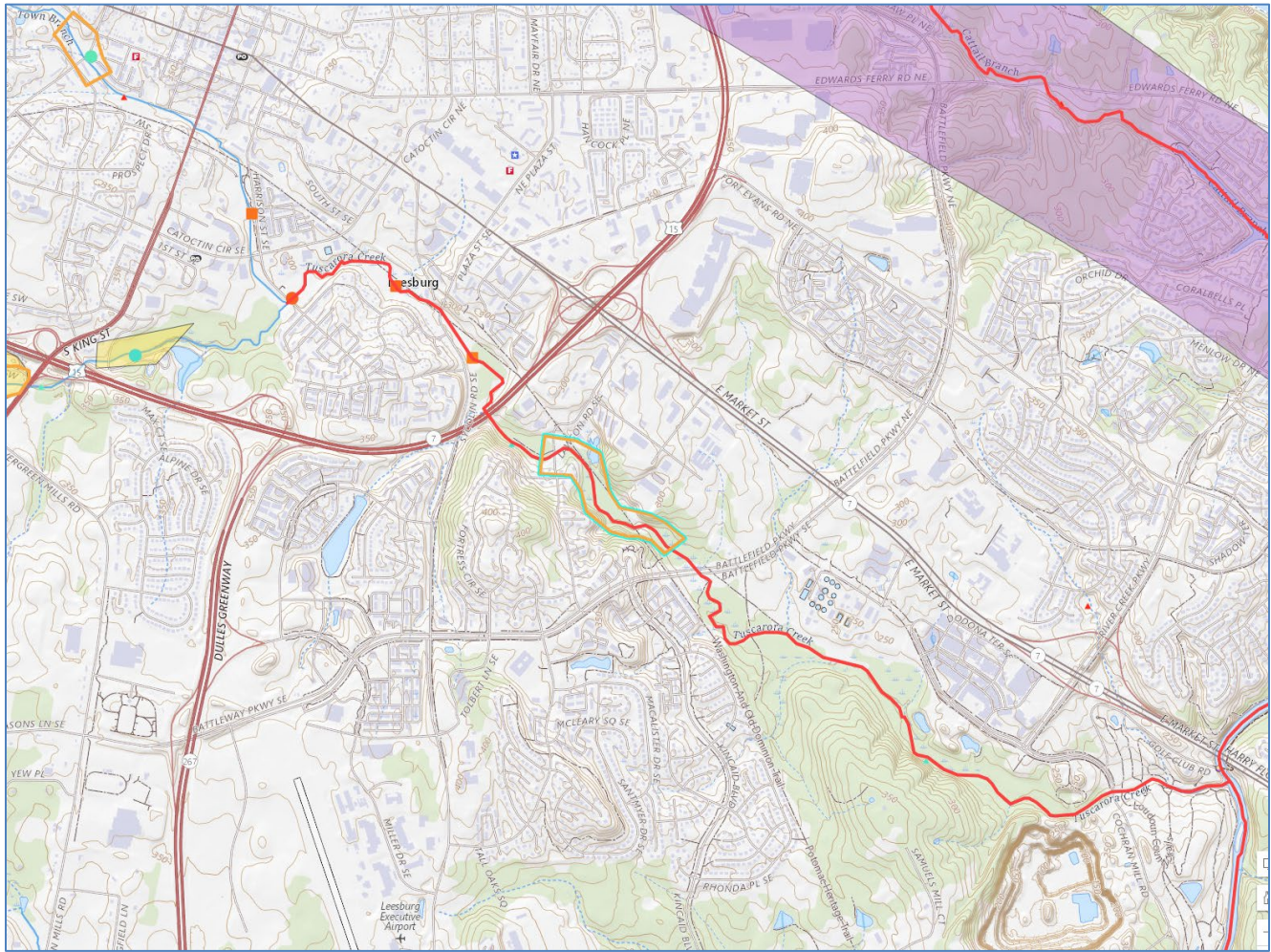
E-mail address: aulland@loudounwildlife.org

