Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L01R-01-BAC** **Roanoke River, South Fork and Goose Creek**

Cause Location: South Fork Roanoke River mainstem from the mouth of Elliott Creek extending downstream to the confluence of the North and South Forks of the Roanoke River. And Goose Creek from the Lick Fork mouth downstream to its confluence with the South Fork Roanoke River.

City / County: Floyd Co. Montgomery Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2004 assessment initially 303(d) Listed the 12.61 mile fecal coliform (FC) bacteria impairment. Two stations on the S.F. Roanoke River, 4ARSF011.73 located on the Rt. 637 Bridge and 4ARSF002.20 above the old Green Hill industrial site near Rt. 11/460, find the Recreational Use is not supported. The 2012 assessment extends the bacteria impairment upstream 6.27 miles based on data from station 4ARSF014.02. The 2012 assessment also incorporates the Goose Creek 2012 bacteria impairment. The South Fork Roanoke River nested extension of 6.43 miles and Goose Creek nested addition of 2.30 miles brings the total impaired miles to 19.61.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2006. Assessment Units below are nested within the approved Roanoke River TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2016 total bacteria impaired length on the Roanoke River is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the South Fork Roanoke River or Goose Creek bacteria impairments but are nested within the overall Roanoke River Bacteria TMDL Watershed and allocations.

South Fork Roanoke River:
4ARSF014.02 (Persimmon Road Bridge) The 2018 Integrated Report finds 4 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances occurred in 2016: 315, 697, 318, and 301 cfu/100 ml. The 2012, 2014 and 2016 Integrated Reports (IRs) find 2 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion from 12 observations at 650 & 1500 cfu/100 ml.

4ARSF011.73 (Rt. 637 Bridge) The 2004 Integrated Report (IR) reveals 3 excursions from 12 fecal coliform (FC) observations in excess of the former instantaneous criterion of 400 cfu/100 ml. 2004 exceedances range from 600 to 3000 cfu/100 ml. 2010 and 2008 E.coli observations are insufficient to delist where no excursions of the E.coli criterion are found in 8 samples. Therefore the 2004 FC impaired status remains.

4ARSF002.20- (Private Bridge above Green Hill) There are no additional data beyond the 2004 IR. Three of 18 FC observations exceed the instantaneous criterion in 2004. 2004 IR exceedances range from 600 to 5300 cfu/100 ml. The waters remain impaired for FC. There are no E.coli data to assess.

4ARSF000.88- (Rt. 11 Bridge - below Green Hill) The 2016 and 2018 Integrated Reports (IRs) find 2 of 12 E.coli collections exceed the WQS instantaneous criterion of 235 cfu/100 ml. The exceeding values are 450 and 1350 cfu/100 ml. Prior E.coli data were insufficient to assess for each of the 2008,2010 and 2012 data windows with 1 of 9 samples exceeding at 300 cfu/100 ml. There were no additional data within the 2014 data window.

Goose Creek:
4AGOS000.71 (Along Rt. 653) The 2018 Integrated Report shows 1 E.coli sample (292 cfu/100 ml) out of 12 exceeds the 235 cfu/100 ml instantaneous criterion. The 2012, 2014 and 2016 assessments report 3 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion at 400, 480 and 780 cfu/100 ml. There are no additional data beyond the 2012 IR.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_GOS01A02 / Goose Creek / Goose Creek from its confluence with the South Fork Roanoke R. upstream to the mouth of Lick Fork (RU01).	4A	Escherichia coli (E. coli)	2012	L	2.30

Roanoke and Yadkin River Basins

VAW-L01R_RSF01A00 / S.F. Roanoke River / South Fork Roanoke River mainstem extends from the PWS WQS upstream ending on downstream to the South Fork's confluence with the North Fork Roanoke River (RU05).	4A	Escherichia coli (E. coli)	2016	L	3.27
VAW-L01R_RSF02A00 / S.F. Roanoke River / South Fork Roanoke River mainstem segment extends from Shawsville STP downstream to the WQS designated PWS upstream ending (RU05).	4A	Escherichia coli (E. coli)	2016	L	3.00
VAW-L01R_RSF03A00 / S.F. Roanoke River / South Fork Roanoke River from the mouth of Elliott Creek downstream to the Shawsville STP (RU05).	4A	Escherichia coli (E. coli)	2012	L	6.43
VAW-L01R_RSF04A02 / S.F. Roanoke River / South Fork Roanoke R. from the confluence of Elliot Creek upstream to the mouth of Bottom Creek (RU03).	4A	Escherichia coli (E. coli)	2012	L	4.61

Roanoke River, South Fork and Goose Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**19.61**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L01R-01-BEN** **Smith Creek, UT (XMV)**

Cause Location: Smith Creek, UT (XMV) from its mouth on Smith Creek upstream to its headwaters.

City / County: Montgomery Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The 2010 original assessment finds the WQS General Standard contravened with benthic community impairment continuing through the 2012 and 2014 Cycles. There are no additional data beyond the 2010 Integrated Report (IR). The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approval on 9/07/2006. The Smith Creek unnamed tributary (UT) is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

4AXMV000.63 (Off Rt. 615 along Chaucer Lane)- A 2007 Probabilistic site. Two Virginia Stream Condition Index (VSCI) surveys scoring spring 46.6 and fall 62.5 for an average score of 54.6. Taxa richness scores were higher in the spring sample; however, the abundance of pollution-tolerant organisms was high as well resulting in a lower VSCI score. Stream habitat scores were affected by the lack of instream cover for macroinvertebrates and fish, lack of bank vegetation and lack of riparian vegetative buffer. The station is on a 1st order headwater stream. There are ponds upstream of the station and immediate land use is residences with mowed lawns adjacent to the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_XMV01A10 / Smith Creek, UT (XMV) / Smith Creek, UT (XMV) from its mouth on Smith Creek upstream to its headwaters (RU04).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	1.61

Smith Creek, UT (XMV) **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.61**

Sources:

Loss of Riparian Habitat

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L01R-01-TEMP** **Roanoke River, South Fork**

Cause Location: South Fork Roanoke River mainstem from the mouth of Elliott Creek extending downstream to the confluence of the South and North Forks of the Roanoke River.

City / County: Montgomery Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

USGS Gaging Station 02053800 (S.F. Roanoke R. near Shawsville)- There are no additional data beyond the 2010 IR. 2010 assessment reveals 2 of 12 temperature measurements exceed the Class V 21°C criterion. Measurements in excess of the criterion occur on 8/07/2007 at 24.5°C and 8/29/2007 at 22°C. These data result in the return of 6.43 miles to the temperature 303(d) List that were partially de-listed with the 2008 IR. The temperature impairment is extended upstream for 4.61 miles based on 2012 Cycle data for 4ARSF014.02.

4ARSF014.02 (Persimmon Road Bridge) 1 excursion of the Class V 21°C criterion occurs within the 2018 data window at 23.3°C (7/20/2016). The 2012, 2014 and 2016 assessments find 3 temp measurements from 12 observations exceed the 21°C criterion at 23.1°C (8/13/2009); 22°C (6/10/2010) and 23.2°C (8/31/2010).

4ARSF011.73- (Rt. 637 Bridge) There are no additional data beyond the 2008 IR. Observations within the 2010 data window find no excursions of the respective criterion for temperature. The 2008 IR finds only 1 exceedance of the Class V 21°C criterion from 12 observations. 2008 data resulted in the partial de-list of temperature for 6.43 miles. The 2004 IR reported 2 of 12 temperature measurements in excess of the criterion. Each exceedance is 22°C occurring on 7/22/99 and 6/06/01. The 2004 Category 5C assessment remains. Low stream flows and drought conditions were observed during both 1999 and 2001.

4ARSF002.20- (above the old Green Hill industrial site near Rt. 11/460) There are no additional data beyond the 2004 IR. The 2004 IR records 2 of 18 temperature measurements exceed the WQS criterion. Each 2004 exceedance is 22°C occurring on 7/22/99 and 6/06/01. The 6.27 mile waters remain impaired (Category 5C) for temperature.

4ARSF000.88- (Rt. 11 Bridge - below Green Hill) 2 of 12 temperature measurements exceed the WQS Class V 21°C criterion at 21.8 °C (6/9/2014) and 21.9 °C (7/1/2014) within the 2016 and 2018 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_RSF01A00 / S.F. Roanoke River / South Fork Roanoke River mainstem extends from the PWS WQS upstream ending on downstream to the South Fork's confluence with the North Fork Roanoke River (RU05).	5C	Temperature	2004	L	3.27
VAW-L01R_RSF02A00 / S.F. Roanoke River / South Fork Roanoke River mainstem segment extends from Shawsville STP downstream to the WQS designated PWS upstream ending (RU05).	5C	Temperature	2004	L	3.00
VAW-L01R_RSF03A00 / S.F. Roanoke River / South Fork Roanoke River from the mouth of Elliott Creek downstream to the Shawsville STP (RU05).	5C	Temperature	2010	L	6.43
VAW-L01R_RSF04A02 / S.F. Roanoke River / South Fork Roanoke R. from the confluence of Elliot Creek upstream to the mouth of Bottom Creek (RU03).	5C	Temperature	2012	L	4.61

Roanoke River, South Fork **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**17.31**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

Natural Conditions - Water
Quality Standards Use
Attainability Analyses
Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L01R-02-TEMP** **Bottom Creek**

Cause Location: Bottom Creek mainstem from its mouth on the South Fork Roanoke River on upstream to the Rt. 669 crossing.

City / County: Montgomery Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

4ABTM000.04 (Rt. 637 Bridge)- 2 2015 temperature measurements within the 2018 IR data window do not exceed the Class VI criterion, but are insufficient to delist. Temperature measurements within the 2016, 2014 and 2012 data windows result in 3 exceeding values from 12 observations with no additional data beyond the 2012 IR. Measurements in excess of the Class VI criterion occur on 8/13/2009 at 22.9, 6/10/2010 at 23.0 and 8/31/2010 at 24.0 °C. The 2012 data window reports 5 of 20 measurements exceeding the 20°C criterion. Exceeding values range from 20.5 to 24°C. Temperature measurements within the 2010 data window find 2 of 9 measurements exceeding the WQS Class VI 20°C criterion. Exceeding values occur on 7/7/2005 at 21 and 7/25/2006 at 20.5 °C. The 2008 IR finds 3 of 10 temperature measurements exceed the Class VI criterion on 06/04/02 at 24.4 °C; 7/7/2005 at 21 and 7/25/2006 at 20.5 °C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L01R_BTM01A06 / Bottom Creek / Bottom Creek mainstem from its mouth on the South Fork Roanoke River on upstream to the downstream WQS Tier III ending at the southern most Nature Conservancy property boundary (RU02).	5C	Temperature	2008	L	2.32
VAW-L01R_BTM02A06 / Bottom Creek / Bottom Creek mainstem from the southern most Nature Conservancy property boundary upstream to the Rt. 669 crossing. WQS designated Tier III waters (RU02).	5C	Temperature	2008	L	2.17

Bottom Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**4.49**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L02R-01-BAC** **Roanoke River, North Fork**

Cause Location: North Fork Roanoke River from the mouth of Dry Run on the North Fork Roanoke River downstream to an unnamed tributary in the community of Ironto.