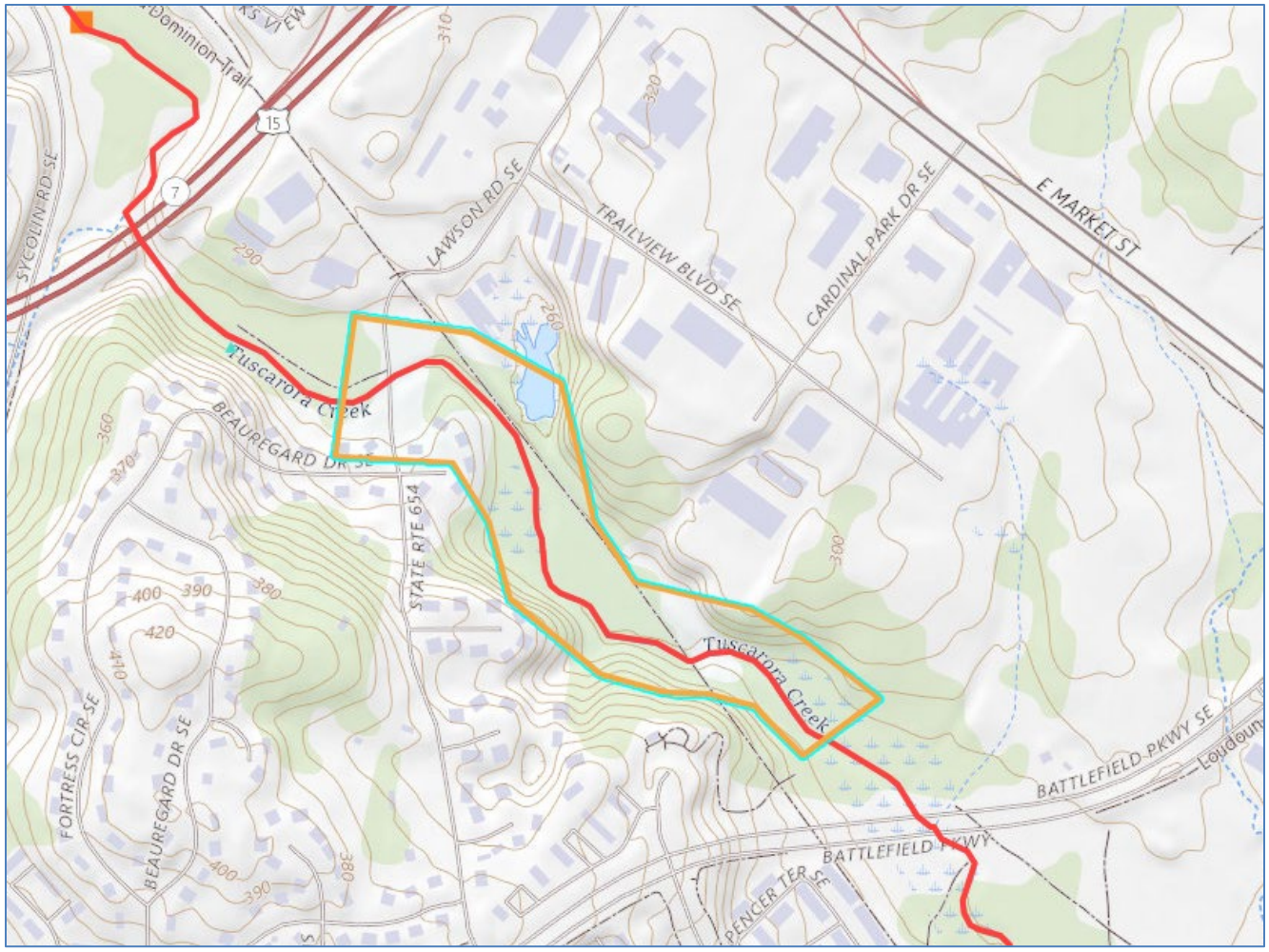
Home telephone: _____ Business telephone: (703) 777-2575

(1) Name of the water body or water bodies proposed for monitoring:

Tuscarora Creek - W&OD

(2) Site maps





(3) Monitoring objective.

The site is subject to development pressures within and just outside of the Town of Leesburg. The site is accessible to public via WO&D Trail. This is a critical reach that needs further aquatic life use monitoring.

(4) Water quality data are integrated into map application.

Just upstream habitat is suboptimal. The reach is not supporting aquatic life use and recreational use.

Loudoun County 2009 Habitat: LOGC-207-H-2009

RBP_Rating	Suboptimal
Grad_Total	142
Comments	Looks very turbid. Very buggy.
DO	8.80
ph	7.82
Temp_C	18.10



Impaired_2020_Rivers_Not_Supporting_Recreation: Tuscarora Creek

ID305B	VAN-A08R_TUS01A00
MILES	2.80
CYCLE	2020
WATER_NAME	Tuscarora Creek
LOCATION	Segment begins at the boundary for the PWS designation area, approximately 0.1 rivermile downstream from the Route 15 crossing, and continues downstream until the confluence with Goose Creek.
AU_COMMENT	<p>Class III, Section 8, special stds. PWS.</p> <p>Citizen monitoring station 1aTUS-LWC2-SOS.</p> <p>Historical Note: In 2006, the segment was shortened by 0.95 rivermile to limit the segment to the PWS designation area.</p> <p>The aquatic life use is assessed as impa</p>
IMP_CAUSE	Benthic Macroinvertebrates Bioassessments, Escherichia coli (E. coli)
SOURCE	Grazing in Riparian or Shoreline Zones, Source Unknown, Livestock (Grazing or Feeding Operations), Sewage Discharges in Unsewered Areas
CATEGORY	5D
AQUA_LIFE	Not Supporting
FISH_CONSU	Not Assessed
PWS	Not Assessed
RECREATION	Not Supporting

Site 2: Tuscarora Creek - Westpark

REQUEST TO INCLUDE A WATER SEGMENT IN DEQ'S ANNUAL MONITORING PLAN

Name: Amy Ulland Date: 3/13/2022

Mailing Address: PO Box 1892

City: Leesburg State: VA Zip: 20177

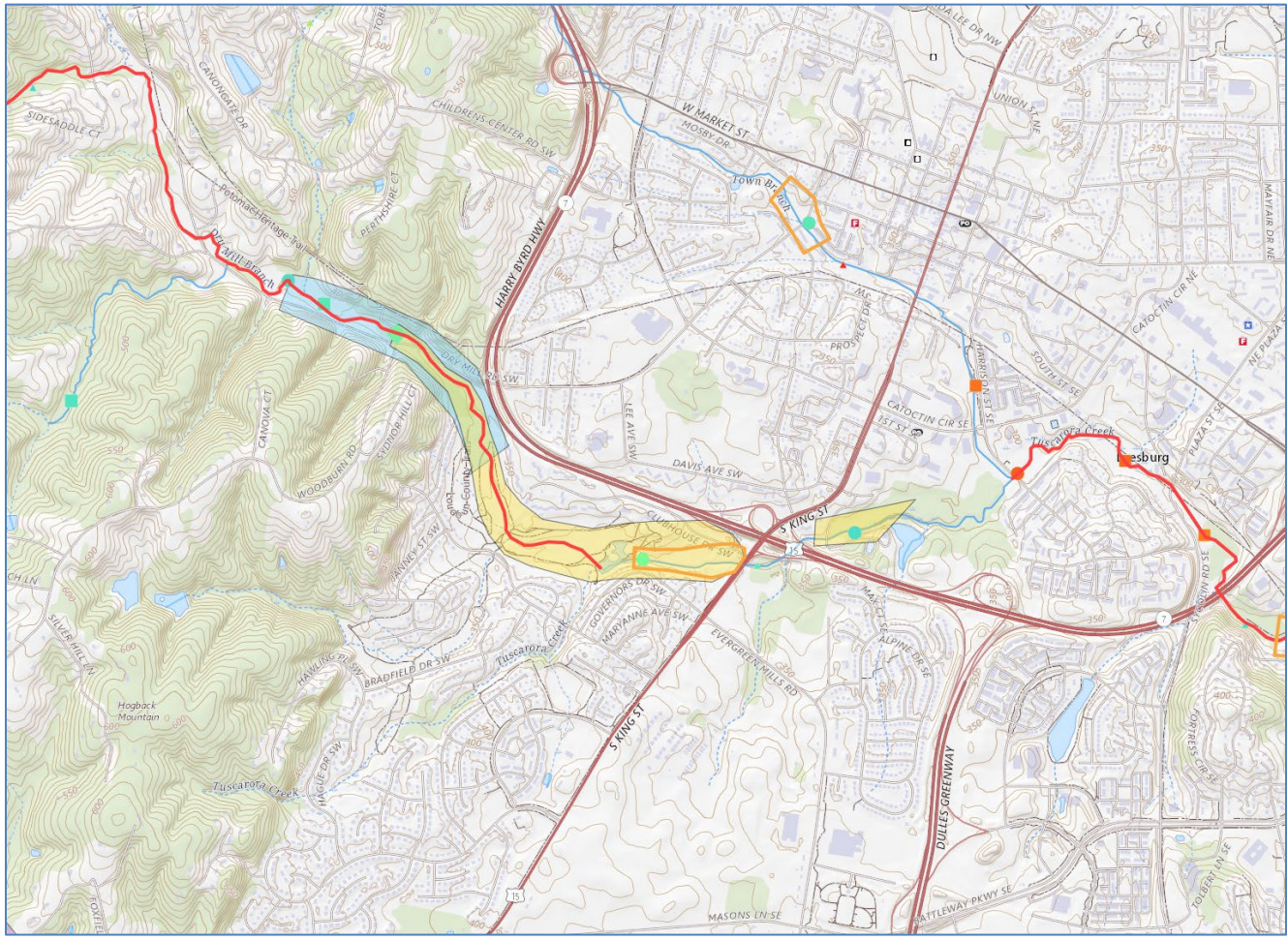
E-mail address: aulland@loudounwildlife.org

Home telephone: _____ Business telephone: (703) 777-2575

(1) Name of the water body or water bodies proposed for monitoring:

Tuscarora Creek - Westpark

(2) Site maps



VASOS_2008_2021		Impaired_2020_Rivers_Not_Supporting_Aquatic Life: Dry Mill Branch	
Overall_Average_since_2008	8.00	ID305B	VAN-A08R_DRL01A16
F2008		MILES	2.97
F2009		CYCLE	2020
F2010		WATER_NAME	Dry Mill Branch
F2011		LOCATION	Segment begins at the confluence with an unnamed tributary at rivermile 2.97 and continues downstream to the confluence with Tuscarora Creek.
F2012		AU_COMMENT	Class III, Section 9. DEQ biological monitoring station 1aDRL001.00 upstream of Route 699. The aquatic life use is assessed as impaired based on benthic macroinvertebrate bioassessment. The recreation, wildlife, and fish consumption uses were not a
F2013		IMP_CAUSE	Benthic Macroinvertebrates Bioassessments
F2014		SOURCE	Source Unknown
F2015		CATEGORY	5A
F2016		AQUA_LIFE	Not Supporting
F2017		FISH_CONSU	Not Assessed
F2018		PWS	Not Applicable
F2019		RECREATION	Not Assessed
F2020		WILDLIFE	Not Assessed
F2021	8.00		
Aver_2011_2017			
Avg_2012_2018			
Avg_2013_2019			
Avg_2014_2020			
Avg_2015_2021	8.00		
Trending			
Comments	New in 2021		