City / County: Montgomery Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station 4ARNF013.66 located at Rt. 603 Bridge near Ellett (incorrectly coded 4ARNF015.09 in previous cycles), originally listed for fecal coliform (FC) bacteria in 2002 is now listed for escherichia coli (E.coli). The bacteria impairment is extended upstream with the 2012 assessment by 9.16 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 9/07/2006. The Roanoke Bacteria TMDL watershed encompasses the North Fork Roanoke River. This recreational impairment is nested within the overall Roanoke River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake.

4ARNF016.80 (Rt. 712 Bridge) The 2018 data window finds 9 of 24 Escherichia coli (E.coli) measurements exceeding the 235 cfu/100 ml instantaneous criterion. E.coli exceed the 235 cfu/100 ml instantaneous criterion in 6 of 24 observations within the 2016 data window. The range of excessive values is from 250 to 1000 cfu/100 ml. The 2012 and 2014 assessments find 4 of 12 E.coli samples exceed the 235 cfu/10 ml instantaneous criterion; exceeding values range from 520 to 1000 cfu/100 ml.

4ARNF013.66 (Rt. 603 Bridge) 15 of 35 and 10 of 35 escherichia coli (E.coli) exceedances are recorded within the 2018 and 2016 data windows, respectively. The range of exceedance is from 272 cfu/100 ml to greater than 2000. The 2014 data window finds 7 of 36 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is 250 to 1400 cfu/100 ml. 2012 data find E.coli bacteria exceeds in 9 of 36 samples with the same range of exceedance. Seventeen of 45 E.coli samples exceed the instantaneous criterion within the 2010 data window. E.coli exceedances range from 280 to 1500 cfu/100 ml. Sufficient data does not exist to determine the new WQS geometric mean. The 2008 Integrated Report (IR) finds E.coli bacteria exceeds the 235 cfu/100 ml instantaneous criterion in 14 of 33 samples with the same range of exceedance as 2010. The former WQS E.coli geomean, minimum 2 samples/calendar month, of 126 cfu/100 ml is exceeded in 3 of 6 calculations. The 2006 IR reports E.coli bacteria exceeds the 235 cfu/100 ml instantaneous criterion in 12 of 21 samples with exceedances also ranging from 280 to 1500 cfu/100 ml. The former E.coli WQS geomean exceeds in 3 of 4 calculations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_RNF03A02 / N.F. Roanoke River / North Fork Roanoke River mainstem from a right bank entry of an unnamed tributary in the community of Ironto upstream to the mouth of Wilson Cr (RU07).	4A	Escherichia coli (E. coli)	2006	L	6.93
VAW-L02R_RNF04A02 / N.F. Roanoke River / North Fork Roanoke River mainstem from the mouth of Wilson Creek upstream to the mouth of Dry Run (RU06).	4A	Escherichia coli (E. coli)	2012	L	9.16

Roanoke River, North Fork **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**16.09**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wastes from Pets
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L02R-01-PH** **Bradshaw Creek**

Cause Location: Bradshaw Creek from its mouth on the N.F. Roanoke River upstream to its headwaters.

City / County: Montgomery Co. Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

4ABDC002.36 (Rt. 629 Bridge)- The aquatic life use is impaired based on 2010 pH data. Four of 16 pH observations exceed the minimum pH criterion of 6.5. The range of exceeding values are 6.1 to 6.3 SU. There are no additional data beyond the 2010 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_BDC01A04 / Bradshaw Creek / Bradshaw Creek from the upstream end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River (RU08).	5C	pH	2010	L	0.85
VAW-L02R_BDC02A04 / Bradshaw Creek / Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation (RU08).	5C	pH	2010	L	9.51

Bradshaw Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**10.36**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L02R-02-BAC** **Wilson Creek and Wilson Creek, UT**

Cause Location: Wilson Creek to include a northern unnamed tributary from its headwaters downstream to the Wilson Creek confluence on the North Fork Roanoke River.

Note: The northern arm extends upstream from mainstem Wilson Creek to near the Rt. 114 & Rt. 460 intersection behind a commercially developed area near New River Valley Mall.

City / County: Montgomery Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Wilson Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/02/2006 [Fed ID 23395] and SWCB approved 6/27/2007. Wilson Creek is originally 303(d) listed for bacteria (fecal coliform) with the 2002 assessment. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The 6.99 mile bacteria impairment remains.

4AWLN000.40 - There are no additional data since the 2010 data window. E.coli data within the 2010 data window find 11 of 23 samples exceed the WQS 235 cfu/100 ml instantaneous criterion. There are no additional data beyond the 2008 assessment where 13 of 27 E. coli samples exceed the instantaneous criterion. The minimum exceedance is 300 cfu/100 ml with a maximum of 2,200. In 2006 12of 23 E. coli samples exceed the instantaneous criterion of 235 cfu/100 ml with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_WLN01A00 / Wilson Creek / Wilson Creek mainstem segment extends from WLN02A00 downstream to the Wilson Creek mouth on the North Fork Roanoke River (RU07).	4A	Escherichia coli (E. coli)	2004	L	2.76
VAW-L02R_WLN02A00 / Wilson Creek / This northern arm extends upstream from mainstem Wilson Creek to the Rt. 114 & Rt. 460 intersection behind major developed area near New River Valley Mall (RU07).	4A	Escherichia coli (E. coli)	2004	L	1.73
VAW-L02R_WLN03A00 / Wilson Creek / Wilson Creek mainstem segment extends from near Rt. 460/I-81 intersection downstream to intersection of segments WLN02A with WLN01A (RU07).	4A	Escherichia coli (E. coli)	2004	L	2.50

Wilson Creek and Wilson Creek, UT **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.99**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wastes from Pets
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L02R-03-BAC** **Bradshaw Creek**

Cause Location: Bradshaw Creek from its mouth on the N.F. Roanoke River upstream to its headwaters.

City / County: Montgomery Co. Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2010 assessment finds Bradshaw Creek does not support the Recreational Use. Escherichia coli (E.coli) exceed the WQS instantaneous criterion. The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 9/07/2006. Bradshaw Creek is nested within the Roanoke River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ABDC002.36 (Rt. 629 Bridge)- There are no additional data beyond the 2010 Integrated Report (IR). The 2010 assessment finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 2 of 12 observations. Values in excess of the criterion are 250 and greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L02R_BDC01A04 / Bradshaw Creek / Bradshaw Creek from the upstream end of the WQS PWS designation downstream to its mouth on the North Fork Roanoke River (RU08).	4A	Escherichia coli (E. coli)	2010	L	0.85
VAW-L02R_BDC02A04 / Bradshaw Creek / Bradshaw Creek mainstem from near its headwaters downstream to the upstream ending of the WQS PWS designation (RU08).	4A	Escherichia coli (E. coli)	2010	L	9.51

Bradshaw Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.36**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L03R-01-TEMP** **Roanoke River**

Cause Location: Roanoke River mainstem from Spring Hollow Reservoir extending downstream to the Rt. 419 Bridge crossing.

City / County: Roanoke Co. Salem City

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The waters remain impaired for the Aquatic Life Use. Station 4AROA227.42 is located within the Water Quality Standards 'hh' special standard [9VAC25-260-310] establishing a maximum temperature of 31°C May 1 through October 31 for these seasonally stockable trout waters. Temperature data from 4AROA227.42 (located at the Rt. 773 Bridge in Lafayette) now meets the temperature criterion and 1.28 miles of the Roanoke are delisted with the 2012 Integrated Report (IR). Station 4AROA227.42 is no longer a Listing station for the temperature impairment.

4AROA212.17- (Rt. 11 Bridge - below Eaton, Inc.) The 2016 data window produces 1 exceedance at 22.8°C (6/8/2010) from 4 observations. One temperature excursion from 6 observations exceeds the stockable trout water criterion at 22.8°C (6/08/2010) within the 2014 data window. This same excursion occurs within the 2012 data window from a total of 8 measurements. Two of 17 temperature measurements exceed the criterion within the 2010 data window. Measurements in excess of the criterion are 21.3 on 7/15/2003 and 25.4 on 7/13/2004. These same exceedances occur within the 2008 data window where 2 of 21 temperature measurements exceed the 21°C criterion. Temperature data within the 2006 data window finds exceedances in 6 of 32 measurements ranging from 21 to 25°C. The 2004 assessment finds temperature exceeds the stockable trout water criterion in 8 of 42 measurements. Exceedances range from 22 to 25°C. Eleven of 67 temperature measurements exceed the criterion within the 2002 assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	5C	Temperature	2002	L	2.67
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	5C	Temperature	2002	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	5C	Temperature	2002	L	5.57
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	5C	Temperature	2002	L	1.43

Roanoke River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**13.09**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-01-BAC** **Roanoke River and Smith Mountain Lake**

Cause Location: The upstream limit is at the confluence of the North and South Forks of the Roanoke River downstream to 3/4 miles upstream of the Hardy Ford Bridge.

City / County: Bedford Co. Franklin Co. Roanoke City Roanoke Co. Salem City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 9/07/2006. 1996 & 2002 fecal coliform (FC) observations are the basis for the original bacteria impaired listing. The 2010 total bacteria impaired length is 29.56 miles and 349.99 acres in Smith Mountain Lake. Geometric mean calculations from previous assessments are not valid in 2010 in light of the 4 sample per month requirement of the new WQS criterion.

Improvement is noted in downstream stations 4AROA202.20, 4AROA199.20, 4AROA196.05 and 4AROA192.94 within the 2016 data window. E.coli maxima are greatly reduced as compared to previous assessments. 2016 Flow Adjusted Trend Analysis finds an improving trend for fecal coliforms at 4AROA202.20; whereas the 2012 Flow Adjusted Trend Analysis reports a declining trend for E.coli at 4AROA202.20.

Stations 4AROA192.94 and 4AROA192.55 each have exceedance rates less than 10.5%. These waters in Smith Mountain Lake from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek were partially delisted with the 2014 assessment. A total of 184.70 acres. Station 4AROA202.20 also has an exceedance rate less than 10.5% but is not proposed for delisting in 2014 or 2016 due to stations 4AROA199.20 and 4AROA196.05 continuing to exceed the instantaneous criterion with rates greater than 10.5 %. Also upstream tributaries continue to have exceedance rates greater than 10.5%. Continued reductions/improvement could result in a delisting of this portion of the Roanoke River in future assessments.