Site 3: Big Spring

REQUEST TO INCLUDE A WATER SEGMENT IN DEQ'S ANNUAL MONITORING PLAN

Name: Amy Ulland Date: 3/13/2022

Mailing Address: PO Box 1892

City: Leesburg State: VA Zip: 20177

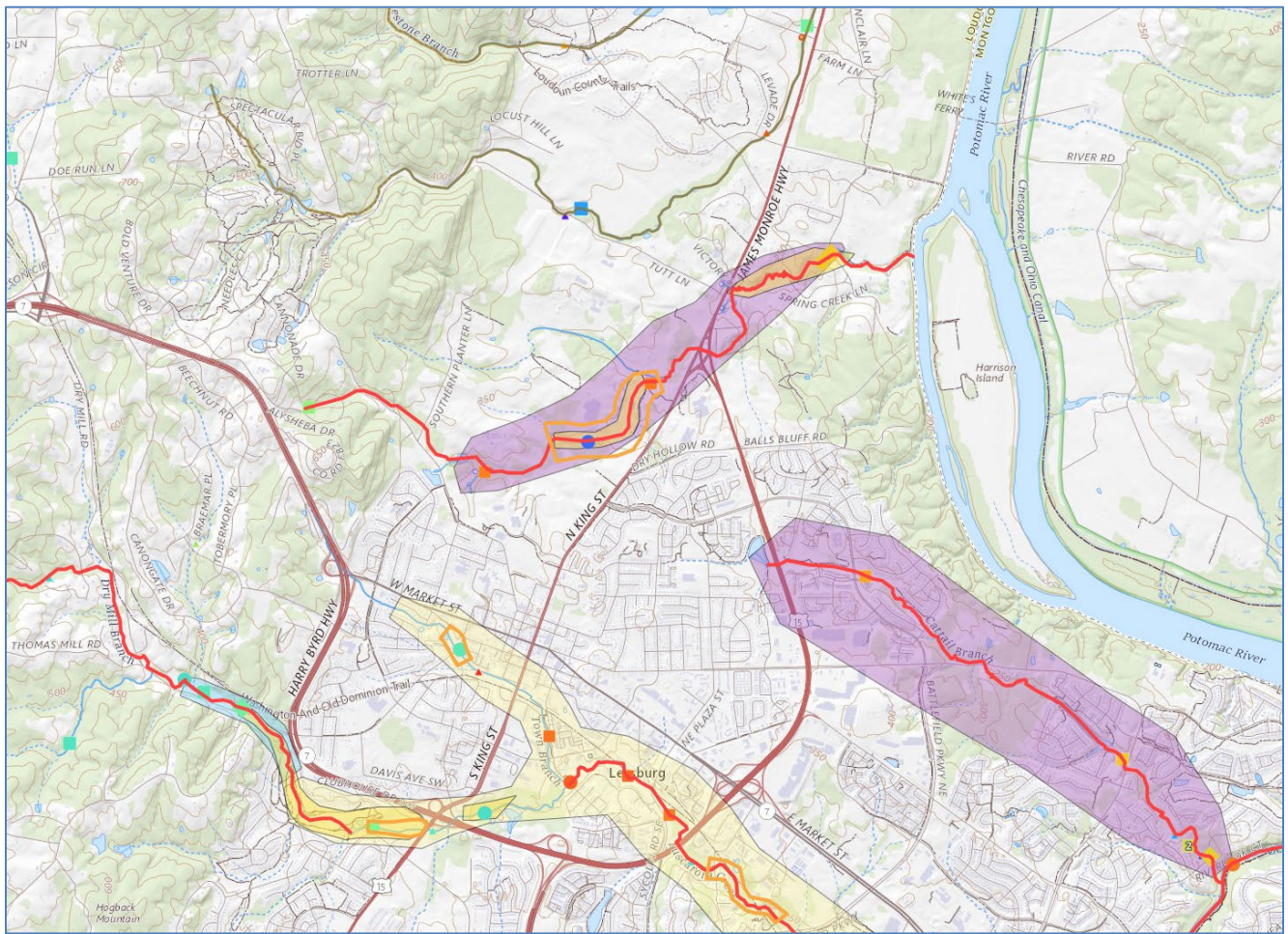
E-mail address: aulland@loudounwildlife.org

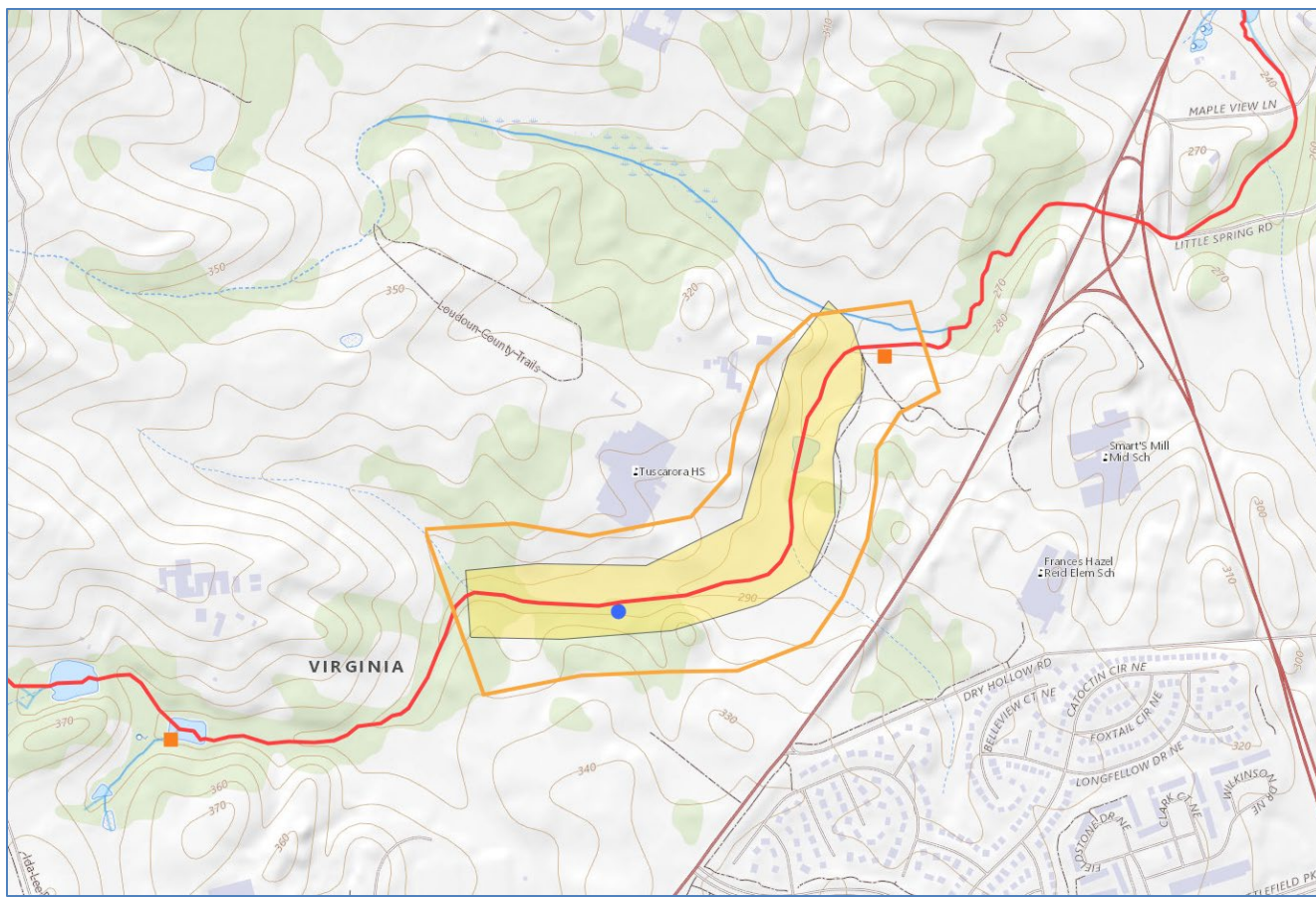
Home telephone: _____ Business telephone: (703) 777-2575

(1) Name of the water body or water bodies proposed for monitoring:

Big Spring

(2) Site maps





(3) Monitoring objective.

The site is adjacent to Tuscarora High School and is within the Limestone Overlay District. Upstream there have been tree planting and field investigations by the High School Students. The site is highly visible and also under increasing pressure from invasive Bradford pear trees. Downstream the RT 15 interchange is being considered for widening. The area needs further aquatic life use analysis from benthic monitoring.

(4) Water quality data are integrated into map application.

On this reach, recent data from LWC show high quality benthic score.

Downstream and upstream the 2009 data shows severe stress.

The reach is not supporting aquatic life use.

VASOS_2008_2021

Overall_Average_since_2008	11.00
F2008	
F2009	
F2010	
F2011	
F2012	
F2013	
F2014	
F2015	
F2016	
F2017	
F2018	
F2019	11.00
F2020	
F2021	
Aver_2011_2017	
Avg_2012_2018	
Avg_2013_2019	11.00
Avg_2014_2020	11.00
Avg_2015_2021	11.00
Trending	
Comments	New in 2019

Loudoun_County_2009_Benthic: DTPO-108-R-2009



SiteName	DTPO-108-R-2009
VSCI	21.76
Assmt_Category	Severe Stress
DEQ_Site_Location	
DEQ_SiteName	



Loudoun County_2009_Benthic: DTPO-112-R-2009



SiteName	DTPO-112-R-2009
VSCI	22.54
Assmt_Category	Severe Stress
DEQ_Site_Location	
DEQ_SiteName	



Impaired_2020_Rivers_Not_Supporting_Aquatic_Life: Big Spring Creek



ID305B	VAN-A03R_BSC01A06
MILES	4.49
CYCLE	2020
WATER_NAME	Big Spring Creek
LOCATION	Segment begins at the headwaters of Big Spring Creek and continues downstream until the confluence with the Potomac River.
AU_COMMENT	Class VI (DGIF iii), Section 8a, special stds. PWS. DEQ biological monitoring station 1aBSC000.45 at Twin Maple Lane. The aquatic life use is assessed as impaired based on benthic macroinvertebrate bioassessment. The fish consumption, public water
IMP_CAUSE	Benthic Macroinvertebrates Bioassessments
SOURCE	Source Unknown
CATEGORY	5A
AQUA_LIFE	Not Supporting
FISH_CONSU	Not Assessed
PWS	Not Assessed
RECREATION	Not Assessed
WILDLIFE	Not Assessed