Station 4AROA227.42 (Rt. 773 Bridge in Lafayette) is included in the 1999 Federal Consent Decree as an Attachment B station for fecal coliform bacteria. The station was not listed in 2002 as exceedances of the former WQS 1000 cfu/100 ml instantaneous criterion were at 5 percent. The waters were not de-listed in recognition of the forth coming change of the fecal coliform WQS instantaneous criterion from 1000 to 400 cfu/100 ml. The 2004 Integrated Report (IR) records an 11.8 percent exceedance rate and initial 303(d) Listing for fecal coliform bacteria. Eight of 49 fecal coliform samples exceeded in 2006. Escherichia coli (E.coli) replaces fecal coliform bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters] in 2008. The 2008 assessment reports 1 of 21 escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion and was partially delisted with the 2008 IR for 2.21 miles (revised 2014 NHD). 2010 and 2012 assessments find continued Full Support from 4AROA227.42. The 2014 assessment reports 2 of 36 E.coli excursions indicating continued full support of the Recreational Use. However the 2016 data window reveals 6 of 36 E.coli samples in excess of the 235 cfu/100 ml WQS criterion. Two exceeding values each occur in 2013 and 2014 in addition to 2 excessive values in 2009. These excursions combine to extend the E.coli impairment 2.21 miles from the Spring Hollow intake upstream to the confluence of the North and South Forks of the Roanoke River. Eight of 36 E.coli observations exceed the WQS instantaneous criterion within the 2018 data window. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml.

4AROA224.54- (Rt. 639 Bridge at Riverside) There are no additional E.coli data beyond the 2008 Integrated Report (IR) where E.coli exceeds the criterion in 2 of 11 observations. Maximum excursions are 400 cfu/100 ml and 780. The results are the same for both the 2008 and 2010 assessments. The 2006 IR finds E.coli exceeds the instantaneous criterion in 2 of 8 observations. The maximum exceedance is 780 cfu/100 ml.

4AROA220.94- (Rt. 639 Bridge just south of Wabun) 2012, 2010 and 2008 results are the same with no additional data. E.coli samples exceed the instantaneous criterion in 2 of 12 observations ranging from 250 to 850 cfu/100 ml. In 2006 E.coli exceeds the criterion in 2 of 8 observations. The maximum exceedance is 780 cfu/100 ml.

4AROA215.13 - No additional E.coli data beyond the 2008 IR. One of 12 escherichia coli (E.coli) observations exceeds the 235 cfu/100 ml instantaneous criterion at 920 cfu/100 ml. The 2006 data window finds the same exceedance from 9 samples.

4AROA212.17- (Rt. 11 Bridge - below Eaton, Inc.) There are no additional E.coli data beyond the 2010 IR where 4 of 23 E.coli samples exceed the instantaneous criterion. Exceedances range from 290 cfu/100 ml to 790. Four of 23 E.coli samples also exceed the 235 cfu/100 ml WQS instantaneous criterion within 2008 data window. E.coli excursions are the same as 2010.

Roanoke and Yadkin River Basins

4AROA205.73- (Franklin Road Bridge, Roanoke, VA) There are no additional data beyond the 2008 data window. The 2008 assessment reports 8 of 32 E.coli samples exceed the instantaneous criterion and 3 of 5 geometric mean calculations exceed the former (2 samples/calendar month) WQS 126 cfu/100 ml criterion. The 2008 range of exceedance is from 270 to 570 cfu/100 ml. 2006 results find 7 of 20 E.coli samples exceed the instantaneous criterion with the same range of exceedance. E.coli geomeans exceed the former WQS (2 samples/month) 126 cfu/100 ml criterion in 3 of 6 calculations.

4AROA202.20- (13th Street Bridge - above STP) The 2018 assessment finds 5 of 34 observations exceed the E. Coli (escherichia coli) 235 cfu/100 ml instantaneous criterion. Exceeding values range from 400-1918 cfu/100 ml. The 2016 assessment reports 2 of 16 E.coli observations exceeding the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 400 to 1,400 cfu/100 ml. Three of 34 E.coli observations exceed the instantaneous criterion ranging from 300 to 1,400 cfu/10 ml within the 2014 data window. These waters continue to be Listed as downstream stations 4AROA199.20 and 4AROA196.05 continue to exceed the instantaneous criterion at greater than 10.5%. The 2012 assessment finds E.coli exceeds the instantaneous criterion in 4 of 36 observations. Exceedance range: 280 to 1400 cfu/100 ml. The 2012 flow adjusted Trend analysis reports a declining trend for E.coli. 2010 data reveal 9 of 45 E.coli samples in excess of the instantaneous criterion. Values in excess range from 280 to greater than 2000 cfu/100 ml. No geometric means are calculated due to insufficient data. Eight of 33 E.coli samples exceed the instantaneous criterion in 2008 and 2 of 6 geometric mean calculations exceed the former WQS (2 samples/month) 126 cfu/100 ml criterion. The 2008 range of exceedance is the same as 2010. 2006 E.coli exceeds the instantaneous criterion of in 6 of 21 observations. Exceedance range: 330 to greater than 2000 cfu/100 ml. Two of 6 geometric mean calculations exceed the former WQS criterion as in 2008.

4AROA199.20- (Blue Ridge Parkway Bridge - Niagara) The 2018 and 2016 data windows find 10 of 32 and 8 of 35 exceeding values, respectively. Excessive values range from 250 cfu/100 ml to 9208. Five of 23 escherichia coli (E.coli) exceedances occur within the 2014 data window ranging from 250 to 775 cfu/100 ml. The 2012 assessment finds E.coli exceed in 5 of 20 observations. The exceedance range is 250 to greater than 2000 cfu/100 ml. Both the 2010 and 2008 assessments find 9 of 21 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml. Exceedances range from 280 cfu/100 ml to greater than 2000. 2006 results found 6 of 12 samples exceeding while the range is from 280 to 610 cfu/100 ml.

4AROA196.05- (McVeigh Ford) The 2016 assessment finds 10 of 42 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion ranging from 250 to 1,616 cfu/100 ml. The 2014 IR reports E.coli exceed the 235 cfu/100 ml instantaneous criterion in 5 of 40 observations. Exceedances range from 250 to 750 cfu/100 ml. E.coli bacteria exceed the instantaneous criterion in 9 of 41 observations within the 2012 data window. 2012 exceedances range from 250 to 1,000 cfu/100 ml. E.coli data within the 2010 data window find 10 of 38 samples exceeding the instantaneous criterion. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml. E.coli samples for 2008 find 10 of 32 in excess of the instantaneous criterion ranging from 250 to greater than 2,000 cfu/100 ml. 2006 samples find 5 of 18 E.coli samples exceed the instantaneous criterion ranging from 400 to greater than 2,000 cfu/100 ml.

4AROA192.94- (Upstream of Hardy Ford) 4 of 43 E.coli exceedances occur within the 2016 data window. Excessive values range from 300 cfu/100 ml to greater than 2,000. Only 1 escherichia coli (E.coli) exceedance of the 235 cfu/100 ml instantaneous criterion is found from 42 samples within the 2014 data window at 1,600 cfu/100 ml. E.coli samples exceed the instantaneous criterion in 2 of 42 samples within the 2012 data window. Exceedances are 350 and 1,600 cfu/100 ml. 2010 data reveal a range of E.coli samples in excess of the instantaneous criterion from 280 to greater than 2000 cfu/10 ml in 8 of 51 observations. 2008 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in 8 of 44 observations with the excursion range the same as 2010. The 2006 IR finds 7 of 30 samples in excess of the instantaneous criterion and the same range of exceedance also.

4AROA192.55 (Hardy Bridge) The 2016 assessment finds the same excessive value as the 2014 IR at 325 cfu/10 ml from 24 observations. There are no additional data beyond the 2014 IR. One of 36 E.coli samples exceeds the 235 cfu/100 ml instantaneous criterion at 325 cfu/100 ml in 2014. 2012 results are 0 of 36 samples in excess of the criterion. E.coli exceeds in 2 of 32 samples in 2010. Excessive values are 620 and greater than 2000 cfu/100 ml. The 2008 assessment reports 2 of 20 E.coli samples in excess of the instantaneous criterion and 2006 2 of 8 exceedances. Exceedances for 2008 and 2006 are the same as 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA01A00 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth upstream to the Rt. 419 Bridge (RU09).	4A	Escherichia coli (E. coli)	2006	L	1.20

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VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	4A	Escherichia coli (E. coli)	2006	L	2.67
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	4A	Escherichia coli (E. coli)	2006	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	4A	Escherichia coli (E. coli)	2006	L	5.57
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	4A	Escherichia coli (E. coli)	2006	L	1.43
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	Escherichia coli (E. coli)	2006	L	3.16
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.76
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Escherichia coli (E. coli)	2006	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Escherichia coli (E. coli)	2006	L	4.34
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	3.32
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.22
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	4A	Escherichia coli (E. coli)	2006	L	165.29

Roanoke River and Smith Mountain Lake **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**165.29**	**29.56**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Sanitary Sewer Overflows (Collection System Failures)	Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-01-BEN** **Roanoke River**

Cause Location: Roanoke River mainstem from the Murray Run confluence downstream to the backwaters of the Niagara impoundment.
Note: Impounded waters of Niagara Dam are not included with this impairment.

City / County: Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Roanoke River General Standard - Benthic (Sediment) Total Maximum Daily Load (TMDL) is U.S. EPA approved 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Formerly coded VAW-L04R-01.

The 2010 Integrated Report (IR) extended the benthic impairment upstream 3.87 miles from the mouth of Mason Creek upstream to the City of Salem downtown intake on the Roanoke River. These mainstem waters were delisted with the 2014 IR as well as an additional 5.54 miles downstream to the Murray Run confluence on the Roanoke River. A total of 9.41 miles were delisted with the 2014 IR. The delisting is based on stations 4AROA212.17- (Rt. 11 Bridge - below Eaton, Inc.), 4AROA206.27- (Wasena Park) and a probabilistic site 4AROA210.56 (Behind Veterans Administration Hospital (Salem). Category 4A waters equal 5.81 miles. The impairment does not include the impounded waters of Niagara Dam.

The benthic impairment is extended downstream with the 2008 Integrated Report (IR) for 3.16 miles from Niagara Dam downstream to the mouth of Back Creek (station 4AROA198.08). This portion of the impairment is Category 5A as the TMDL Study did not address these waters. A new Cause Group Code of L04R-03-BEN and Fact Sheet are assigned to this portion with the 2012 IR as a result.