Site 4: Beaverdam Run

REQUEST TO INCLUDE A WATER SEGMENT IN DEQ'S ANNUAL MONITORING PLAN

Name: Amy Ulland Date: 3/13/2022

Mailing Address: PO Box 1892

City: Leesburg State: VA Zip: 20177

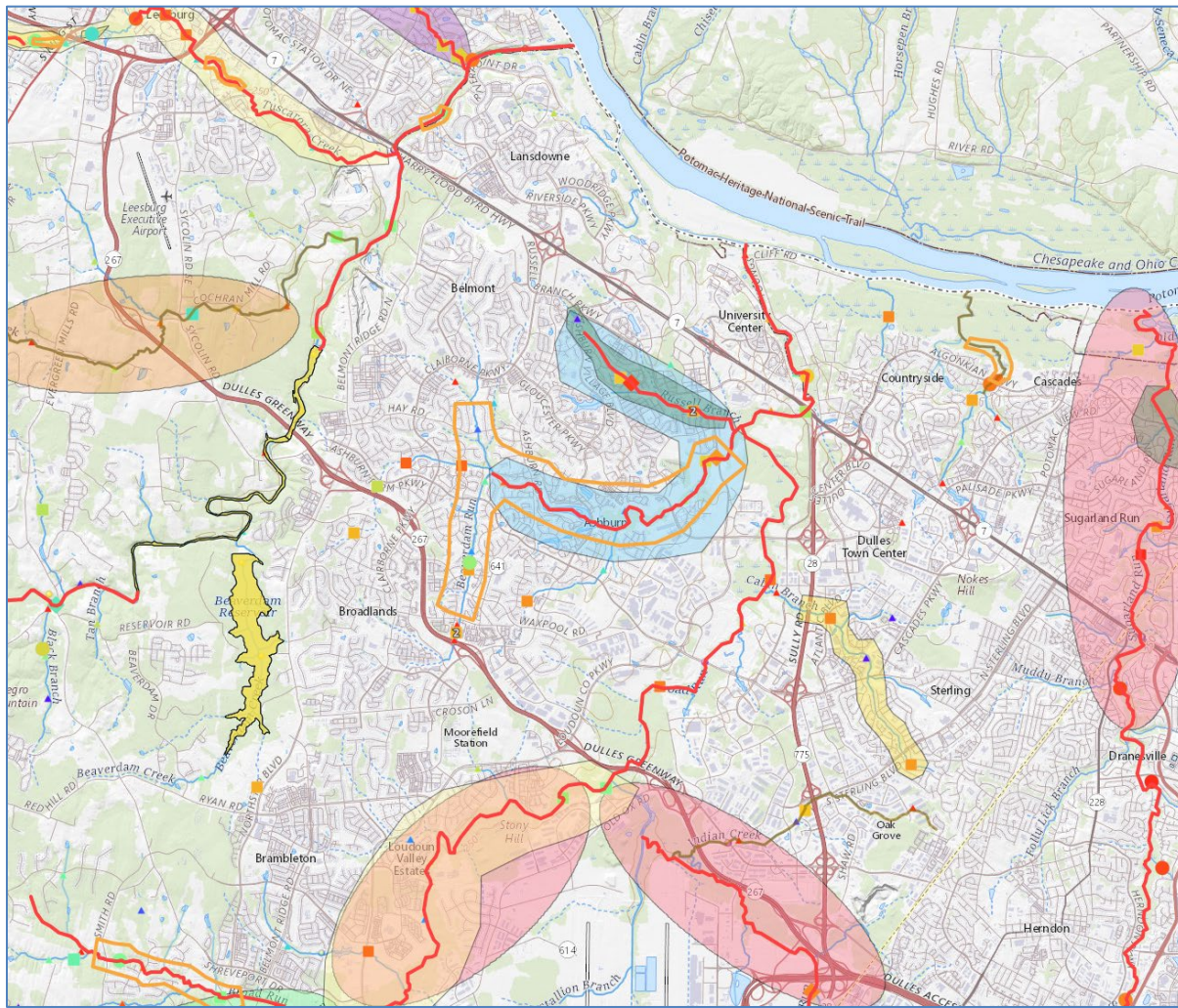
E-mail address: aulland@loudounwildlife.org