4AROA202.20- (13th Street Bridge - above STP) Bio 'IM' from 6 VSCI surveys (2012, 2014, 2015) with an average score of 59.5. Previous assessments observed that the benthic community declined overall from Fall 2003 to the Fall 2005 survey and that it improved during Spring and Fall 2004 before declining in the Fall of 2005. Data collected during the 2014 assessment period show that 3 out of 4 samples were above the impairment threshold with an average VSCI score of 60.2. Additional data collected in 2014 show an improvement in the Spring score and a decline below the impairment threshold in the Fall. The Spring 2015 sample declined compared to the 2014 Spring score and the Fall 2015 score improved well above the impaired threshold. While the final 6-yr average is approaching the non-impaired threshold the Spring score is well below the impaired threshold. The variability of the benthic macroinvertebrate community between Spring and Fall seasons and the consistently low Spring scores indicates stress to the community and an assessment as Impaired. Bio 'IM' A total of 6 VSCI surveys (2009-2010; 2012 & 2014) conducted within the 2016 data window produce an average score of 59.7 resulting in an impaired condition. Both spring and fall sample collections in 2009 (fall 67.6) and 2010 (spring 60.5) indicate water quality is non-impaired. Following the 2009 and 2010 samples the VSCI scores declined. One sample was below the impairment threshold (spring 2012 at 51.2) and 1 above (fall 2012 at 63.9). The 2016 assessment finds all spring scores were lower than fall scores. The 6 year average is slightly below the impairment threshold with both 2014 scores (57.0 & 59.9) below the impairment threshold of 60. The final assessment rating for 2016 produces an impaired status as a result of a continued slight decline in VSCI scores.

Previous assessments observed the benthic community declined overall from Fall 2003 to the Fall 2005 survey and improved during spring and fall 2004 before declining in the fall of 2005. Data collected during the 2014 assessment period show that 3 out of 4 samples were above the impairment threshold with an average VSCI score of 60.2. Judgement was reserved ("J") in 2014.

Historically sedimentation has decreased the amount of substrate available for macroinvertebrate colonization. A TMDL study was completed to determine the stressors to the benthic community and the reductions in pollutants necessary to restore the community. Sediment was determined to be the stressor. The TMDL Implementation Plan process began in June 2013 with a goal of identifying the steps necessary to reduce the stressor and restore water quality.

Bio 'J' The 2014 assessment records 4 VSCI surveys (2009, 2010 and 2012) with an average score of 60.8. Both spring and fall samples collected in 2009 and 2010 indicate water quality is non-impaired. The fall 2009 survey records the highest score at 67.6. Following the 2009 and 2010 samples the VSCI scores declined. One sample is below the impairment threshold of 60 at 51.5 and 1 sample above at 63.9. Both Spring samples were lower than the fall samples. The final 2 year average is below the impairment threshold while the 6 year average is above the threshold. As a result the final 2014 assessment rating was to reserve judgment and conduct additional surveys. These additional data will aid in determining if the 6 year average VSCI score is an indicator of typical water quality or an indicator of the abnormal conditions during 2011 and 2012.

Roanoke and Yadkin River Basins

2012 data find from 3 VSCI surveys (2005 & 2009-2010) an average score of 54.28. The final 6-year average (n=3) VSCI score is driven by a fall 2005 score of 34.69. For 7 seasons samples were not collected at this station. The 8th and 9th seasons following the 34.69 score the VSCI scores were non-impaired. An active hurricane season also occurred in 2004. There are no additional data from the 2010 data window where 4 VSCI surveys (2003-2005) record impairment with an average VSCI score of 49.9. 2008 assessment reports 5 VSCI surveys (2001-2005) with an average score of 51.4 also finding impairment. Historically sedimentation has decreased the amount of substrate available for macro invertebrate colonization. The benthic community declined from fall 2001 to fall 2003 and improved during spring and fall 2004. The fall 2004 survey resulted in a non-impaired score of 65.08. This was the only Roanoke River station sampled in fall 2004 and it was used as the benthic macro invertebrate sample location for a nearby probabilistic monitoring site (4AROA202.32).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	4.34

Roanoke River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.81**

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Industrial Point Source Discharge	Industrial/Commercial Site Stormwater Discharge (Permitted)	Municipal (Urbanized High Density Area)
Municipal Point Source Discharges	Post-development Erosion and Sedimentation	Residential Districts	Sediment Resuspension (Clean Sediment)
Sediment Resuspension (Contaminated Sediment)	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-01-HG** **Roanoke River**

Cause Location: Roanoke River from the confluence of Mason Creek downstream to the confluence of Tinker Creek.

City / County: Roanoke City Roanoke Co. Salem City

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) and Virginia Department of Health (VDH) level of concern of 0.5 ppm are found in fish tissue causing impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. Please visit http://www.deq.virginia.gov for more information about mercury contamination and http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/ for VDH Advisories or Bans.

4AROA206.80 (Roanoke R. @Wasena Park near Rt. 11 Bridge)- Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm is found in 2 species from 2006 collections; smallmouth bass (1 fish 37.0 cm) at 0.37 ppm and (4 fish composite 21.8-27.5 cm) at 0.537 ppm and rock bass (6 fish composite 17.4-19.4 cm) at 0.446 ppm. There are no additional data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	5A	Mercury in Fish Tissue	2010	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	5A	Mercury in Fish Tissue	2010	L	4.34
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	5A	Mercury in Fish Tissue	2010	L	3.32
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	5A	Mercury in Fish Tissue	2010	L	2.22

Roanoke River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**10.28**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-02-BAC** **Mud Lick Creek**

Cause Location: Mud Lick Creek mainstem from its confluence on the Roanoke River upstream to its headwaters.

City / County: Roanoke City Roanoke Co. Salem City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Mud Lick Creek 2006 initially 303(d) Listed bacterial impairment extends for 7.61 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 Roanoke River total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Mud Lick Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMDL000.34- (Downstream of Brambleton Ave. behind Shell) There are no additional escherichia coli (E.coli) data beyond the 2010 IR. E.coli exceeds the WQS instantaneous criterion of 235 cfu/100 ml in 4 of 12 observations in both the 2010 and 2008 assessments. Exceeding values range from 550 cfu/100 ml to greater than 2000. The 2006 E.coli initial 303(d) Listing reports 4 of 9 exceedances with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MDL01A06 / Mud Lick Creek / Mud Lick Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2006	L	7.61

Mud Lick Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.61**

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Municipal (Urbanized High Density Area)
- Sanitary Sewer Overflows (Collection System Failures)
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-02-BEN** **Mud Lick Creek**

Cause Location: Mud Lick Creek mainstem from its confluence on the Roanoke River upstream to its headwaters.

City / County: Roanoke City Roanoke Co. Salem City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

Virginia Stream Condition Index (VSCI) surveys find the Mud Lick Creek benthic community is impaired for 7.61 miles as a result of the 2008 assessment. The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approved on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Mudlick Creek is a nested benthic impairment within the Roanoke River Benthic (Sediment) TMDL watershed.

4AMDL003.34- (Downstream of Brambleton Ave. behind Shell) Bio 'IM' 2 VSCI surveys spring 2006 scoring 22.2 and fall 2005 scoring 35.1 for an average score of 28.7. There are no additional data beyond the 2008 assessment. Habitat data show stream impacts related to sedimentation, extensive bank erosion, and riparian zone disturbance. Low scores were observed for most of the 8 individual metrics in the VSCI indicating a benthic community that is tolerant of pollution. Urban land cover with high levels of impervious surface causes an altered hydrology and resulting bank erosion. Sedimentation impacts may also be increased as land in the watershed is quickly being developed.

4AMDL002.93- (Near Foot Bridge Lower Station) There are no additional data beyond the 2012 IR. Two remaining surveys within the 2016 data window (2008-2009) have an average score of 24.3. The 2014 reports 4 VSCI surveys (2007 & 2009) with an average score of 20.10. The 2012 assessment reports 7 VSCI surveys (2005 - 2009) with and average score of 24.3. Five (2005-2007) VSCI surveys score 25.5 within the 2010 data window. 2007 probabilistic sediment sampling finds no PEC Sediment exceedances; metals only. 2008 assessment reports 3 VSCI surveys (2005 - 2006) with and average score of 29.9. Roanoke County implemented a stream restoration project along the Garst Mill Park Greenway in 2008. Habitat data indicates stream impacts related to sedimentation, extensive bank erosion, and riparian zone disturbance. Most of the individual metrics in the VSCI show a degraded benthic community that is tolerant of pollution. Since the stream bank enhancement project was completed in 2008, scores for bank stability and bank vegetation have improved.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MDL01A06 / Mud Lick Creek / Mud Lick Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.61

Mud Lick Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.61**

Sources:

Loss of Riparian Habitat
Municipal (Urbanized High Density Area)
Sediment Resuspension (Clean Sediment)
Streambank Modifications/Destabilization
Urban Runoff/Storm Sewers

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-03-BEN** **Roanoke River**

Cause Location: Roanoke River mainstem from Niagara Dam downstream to the mouth of Back Creek.

City / County: Bedford Co. Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The benthic impairment is extended downstream with the 2008 Integrated Report (IR) for 3.16 miles from Niagara Dam downstream to the mouth of Back Creek. The 2008 and 2010 Integrated Reports assigned a Cause Group Code of L04R-01-BEN incorporating the entire 14.45 mile benthic impairment. This 3.14 mile portion is Category 5A as the TMDL Study did not address these waters. Thus a new Cause Group Code of L04R-03-BEN is assigned with the 2012 Integrated Report. The impairment does not include the impounded waters of Niagara Dam.

4AROA198.08- (Explore Park near the Shenandoah Pavilion) Bio 'IM' The 2018 data window contains 6 VSCI surveys (spring & fall, 2014-2016) with an overall average score of 53.1. This station was sampled at the request of local Virginia SOS citizen monitors and the Western Virginia Water Authority (WVWA). SOS has a station in the reach along Explore Park and WVWA has a wastewater treatment plant (WWTP) upstream in the city of Roanoke. Previous surveys yielded benthic communities dominated by net-spinning caddisfly larvae (Hydropsychidae) and the 4th was dominated by midges (Chironomidae). These organisms typically dominate streams that have high amounts of organic matter. All surveys had lower taxa richness and diversity as well as low numbers of pollution-sensitive taxa such as mayflies and stoneflies and caddisflies Instream habitat, riparian zone vegetation, and bank stability were all optimal providing conditions favorable for a healthy benthic community. However, filamentous algae and periphyton growth was thick on stream substrates indicating that nutrients may be excessive in this reach of the Roanoke River.

The 2016 data window finds impairment from 4 spring and fall VSCI surveys (2010 & 2014) with an average score of 46.4. Previous surveys yielded benthic communities dominated by net-spinning caddisfly larvae (Hydropsychidae) and the 4th was dominated by midges (Chironomidae). These organisms typically dominate streams that have high amounts of organic matter. All surveys had low taxa richness and diversity as well as low numbers of pollution-sensitive taxa such as mayflies and stoneflies.
Instream habitat, riparian zone vegetation, and bank stability were all optimal providing conditions favorable for a healthy benthic community. However, filamentous algae and periphyton growth was thick on stream substrates indicating that nutrients may be excessive in this reach of the Roanoke River.
There were no additional within the 2014 data window. The 2012 assessment reports 4 VSCI surveys (fall 2005 & fall 2009 & 2010 spring & fall) with an average score of 51.5. 2010 and 2008 data windows contain 2 VSCI surveys 2005 and 2006 both fall scores are 56.3 and 55.0.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2008	H, 2yr	3.16

Roanoke River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.16**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Industrial Point Source Discharge
- Industrial/Commercial Site Stormwater Discharge (Permitted)
- Municipal (Urbanized High Density Area)
- Municipal Point Source Discharges
- Post-development Erosion and Sedimentation
- Residential Districts
- Sediment Resuspension (Clean Sediment)
- Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-04-BAC** **Ore Branch**

Cause Location: Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (Garden City and Roanoke Quads).

City / County: Roanoke City Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Ore Branch Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/02/2006 [Fed ID 24539] and SWCB approved 6/27/2007. The impairment was initially Listed in 1996 for fecal coliform bacteria.

4AORE000.19- (Sherwood Avenue - Roanoke City) There are no additional escherichia coli (E.coli) data within the 2014, 2016, or 2018 data windows. The 2012 data window finds 6 of the remaining 12 samples exceed the instantaneous criterion. Both 2010 and 2008 data reveal E.coli bacteria exceed the 235 cfu/100 ml instantaneous criterion in 22 of 33 observations. The range of exceedance is from 320 cfu/100 ml to 7,600. The 2006 Integrated Report (IR) finds E.coli exceeds the instantaneous criterion in 16 of 21 samples. Exceedances are the same range as in 2010 and 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ORE01A00 / Ore Branch / Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.55

Ore Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.55**

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Municipal (Urbanized High Density Area)
- Sanitary Sewer Overflows (Collection System Failures)
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-04-BEN** **Ore Branch**

Cause Location: Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (Garden City and Roanoke Quads).

City / County: Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Roanoke River General Standard - Benthic (Sediment) TMDL Study is US EPA approved 5/10/2006 (FED ID: 33861) and State Water Control Board (SWCB) approved 9/07/2006. Ore Branch is nested within the Roanoke River General Standard-Benthic (Sediment) TMDL watershed.

4AORE000.01 (Mouth of Ore Branch)- A 2011 Probabilistic site. Bio 'IM' 2 VSCI surveys scoring spring 22.5 and fall 24.1 with an average score of 23.3. The benthic community is severely impacted. Both samples were dominated by midges (Chironomidae) which can tolerate sediment deposition, nutrient enrichment and/or other impacts. DEQ uses a target of 200 (minimum) organisms per sample in its benthic lab procedures. The entire sample was processed resulting in only 142 (spring) and 78 (fall) organisms collected. An average benthic sample will contain thousands of organisms.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ORE01A00 / Ore Branch / Ore Branch mainstem headwaters near Hunting Hills downstream to its confluence with the Roanoke River (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.55

Ore Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.55**

Sources:

Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Streambank Modifications/Destabilization	Urban Runoff/Storm Sewers
Wet Weather Discharges (Non-Point Source)			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-05-BAC** **Mason Creek**

Cause Location: Mason Creek mainstem from the Mason Cove Community, river mile 7.61, extending downstream to the mouth of Mason Creek on the Roanoke River (Salem Quad).

City / County: Roanoke Co. Salem City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Mason Creek Recreational Use remains impaired for 7.72 miles from the original 2002 303(d) Listing based on 1997 special study (SS 975101) data and fecal coliform exceedances.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Mason Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMSN000.67- (Boulevard) The 2018 data window finds E.coli exceeds 235 cfu/100 ml instantaneous criterion in 4 of 12 samples. Exceedances range from 341 to 1935 cfu/. There are no additional escherichia coli (E.coli) data beyond the 2010 IR where 7 of 32 E.coli samples exceed the instantaneous criterion of 235 cfu/100 ml in both the 2010 and 2008 assessments. Exceedances range from 250 to 1000 cfu/100 ml. 2006 Integrated Report (IR) shows 5 of 20 E.coli samples exceed the instantaneous criterion with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MSN01A00 / Mason Creek / Mason Creek mainstem from its confluence with the Roanoke River upstream to near the Mason Cove Community (RU10).	4A	Escherichia coli (E. coli)	2006	L	7.72

Mason Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.72**

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Municipal (Urbanized High Density Area)
- Sanitary Sewer Overflows (Collection System Failures)
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-05-BEN** **Mason Creek**

Cause Location: Mason Creek mainstem from the Mason Cove Community, river mile 7.61, extending downstream to the mouth of Mason Creek on the Roanoke River (Salem Quad).

City / County: Roanoke Co. Salem City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Mason Creek benthic community exhibits impaired conditions for the 7.72 mile 2008 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Mason Creek is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

4AMSN003.05- (Off Kessler Mill Rd.) Bio 'IM' There are no additional data beyond the 2008 IR. Three Virginia Stream Condition Index (VSCI) surveys (2004 - 2005) assessed with an average score of 55.4. The average VSCI score indicates the benthic community is impaired. Most of the habitat scores are in the optimal and sub-optimal range indicating that potential water quality problems are related to water chemistry rather than habitat limitations.

4AMSN000.53- (Arnold Burton Technical School Campus) Bio 'IM' 2 VSCI surveys (2013) scoring spring 45.5 and fall 43.4. The average score is 44.4. The benthic community is dominated by pollution tolerant organisms, particularly Chironomidae (midges) in the spring and Hydropsychidae (net-spinning caddisfly) in the fall. The watershed is in an urban setting with industrial, commercial and residential land uses. Most of the habitat scores are in the optimal and sub-optimal range indicating that potential water quality problems are related to water chemistry rather than habitat limitations. The 2008 IR reports from 3 VSCI surveys (2004 - 2005) an average score of 37.6.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MSN01A00 / Mason Creek / Mason Creek mainstem from its confluence with the Roanoke River upstream to near the Mason Cove Community (RU10).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.72

Mason Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.72**

Sources:

Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Residential Districts	Urban Runoff/Storm Sewers
Wet Weather Discharges (Non-Point Source)			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L04R-06-BAC** **Peters Creek**

Cause Location: Peters Creek mainstem from its headwaters (Salem Quad) extending downstream to the Peters Creek confluence on the Roanoke River (Roanoke Quad).

City / County: Roanoke City Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2002 303(d) Listed 7.20 mile Peters Creek Recreational impairment remains.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles on the Roanoke and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Peters Creek bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4APEE001.04- (Shenandoah Avenue Bridge) There are no additional data beyond the 2012 assessment which reported escherichia coli (E.coli) exceedances of the 235 cfu/100 ml instantaneous criterion in 2 of 14 samples at 280 and 420 cfu/10 ml. There are no additional data beyond the 2012 data window. One of 2 remaining observations exceeds at 280 cfu/100 ml within both the 2014 and 2016 data windows. Data within both the 2010 and 2008 data windows find E.coli exceeds the instantaneous criterion in 11 of 32 observations ranging from 250 cfu/100 ml to greater than 2000. The 2006 Integrated Report (IR) finds the same range of exceedance from 10 of 20 samples. The original 2002 bacteria 303(d) Listing is based on a Special Study (SS 975101) conducted in 1997 where fecal coliform data resulted in geometric mean exceedances of the former WQS criterion and frequency of samples derived from the special study data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	Escherichia coli (E. coli)	2006	L	2.58
VAW-L04R_PEE02A02 / Peters Creek / Peters Creek mainstem from the Melrose Avenue Bridge (Rt. 11/460) upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2006	L	4.62

Peters Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.20**

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-06-BEN** **Barnhardt Creek**

Cause Location: Barnhardt Creek from its confluence on the Roanoke River upstream to its headwaters.

City / County: Roanoke City Roanoke Co. Salem City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Barnhart Creek is nested within the Roanoke River General Standard- Benthic (Sediment) TMDL watershed.

The 2012 Integrated Report (IR) finds the Aquatic Life Use is impaired. There are no additional data within the 2014 or 2016 data windows.

4ABHT001.90 (Downstream of Rt. 419, Roanoke City) Bio 'IM' 3 VSCI surveys (2009-2010) with an average score of 36.8 indicating a benthic community dominated by pollution-tolerant taxa. Although several habitat scores were sub-optimal the habitat in this reach should support more mayfly and stonefly taxa which were extremely low during the surveys. Suburban land cover with a major road (Rt. 419) upstream of this station may cause altered hydrology and resulting bank erosion, sediment deposition, and runoff from roads. Riparian buffers are impacted on both sides by the sports fields at the school and residential backyards.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_BHT01A10 / Barnhardt Creek / Barnhardt Creek from its confluence on the Roanoke River upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2012	L	5.31

Barnhardt Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.31**

Sources:

Loss of Riparian Habitat

Municipal (Urbanized High Density Area)

Streambank Modifications/Destabilization

Urban Runoff/Storm Sewers

Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-07-BAC** **Murray Run**

Cause Location: Murray Run mainstem from its headwaters to its mouth on the Roanoke River.

City / County: Roanoke City Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 4A

The Murray Run 3.57 mile 2004 303(d) Listed Recreational impairment remains.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Murray Run bacteria impairment but is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMUR001.63- There are no escherichia coli (E.coli) data to assess since the 2004 data window. The 2004 Integrated Report (IR) reports FC exceeds the former 400 cfu/100 ml instantaneous criterion in 2 of 6 observations. Exceeding values are 600 and 8,000+ cfu/100 ml. Observations within the 2008 data window find 1 of 3 FC samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MUR01A00 / Murray Run / Murray Run mainstem from its headwaters to its mouth on the Roanoke River (RU14).	4A	Fecal Coliform	2004	L	3.57

Murray Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**3.57**

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Municipal (Urbanized High Density Area)
- Sanitary Sewer Overflows (Collection System Failures)
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-07-BEN** **Murray Run**

Cause Location: Murray Run mainstem from its headwaters to its mouth on the Roanoke River.

City / County: Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Murray Run is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed.

The Aquatic Life Use is found impaired with the 2012 assessment.

4AMUR001.82- Bio 'IM' There are no additional data within the 2014, 2016, or 2018 data windows. The 2012 Integrated Report (IR) reports 3 VSCI surveys (2009-2010) with an average score of 19.5 indicating a benthic community dominated by pollution-tolerant taxa most notably Chironomidae (midge larvae). Although several habitat scores were sub-optimal the habitat in this reach should support more mayfly and stonefly taxa which were extremely low or absent during the surveys. Urban land cover with high levels of impervious surface upstream causes altered hydrology and resulting bank erosion, sediment deposition, and runoff of toxic substances from roads. Riparian buffers are good on one side of the stream while the opposite side of the stream is bordered by a mowed field.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_MUR01A00 / Murray Run / Murray Run mainstem from its headwaters to its mouth on the Roanoke River (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2012	L	3.57

Murray Run **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.57**

Sources:

Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Streambank Modifications/Destabilization	Urban Runoff/Storm Sewers
Wet Weather Discharges (Non-Point Source)			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-08-BEN** **Gish Branch**

Cause Location: Gish Branch mainstem from its mouth on Mason Creek upstream to its headwaters.