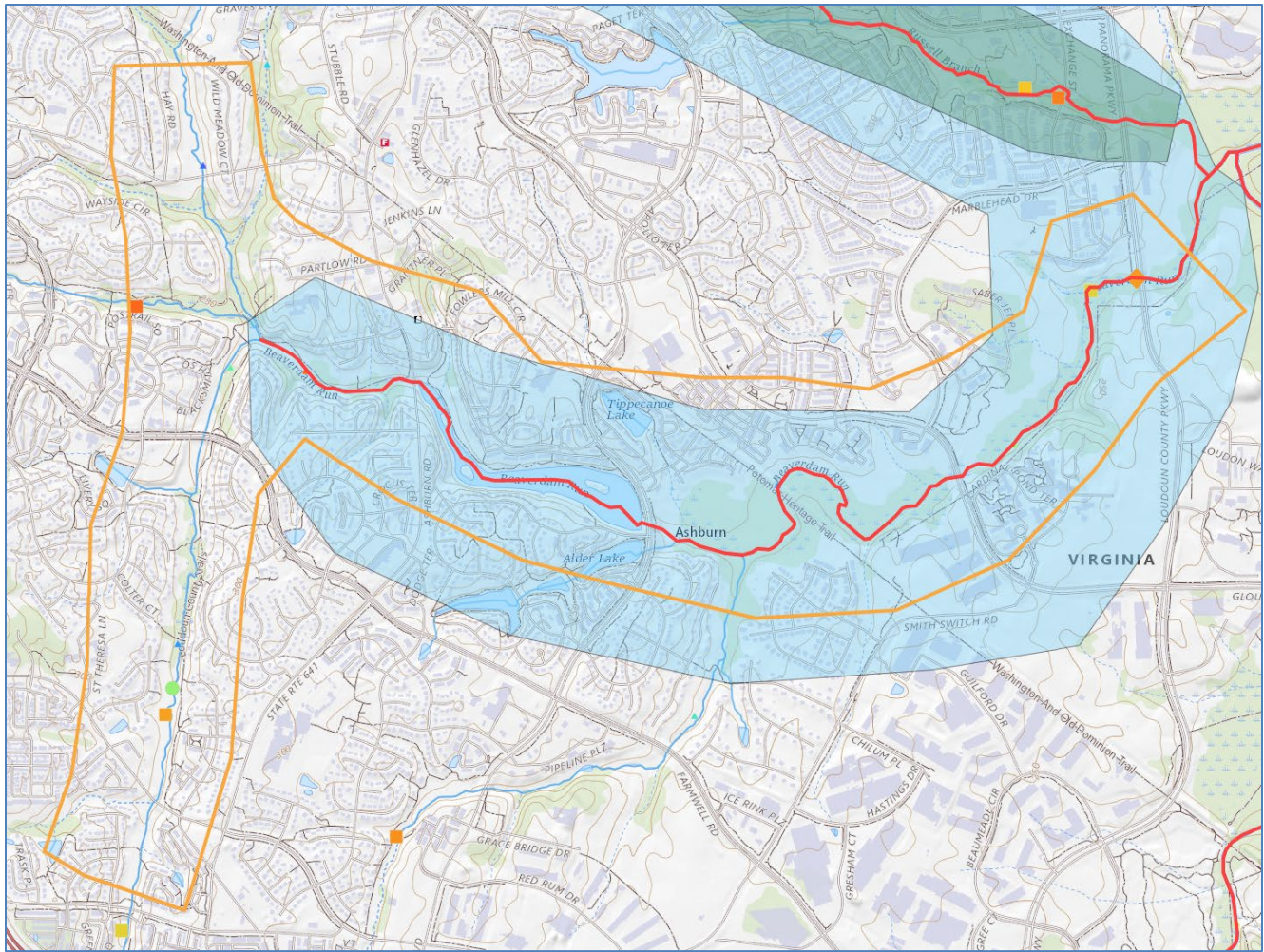
Home telephone: _____ Business telephone: (703) 777-2575

(1) Name of the water body or water bodies proposed for monitoring:

Beaverdam Run

(2) Site maps





(3) Monitoring objective.

The reach as nominated is in suburban area. While the downstream portion has an impairment, there are two upstream reaches that included in this nomination. We understand that water quality assessment stop when there is a confluence. Based on land use patterns, there may be a need to extend the impairment upstream with additional monitoring.

(4) Water quality data are integrated into map application.

Upstream reaches are suboptimal habitat and poor benthic conditions.

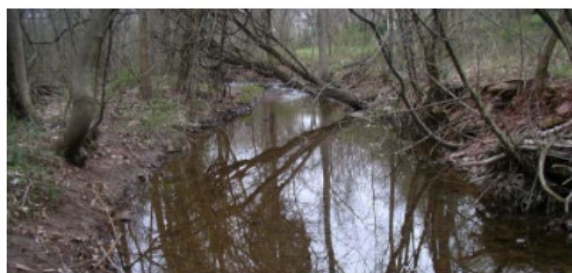
Downstream is suboptimal habitat and may already be planned for DEQ monitoring.

There is lack of upstream monitoring data and possibly a reason to extend impairments upstream.

Suboptimal upstream reach

Loudoun County 2009 Habitat: BROA-127-R-2009

RBP_Rating	Suboptimal
Grad_Total	151
Comments	Seen ~10m 24" suckers trying to swim upstream. Trapped due to low flow.
DO	9.90
ph	8.28
Temp_C	12.10



Poor benthic conditions upstream

VASOS_2008_2021

Overall_Average_since_2008	7.50
F2008	
F2009	
F2010	
F2011	
F2012	
F2013	
F2014	
F2015	
F2016	7.00
F2017	7.00
F2018	9.00
F2019	9.00
F2020	8.00
F2021	5.00
Aver_2011_2017	7.00
Avg_2012_2018	7.67
Avg_2013_2019	8.00
Avg_2014_2020	8.00
Avg_2015_2021	7.50
Trending	Up
Comments	

Suboptimal habitat downstream

Downstream is not supporting aquatic or recreational use

Loudoun County 2009 Habitat: BROA-205-R-2009

RBP_Rating	Suboptimal
Grad_Total	154
Comments	
DO	7.90
ph	8.14
Temp_C	14.40



Impaired_2020_Rivers_Not_Supporting_Aquatic_Life: Beaverdam Run

ID305B	VAN-A09R_BEM02B10
MILES	1.54
CYCLE	2020
WATER_NAME	Beaverdam Run
LOCATION	Segment begins at the confluence with of an unnamed tributary to Beaverdam Run, in Ashburn Park, and continues downstream until the confluence with an unnamed tributary to Beaverdam Run.
AU_COMMENT	Class III, Section 9. DEQ ambient water quality and biological monitoring station 1aBEM000.60 at Route 607. Historical Note: In 2006, segment was extended 3.18 rivermiles downstream to accommodate additional monitoring sites. Historical Note: In
IMP_CAUSE	Benthic Macroinvertebrates Bioassessments, Escherichia coli (E. coli)
SOURCE	Source Unknown
CATEGORY	5A
AQUA_LIFE	Not Supporting
FISH_CONSU	Fully Supporting
PWS	Not Applicable
RECREATION	Not Supporting
WILDLIFE	Fully Supporting

Downstream is already planned, but not upstream.