City / County: Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Gish Branch benthic community exhibits impaired conditions for the 2.40 mile 2014 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study is U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Gish Branch is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed. There are no additional data beyond the 2014 Integrated Report (IR).

4AGSH001.28 (Off Rt. 311 downstream of I-81)- Bio 'IM' 2 2012 VSCI surveys scoring an average of 47.9. The results of benthic sampling indicate a community dominated by pollution-tolerant taxa in the both spring and fall. There were more midges (Chironomidae) and stoneflies (Nemouridae) in the spring sample whereas beetles accounted for a high percentage (33.1%) of the fall sample. Beetles in the fall are from the families Psephenidae (water pennies) and Elmidae (riffle beetles) helped increase the %Scraper score. Both seasons had relatively low taxa richness and low numbers of mayflies.
The instream habitat was affected by sediment deposition. The sediment load results in a low embeddedness score meaning that the interstitial spaces between rocks is clogged by fine material thus limiting available habitat for sensitive macroinvertebrates. The banks appeared eroded possibly due to flashy flows from storm water runoff from highways in the upper reaches of the watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_GSH01A14 / Gish Branch / Gish Branch mainstem from its mouth on Mason Creek upstream to its headwaters (RU10).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.40

Gish Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.40**

Sources:

- Loss of Riparian Habitat
- Municipal (Urbanized High Density Area)
- Residential Districts
- Urban Runoff/Storm Sewers
- Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-09-BEN** **Peters Creek**

Cause Location: Peters Creek mainstem from its headwaters (Salem Quad) extending downstream to the Peters Creek confluence on the Roanoke River (Roanoke Quad).

City / County: Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Peters Creek benthic community exhibits impaired conditions for the 7.20 mile 2016 initially 303(d) Listed waters. The Roanoke River General Standard - Benthic (Sediment) TMDL Study received U.S. EPA approval on 5/10/2006 [Fed. ID 33861] and SWCB approved 9/07/2006. Peters Creek is nested within the Roanoke River General Standard - Benthic (Sediment) TMDL watershed (2016 IR).

4APEE001.16 (Strass Park, on Westside Boulevard)- Bio- 'IM' 2 2013 VSCI surveys scoring spring 26.3 and fall 27.5 with an average score of 26.9. The benthic community is dominated by pollution tolerant organisms, particularly Chironomidae (midges) in both spring and fall. This station is located in a suburban and commercial watershed which receives high levels of storm water runoff. During both sampling events algae is very thick on stream substrate indicating nutrient enrichment. Habitat scores were impacted by excessive sedimentation, eroded stream banks and sparse riparian buffers.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2016	L	2.58
VAW-L04R_PEE02A02 / Peters Creek / Peters Creek mainstem from the Melrose Avenue Bridge (Rt. 11/460) upstream to its headwaters (RU14).	4A	Benthic Macroinvertebrates Bioassessments	2016	L	4.62

Peters Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.20**

Sources:

Loss of Riparian Habitat
Municipal (Urbanized High Density Area)
Residential Districts
Urban Runoff/Storm Sewers
Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-10-BAC** **Wolf Creek**

Cause Location: Wolf Creek from its mouth on the Roanoke River upstream to its headwaters (RU14).

City / County: Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Wolf Creek is first listed for not meeting the Recreational Use during the 2018 IR window. The impairment is 4.5 miles.

The Roanoke River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/02/2006 [Fed ID 24538] with SWCB approval on 6/27/2007. 1996 & 2002 fecal coliform (FC) observations are the basis for the original Roanoke River bacteria impaired listing. The 2014 total bacteria impaired length is 29.56 miles and 165.29 acres in Smith Mountain Lake. The approved TMDL did not specifically address the Wolf Creek bacteria impairment but Wolf Creek is nested within the Roanoke Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AWOR000.34 - Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 5 of 12 samples. Exceedances range from 275 to 1421 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_WOR01A10 / Wolf Creek / Wolf Creek from its mouth on the Roanoke River upstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU14).	4A	Escherichia coli (E. coli)	2018	L	2.61
VAW-L04R_WOR02A08 / Wolf Creek / Wolf Creek from the upstream PWS end upstream to its headwaters (RU14).	4A	Escherichia coli (E. coli)	2018	L	1.89

Wolf Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.50**

Sources:

- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wastes from Pets
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L04R-10-BEN** **Wolf Creek**

Cause Location: Wolf Creek from its mouth on the Roanoke River upstream to its headwaters (RU14).

City / County: Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

This initial 2018 303(d) listing is based on Virginia Stream Condition Index (VSCI) scores during the 2018 IR window. The Aquatic Life Use impairment is 4.5 miles in length.

4AWOR000.34 (Niagara Rd. Crossing) - The 2018 IR window finds Impairment for benthic macroinvertebrate community based on 4 VSCI scores (2015-2016) averaging 49.4 (seasonal averages are: 35.8 Spring; 63.0 Fall). Station was originally established for TMDL development. The 2015 and 2016 Fall samples scored above the impairment threshold (VSCI 60). Spring scores scored well below the impairment threshold. The spring samples had lower numbers of total taxa and pollution sensitive plecoptera and trichoptera than the fall samples. Fall samples contained less chironomidae. The stream is impacted by fine sediments, lack of instream habitat and eroded stream banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_WOR01A10 / Wolf Creek / Wolf Creek from its mouth on the Roanoke River upstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	2.61
VAW-L04R_WOR02A08 / Wolf Creek / Wolf Creek from the upstream PWS end upstream to its headwaters (RU14).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	1.89

Wolf Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.50**

Sources:

Clean Sediments	Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Non-Point Source
Residential Districts	Streambank Modifications/Destabilization		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L05R-01-BAC** **Tinker Creek**

Cause Location: Tinker Creek mainstem from its headwaters downstream to the Tinker Creek confluence with the Roanoke River.

City / County: Botetourt Co. Roanoke City Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Originally 303(d) Listed in 1998 for fecal coliform (FC) bacteria the Tinker Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/2004 [Fed IDs: 7787 (FC), 21671 and 21672] and SWCB approved 12/02/2004. The 19.58 mile bacteria impairment remains.

4ATKR015.88 (Off Rt. 779 at USGS Gage) There are no additional data beyond the 2014 IR where 10 of 24 escherichia coli (E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The exceedance range is from 275 to greater than 2000 cfu/100 ml. Five of 12 remaining samples within the 2016 data window exceed with the same range as the 2014 IR. The 2012 assessment finds 6 of 15 E.coli observations exceed the instantaneous criterion ranging from 320 cfu/100 ml to greater than 2000. E.coli exceed the instantaneous criterion in 22 of 37 samples within the 2010 data window. Exceeding values range from 270 to 2300 cfu/100 ml. 2008 collections find E.coli in excess of the instantaneous criterion in 18 of 30 samples with the same range of exceedance as 2010. The 2006 Integrated Report (IR) exceedance range is the same from 17 of 25 samples.

4ATKR009.30 (Rt. 11 Bridge near Hollins) The 2018 assessment window finds 5 of 12 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Exceedances range from 435 - 743 cfu/100 ml. There are no additional data beyond the 2008 assessment. One of 3 remaining E.coli observations exceeds the instantaneous criterion of 235 cfu/100 ml at 250 within the 2012 data window. 2010 data find E. coli exceeds the 235 cfu/100 ml instantaneous criterion in 9 of 15 samples with the same range of exceedance as in 2008. 2008 samples reveal 10 excursions of the instantaneous criterion from 18 samples. Exceedances range from 420 to 1100 cfu/100 ml. 2006 IR reports 9 of 15 E. coli excursions of the instantaneous criterion and the same range of exceedance as 2008.

4ATKR000.69 (Rt. 24 Bridge, Vinton) 21 of 36 escherichia coli (E.coli) samples exceed the instantaneous criterion (235 cfu/100 ml) during the 2018 IR window. Exceedances range from 250 - 5794 cfu/100 ml. The 2016 IR reports 13 of 35 E.coli samples are in excess of the instantaneous criterion. Excessive values range from 250 to 800 cfu/100 ml. E.coli exceed the instantaneous criterion of 235 cfu/100 ml in 13 of 35 observations ranging from 320 cfu/100 ml to 800 in 2014. The 2012 data window finds E.coli exceed the instantaneous criterion in 16 of 35 observations ranging from 280 cfu/100 ml to 1200. 2010 E.coli samples exceed the instantaneous criterion in 31 of 49 observations. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. The 2008 assessment finds E.coli exceedances occur in 29 of 44 observations with the same range of exceedance as 2010. The 2006 (IR) reports E.coli exceeding the instantaneous criterion in 20 of 30 observations. Exceeding values range from 300 cfu/100 ml to greater than 2000.

4ATKR000.08 (Upstream of Roanoke R. confluence) - E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 9 of 12 samples within the 2018 IR data window. The exceedances range from 309 - 5794 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	5.37
VAW-L05R_TKR01B06 / Tinker Creek / Tinker Creek mainstem from the Carvin Creek mouth upstream to the confluence of Buffalo Creek (RU11).	4A	Escherichia coli (E. coli)	2006	L	6.50
VAW-L05R_TKR02A00 / Tinker Creek / Tinker Creek mainstem from the mouth of Buffalo Creek upstream to the Roanoke City diversion tunnel located just upstream of the USGS stream gaging station (RU11).	4A	Escherichia coli (E. coli)	2006	L	4.46
VAW-L05R_TKR03A00 / Tinker Creek / Tinker Creek mainstem from the Roanoke City diversion tunnel to Carvin Cove on upstream to its headwaters (RU11).	4A	Escherichia coli (E. coli)	2006	L	3.25

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Tinker Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**19.58**

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	Sanitary Sewer Overflows (Collection System Failures)
Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-01-BEN** **Tinker Creek**

Cause Location: Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the confluence of Buffalo Creek (RU11).

City / County: Botetourt Co. Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The benthic community is impaired for 5.37 miles based on a 2008 Virginia Stream Condition Index survey (VSCI). The 2018 IR data window extends the benthic impairment 6.5 mile upstream for a total of 11.87 miles impaired for benthic macroinvertebrate communities.

4ATKR009.30 (Rt. 11 bridge near Hollins) 2018 IR finds Bio 'IM' from 4 VSCI scores averaging 58.4. Habitat surveys indicated a stream section with substrates that were impacted by sediment, eroded banks and sparse riparian vegetative buffers. Spring 2015 and 2016 VSCI scores indicated an impaired condition. Fall 2015 and 2016 VSCI scores indicated a non-impaired condition.