DEQ_Monitoring_Plan_2021:	
Station_Id	1ABEM000.60
STR_STREAM_NAME	Beaverdam Run
STA_DESC	Rt. # 607 (Loudon County Parkway)
Latitude	39.04
Longitude	-77.45
Deq_Region	Northern
STA_REC_CODE	NVRO
Topomap	214C Sterling
Huc6_States	VA
Huc6_Huc_12	020700080903
Huc6_Huc_12_Name	Broad Run-Beaverdam Run
Huc6_Vahu5	PL-G
Huc6_Vahu6	PL19
Huc6_ToHuc	020700080904
Huc6_Huc_8	02070008
Huc6_Huc_8_Name	Middle Potomac Catoctin
Basin	Potomac River Basin
Subbasin	MIDDLE POTOMAC-CATOCTIN
Majorbasincode	02
Majorbasinname	Mid Atlantic
Basinsection	Lower Potomac River Subbasin
STA_CBP_NAME	
STA_COMMENT	Watershed station FY06/CY07/08; TMDL station CY12 - jst Biomon site 2021- JDL
LV1_DESCRIPTION	Station sample at stream/freshwater freeflow surface

Appendix A: Detailed Rating Scores

DEQ Stream Nomination Criteria Matrix - Rating Scale: 0-3 low -high

		Weight	Tuscarora Creek Park W&OD	Tuscarora Creek Westpark	Town Branch @ Dry Mill Rd Leesburg	Big Spring@ Tuscarora HS	Goose Creek@ Rivers Pkwy Leesburg	Beaverdam Run Ashburn	Horse Pen Run Riverbend HS Cntrysde	Broad Run @ Willowsford Aldie
a	Ease of public access	1	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:
b	Central location	1	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:2 Wt score:	Score:2 Wt score:	Score:2 Wt score:
c	Historic benthic scores availability	2.5	Score:3 Wt score:	Score:1 Wt score:	Score:2 Wt score:	Score:1 Wt score:	Score:1 Wt score:	Score:3 Wt score:	Score:1 Wt score:	Score:1 Wt score:
d	Potential for habitat restoration	3	Score:1 Wt score:	Score:3 Wt score:	Score:1 Wt score:	Score:2 Wt score:	Score:1 Wt score:	Score:1 Wt score:	Score:1 Wt score:	Score:3 Wt score:
e	Currently impaired	3	Score:3 Wt score:	Score:1 Wt score:	Score:1 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:1 Wt score:	Score:3 Wt score:
f	Risk of future impairment	2	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:2 Wt score:
g	Meets DEQ nomination criteria	3	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:	Score:3 Wt score:
i	*nominated									
	Total weighted scores:		38*	34	30*	37*	34	37*	33	37

Appendix B: Map Legend

Legend

2022 Nominations



Stream Impairments

Benthic Stream Impairment



Bacteria Stream Impairment



Reservoir Impairment

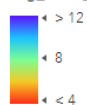


Stream_Monitoring Data

LWC - VASOS (2008 to 2021)



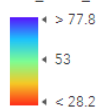
Avg_2015_2021



DEQ Benthic (1994 to 2020)

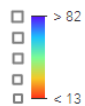


Ave_2014_2020



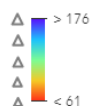
Loudoun County 2009 Benthic

VSCI



Loudoun County 2009 Habitat

Grad_Total



Previous Nominations

Nominations_2019



Nominations_2018



Nominations_2017



Nominations_2016



Nominations_2015



Nominations_2014



Nominations_2013



Nominations_2012



Nominations_2011



Nominations_2010



Nominations_2009



DEQ Stream Monitoring Plan

DEQ_Monitoring_Plan_2021



DEQ_Monitoring_Plan_2020



DEQ_Monitoring_Plan_2019



DEQ_Monitoring_Plan_2018



DEQ_Monitoring_Plan_2017



DEQ_Monitoring_Plan_2016



DEQ_Monitoring_Plan_2015



DEQ_Monitoring_Plan_2014



DEQ_Monitoring_Plan_2013



DEQ_Monitoring_Plan_2011











Background

Perennial Streams



Appendix C: Bookmarks

(These are shortcut links to the nomination sites)

Bookmarks	
	Tuscarora Creek at W&OD Trail
	Tuscarora Creek at Westpark Golf
	Town Branch near 7-11
	Big Spring Near Tuscarora HS
	Goose Creek near Riverside Pkwy
	Beaverdam Run in Ashburn
	Horse Pen Run - River Bend MS & Potomac Falls HS
	Broad Run - Willowsford