4ATKR000.69 (Rt. 24 Bridge - Vinton) 2018 assessment window finds 4 VSCI surveys (2015-2016) with an average score of 48.6. Habitat surveys indicated a stream section with substrates that were impacted by sediment, eroded banks and sparse riparian vegetative buffers. This section of Tinker Creek is impacted by a highly developed watershed. The VADEQ TMDL Stressor Identification tool determines that any RBPII Total Habitat Scores <100 have a high risk to Aquatic Life. The average Total Habitat Score for this station for the 4 biomonitoring samples was 92.75. Prior cycles included 1 2008 VSCI survey scoring 50.9 with no additional surveys within the 2012, 2014 or 2016 data windows. The score indicates a stressed community with low taxonomic diversity and low abundance of pollution-sensitive organisms. A visual assessment indicates that more than 70% of the stream substrate was covered with a thick mat of algae which may limit habitat available for macroinvertebrates that require clean substrates.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	5A	Benthic Macroinvertebrates Bioassessments	2010	H, 2yr	5.37
VAW-L05R_TKR01B06 / Tinker Creek / Tinker Creek mainstem from the Carvin Creek mouth upstream to the confluence of Buffalo Creek (RU11).	5A	Benthic Macroinvertebrates Bioassessments	2018	H, 2yr	6.50

Tinker Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**11.87**

Sources:

Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Non-Point Source	Residential Districts
Sediment Resuspension (Clean Sediment)	Source Unknown	Urban Runoff/Storm Sewers	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-01-TEMP** **Tinker Creek**

Cause Location: Tinker Creek mainstem from the confluence of Buffalo Creek downstream to its confluence with the Roanoke River.

City / County: Botetourt Co. Roanoke City Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The waters remain impaired for the Aquatic Life Use.

4ATKR009.30- (Rt. 11 Bridge - near Hollins) The 2018 assessment window finds 2 of 16 temperature measurements in exceedance of the Class V 21°C criterion: 22.2°C (7/19/16) and 21.5°C (6/16/15). Prior to that there were no additional temperature data beyond the 2008 IR. No exceedances are found in the remaining 3 measurements within the 2012 data window. 2010 data find 1 temperature measurement exceeding the 21°C criterion from 15 measurements. 2008 temperature data exceeds the stockable trout water criterion in 3 of 23 measurements at 23°C (6/04/2002); 25 °C (8/08/2001) and 21.2°C (7/06/2004). Temperature exceeds the criterion in 3 of 20 measurements in 2006 with the same exceeding measurements as in 2008. Temperature exceeds the 21°C criterion in 2 of 8 measurements within the 2004 data window. Temperature exceedances are 23°C (6/04/2002) and 25 °C (8/08/2001).

4ATKR000.69- (Rt. 24 Bridge in Vinton) A 1999 Consent Decree Attachment A station. WQS Class V temperature excursions are 6 of 40 and 4 of 36 within the 2018 and 2016 data windows, respectively. Excursions range from 21.4 to 24.6°C. Five of 37 temperature observations exceed the Stockable Trout Water criterion of 21°C in 2014. Values in excess of the criterion range from 21.2 to 24.6°C in the 2018 window. The 2012 assessment reports 5 of 38 measurements exceed the Class V temperature criterion (21°C). Exceedances range from 21.3 to 22.1°C. Seven of 41 measurements exceed the Class V criterion with the 2010 data window. Exceedances range from 21.3 to 22.2°C. Ten of 48 measurements exceed the 21°C criterion within the 2006 & 8008 data windows. Exceedances range from 21.1°C to 23.4°C for both assessments. The 2004 assessment reports 3 of 56 measurements exceed the 21°C Class V criterion although Fully Supporting from assessed data. Exceedances occur on 7/22/1999 (23°C), 6/13/2000 (22°C) and 8/08/2001 (23°C). The 2002 data window shows 7 of 59 temperature measurements in excess of the criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	5C	Temperature	2002	L	5.37
VAW-L05R_TKR01B06 / Tinker Creek / Tinker Creek mainstem from the Carvin Creek mouth upstream to the confluence of Buffalo Creek (RU11).	5C	Temperature	2002	L	6.50

Tinker Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**11.87**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L05R-02-BAC** **Carvin Creek**

Cause Location: Carvin Creek mainstem from just upstream of I-81 at the mouth of an unnamed tributary extending downstream to the mouth of Carvin Creek on Tinker Creek (Roanoke Quad).

City / County: Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Carvin Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/05/2004 [Fed ID 24541] and SWCB approved on 12/02/2004 (formerly VAW-L05R-02). These waters are previously 303(d) Listed in 2002 based on 1997 Special Study data. The 5.45 mile impairment remains with the 2016 and 2018 Integrated Reports (IR).

4ACRV005.10- (Hollins U. campus back parking lot) E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 5 of 12 samples (exceedance range 259-563 cfu/) during the 2018 IR window.

4ACRV001.88- (Brookside Park off Rt. 623 Hollins) There are no additional data beyond the 2012 assessment where 6 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 250 to 950 cfu/100 ml.

4ACRV000.28- (Plantation Road -Rt. 115) There are no additional data within the 2012, 2014 or 2016 data windows. The 2010 assessment reports 5 of 10 escherichia coli (E.coli) samples exceed the instantaneous criterion of 235 cfu/100 ml. The range of exceedance is from 260 to 1500 cfu/100 ml. E.coli exceed the instantaneous criterion in 6 of 12 samples in 2008 ranging from 240 to 1500 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the criterion in 5 of 10 samples ranging from 260 to 1500 cfu/100 ml.

Original 2002 Listing stations below had exceedances of the former fecal coliform instantaneous criterion of 400 cfu/100 ml.
4ACRV005.58- (Plantation Road -Rt. 115)
4ACRV001.88- (Brookside Park off Rt. 623 Hollins)
4ACRV000.28- (Plantation Road -Rt. 115)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_CRV01A00 / Carvin Creek / Carvin Creek mainstem from its confluence with Tinker Creek upstream to the mouth of Deer Branch (RU12).	4A	Escherichia coli (E. coli)	2004	L	1.83
VAW-L05R_CRV02A00 / Carvin Creek / Carvin Creek mainstem from the mouth of Deer Branch upstream to an unnamed tributary upstream of I-81 (RU12).	4A	Escherichia coli (E. coli)	2006	L	3.62

Carvin Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.45**

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	Sanitary Sewer Overflows (Collection System Failures)
Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-02-BEN** **Deer Branch**

Cause Location: Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118).

City / County: Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2014 assessment reports the Deer Branch Aquatic Life Use (General Standard - Benthic) is impaired for 1.38 miles.

4ADEE000.06 (Brookside Park, Roanoke City)- The 2018 IR window includes 6 VSCI scores (2012, 2015-2016) averaging 47.2 resulting in a continued impairment for Deer Branch. This station was originally sampled to validate citizen SOS monitoring assessments but in 2016 was sampled as a targeted-stressed station for Probabilistic data collection. The average VSCI score was 47.2 indicating a benthic community that was dominated by pollution-tolerant taxa. The 2014 IR finds Bio 'IM' with 2 2012 surveys score spring 45.1 and fall 61.8 for an average score of 53.4 indicating a benthic community dominated by pollution-tolerant taxa in the spring. Midges (Chironomidae) dominated the spring sample; whereas, the fall sample had a high abundance of filter-feeding caddisflies (Hydropsychidae and Philopotamidae). Suburban/commercial land cover along with major roads upstream of this station may cause periodic flooding in this stream that results in bank erosion, sediment deposition, and runoff. Riparian buffers are impacted on both banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_DEE01A08 / Deer Branch / Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).	5A	Benthic Macroinvertebrates Bioassessments	2014	H, 2yr	1.38

Deer Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.38**

Sources:

Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Residential Districts	Urban Runoff/Storm Sewers
Wet Weather Discharges (Non-Point Source)			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L05R-03-BAC** **Glade Creek**

Cause Location: Glade Creek mainstem from its headwaters (Stewartsville Quad) downstream to its confluence with Tinker Creek at river mile 0.83. (Roanoke Quad).

City / County: Botetourt Co. Roanoke City Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The fecal coliform bacteria impairment originally 303(d) Listed in 1998 for 5.97 miles and extended in 2002 (6.98 miles) now totals 12.95 miles. The Glade Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/05/2004 [Fed ID 24799] and SWCB approved 12/02/2004. Formerly VAW-L05R-03.

4AGLA008.10- There are no additional data beyond the 2008 IR. 2010 data find 3 of 10 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion. 2008 data reveal 3 of 12 E.coli samples exceed the WQS instantaneous criterion. Exceedances range from 250 to 550 cfu/100 ml. Three of 10 E.coli samples exceed the WQS instantaneous criterion in 2006 with the same range of exceedance as in 2008.

4AGLA004.39- There are no additional data beyond the 2008 IR. Three non-exceeding escherichia coli (E.coli) samples remain within the 2012 data window and none within the 2014 or 2016 data windows. E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 8 of 16 samples in 2010. Values in excess of the criterion range from 260 to 820 cfu/100 ml. 2008 results find E.coli exceeds the instantaneous criterion in 10 of 18 samples. The range of exceedance is from 240 to 820 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the instantaneous criterion in 10 of 15 samples with the same range of exceedance as in 2008.

4AGLA000.20- There are no additional data beyond the 2010 IR. Four of 12 escherichia coli (E.coli) remaining observations exceed the 235 cfu/10 ml instantaneous criterion in 2014. Values in excess of the criterion range from 250 to 400 cfu/100 ml. The 2012 IR finds 9 exceeding values from 24 remaining samples with a range of 250 to 750 cfu/100 ml in excess of the criterion. E.coli exceeds the WQS instantaneous criterion in 18 of 46 samples with exceeding values ranging from 250 to greater than 2000 cfu/100 ml in 2010. The 2008 IR finds 15 of 28 E.coli exceedances of the instantaneous criterion. Exceedance range is the same as 2010. Ten of 25 E.coli instantaneous criterion exceedances are found at this station in 2006. Exceedances range from 320 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_GLA01A00 / Glade Creek / Glade Creek mainstem from the Glade Creek mouth on Tinker Creek upstream to the Berkley Rd. crossing (RU13).	4A	Escherichia coli (E. coli)	2006	L	1.59
VAW-L05R_GLA02A00 / Glade Creek / Glade Creek mainstem from the Berkley Rd. Crossing on upstream to the confluence of Cook Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	3.15
VAW-L05R_GLA03A00 / Glade Creek / Glade Creek mainstem from the Cook Creek mouth upstream to the confluence of Coyner Spring Branch (RU13).	4A	Escherichia coli (E. coli)	2006	L	1.23
VAW-L05R_GLA04A00 / Glade Creek / Glade Creek mainstem from the mouth of Coyner Spring Branch upstream to its headwaters (RU13).	4A	Escherichia coli (E. coli)	2006	L	6.98

Glade Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**12.95**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Sanitary Sewer Overflows (Collection System Failures)
- Unspecified Domestic Waste
- Wastes from Pets
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-04-BAC** **Lick Run**

Cause Location: The upper limit is near Shaffers Crossing rail yard and headwaters from along I-581 on downstream to the mouth of Lick Run on Tinker Creek at river mile 1.41. The 1996, 1998 and 2002 impaired waters have expanded by 5.01 miles with the 2004 Listing (Roanoke Quad).

City / County: Roanoke City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Originally 303(d) Listed in 2002 for fecal coliform (FC) bacteria. The Tinker Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/2004 [Fed ID 24540] and SWCB approved 12/02/2004. The bacteria impairment remains for these 9.64 mile waters.

4ALCK002.17- (Washington Park) There are no additional data beyond the 2008 IR. One of 3 remaining escherichia coli (E.coli) samples exceed the instantaneous criterion at 250 cfu/100 ml in 2012. Seven of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2010 data window. Excessive values range from 250 to greater than 2000 cfu/100 ml. The 2008 data window reports E.coli samples exceed the WQS instantaneous criterion in 9 of 18 samples. Exceeding values range from 250 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) reveals 8 of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion with the same range of exceedance.

4ALCK000.38 (Norfolk Southern parking lot bridge) The 2002 original listing station found exceedances of the former FC instantaneous and geomean criteria in a Special Study conducted in 1997. E.coli excursions of the 235 cfu/100 ml instantaneous criterion within the 2010 data window are 21 of 46 E.coli samples with exceedances ranging from 280 to 3000 cfu/100 ml. There are no additional data beyond the 2010 IR. Five E.coli observations exceed from the remaining 12 samples in 2014 with values ranging from 350 to greater than 2000 cfu/100 ml. The 2012 assessment finds 10 of 24 remaining samples in excess of the instantaneous criterion. The range of exceeding values is 350 to greater than 2000 cfu/100 ml. The 2008 IR finds 19 of 38 E.coli samples in excess of the instantaneous criterion with exceedances ranging from 280 to 3000 cfu/100 ml. 2006 E.coli excursions of the instantaneous criterion are found in 13 of 25 samples with the same exceedance range as in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_LCK01A00 / Lick Run / Lick Run mainstem from near Shaffer's Crossing downstream to Lick Run mouth on Tinker Creek.	4A	Escherichia coli (E. coli)	2004	L	9.64

Lick Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.64**

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Municipal (Urbanized High Density Area)	Sanitary Sewer Overflows (Collection System Failures)	Unspecified Domestic Waste
Wastes from Pets	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L05R-05-BAC** **Laymantown Creek**

Cause Location: Laymantown Creek mainstem from just upstream of the Rt. 657 Bridge at a small pond downstream to the mouth of Laymantown Creek on Glade Creek (Stewartsville Quad).

City / County: Botetourt Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2.11 mile 2002 303(d) Listed Laymantown Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/05/2004 [Fed ID: 24544] and SWCB approved 12/02/2004.

4ALAY000.37- (Rt. 460 Bridge - near Blue Ridge) There are no additional data beyond the 2008 IR where escherichia coli (E.coli) samples exceed the 235 cfu/100 ml WQS instantaneous criterion in 2 of 9 samples. Exceeding values are 300 and 800 cfu/100 ml. The original 2002 fecal coliform (FC) listing is based on a Special Study conducted in 1997 where the former FC instantaneous criterion were exceeded. There are no additional data within the 2016, 2014 or 2012 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_LAY01A00 / Laymantown Creek / Laymantown Creek mainstem from an outlet of a small pond downstream to the Laymantown Creek mouth on Glade Creek (RU13).	4A	Escherichia coli (E. coli)	2006	L	2.11

Laymantown Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.11**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wastes from Pets
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L05R-06-BAC** **Deer Branch**

Cause Location: Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).

City / County: Roanoke Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 1.08 mile Deer Branch is initially 303(d) listed with the 2018 Integrated Report and Nested within the Tinker Cr. Bacteria TMDL US EPA approved 8/05/2004 Fed ID 24541. SWCB approved 12/2/2004.

4ADEE000.05 (Brookside Park, Roanoke City) - The 2018 IR finds Escherichia Coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion in 5 of 13 samples during 2015 and 2016. These excursions range from 253 to 884 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L05R_DEE01A08 / Deer Branch / Deer Branch from its mouth on Carvin Creek upstream to Airport Road (Rt. 118) (RU12).	4A	Escherichia coli (E. coli)	2018	L	1.38

Deer Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.38**

Sources:

Discharges from Municipal Separate Storm Sewer Systems (MS4)	Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	Sanitary Sewer Overflows (Collection System Failures)
Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L06R-01-BEN** **Back Creek**

Cause Location: Back Creek mainstem waters from ~0.1 miles downstream of the Mt. Haran Church on downstream of the Blue Ridge Parkway crossing and downstream of the Back Creek Church.

City / County: Roanoke Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

4ABAA023.07 (Along Rt. 221 Roanoke County) The 2014 initial 303(d) Listing finds the benthic community impaired from a total of 6 Virginia Stream Condition Index (VSCI) surveys conducted in 2005, 2008, 2009 and 2012. The average score is 57.8 resulting in this Listing.

Initially a fall 2005 sediment discharge from a construction site prompted sampling of this site. The 2005 fall score of 61.3 and 2006 scores spring of 50.9 and fall 60.9 caused assessment decisions to be reserved due to the improvement of scores in fall 2006 and fall 2008 (70.3). Subsequent 2009 fall survey scored 52.8 and 2012 surveys scored spring 52.5 and fall 2012 at 64.9. The abundance of macroinvertebrates that feed by scraping algae and periphyton (%Scrapers) has always been low indicating a lack of clean substrate or often scoured substrates. The 2008, 2009, and 2012 habitat surveys find sand and fine sediment impact the stream substrate. This would indicate continued sources of fines beyond the initial 2005 release. The 2018 data window finds full support of the Aquatic Life Use standard from 6 VSCI surveys averaging 62.1 (2012, 2015-2016). Due to the discrepancy between spring and fall scores, this segment will be evaluated for delisting during the 2020 data window in order to facilitate another year of data collection.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L06R_BAA04A00 / Back Creek / Back Creek mainstem waters from the confluence of an unnamed tributary (XVE) on downstream of the Blue Ridge Parkway crossing and Back Creek Church (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	H, 2yr	5.11
VAW-L06R_BAA04B14 / Back Creek / Back Creek mainstem waters from the mouth of Little Back Creek on downstream to the confluence of an unnamed tributary to Back Creek (XVE) (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	H, 2yr	1.25
VAW-L06R_BAA05A08 / Back Creek / Back Creek from ~0.1 miles downstream of the Mt. Haran Church on downstream to the mouth of Little Back Creek (RU15).	5A	Benthic Macroinvertebrates Bioassessments	2014	H, 2yr	0.56

Back Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**6.92**

Sources:

Municipal (Urbanized High Density Area)

Non-Point Source

Residential Districts

Site Clearance (Land Development or Redevelopment)

Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L07L-01-PH** **Beaverdam Reservoir**

Cause Location: Beaverdam Reservoir, Bedford County

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5C

Beaverdam Creek Reservoir located in Bedford County is owned by the Western Virginia Water Authority. The reservoir is fenced and public access is not permitted. There are no known sources other than from the natural landscape.

4AXKD0003.34 (100 ft. from Dam) There are no additional data within the 2014 data window. The reservoir 2012 data window reports 5 of 36 pH measurements in excess of the Class IV pH acidity criterion of 6.0. Four values in excess of the criterion are at 5.7 and 1 at 5.8 during 1 sampling event on 4/22/2010 from a total of 13 sampling events in 2005 and 2010.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_XKD01A02 / Beaverdam Reservoir (XKD) / Beaverdam Reservoir from its impounding structure upstream to its backwaters.	5C	pH	2012	L	66.93

Beaverdam Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		**66.93**	

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L07R-01-BAC** **Beaverdam Creek**

Cause Location: Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mountain Lake at River Mile 2.78 (Stewartsville, Irving, Goodview and Hardy Quads).

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Beaverdam Creek Bacteria TMDL Load Duration is U.S. EPA approved 7/07/2006 [Fed ID 17733] and SWCB approved 6/27/2007. The 1999 Federal Consent Decree includes 4ABDA003.63 as an Attachment B station for fecal coliform bacteria-303(d) Listed 2002. The 4.98 bacteria impairment remains.

4ABDA003.63- (Off Rt. 757) There are no additional data beyond the 2014 IR where 13 of 35 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. The range of excessive values is from 250 to 1275 cfu/100 ml. E.coli data remaining within the 2016 data window are 8 of 23 observations and the same range of exceedance. The 2012 assessment reports E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 15 of 36 samples. Exceeding observations range from 250 cfu/100 ml to greater than 2000. E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 25 of 45 samples within the 2010 data window. Exceeding observations range from 300 to greater than 2000 cfu/100 ml. 2008 E.coli data exceeds the instantaneous criterion in 20 of 33 samples and the same range of exceedance as 2010. The 2006 Integrated Report (IR) reveals exceedances of the instantaneous criterion in 14 of 21 samples. Exceeding observations range from 300 to 1800 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_BDA01A00 / Beaverdam Creek / Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section 6i, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mtn. Lake (RU17).	4A	Escherichia coli (E. coli)	2006	L	4.98

Beaverdam Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.98**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L07R-01-BEN** **Beaverdam Creek**

Cause Location: Beaverdam Creek mainstem waters from the 795 ft. pool elevation of Smith Mtn. Lake on upstream to its headwaters (Stewartsville, Irving, Goodview and Hardy Quads).

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

2010 Virginia Stream Condition Index (VSCI) surveys find the Aquatic Life Use is impaired for 10.33 miles. There are no additional data beyond the 2010 Integrated Report (IR).

4ABDA006.72 (Rt. 24 Crossing)- 2 2008 Virginia Stream Condition Index (VSCI) surveys with an average score of 45.0 find the benthic community impaired. This watershed is influenced by agricultural land use with open pastures including some with no riparian vegetation. Habitat scores show this stream reach is impacted by sediment deposition and a poor riparian buffer.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_BDA01A00 / Beaverdam Creek / Beaverdam Creek mainstem waters from the WQS designated public water supply (PWS) section 6i, eg. 5 miles above the 795 ft. pool elevation of Smith Mtn. Lake on downstream to the inundation of Beaverdam Creek's waters at Smith Mtn. Lake (RU17).	5A	Benthic Macroinvertebrates Bioassessments	2010	M	4.98
VAW-L07R_BDA02A00 / Beaverdam Creek / Beaverdam Creek mainstem from its headwaters downstream to the WQS designated public water supply (PWS) ending section 6i, eg. 5 miles above the Smith Mtn. Lake 795 ft. pool elevation (RU17).	5A	Benthic Macroinvertebrates Bioassessments	2010	M	5.35

Beaverdam Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**10.33**

Sources:

Agriculture
Loss of Riparian Habitat
Residential Districts
Rural (Residential Areas)
Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L07R-02-BEN** **Merriman Run, UT (XUO)**

Cause Location: Merriman Run, UT (XUO) mainstem from the backwaters of Smith Mtn. Lake upstream to its headwaters.

City / County: Bedford Co. Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

4AXUO000.49 (Free flowing to Smith Mtn. Lake backwaters)- Previous assessments DEQ reserved judgment for this initial 2004 probabilistic site (VAEQ99-456) from 4 Virginia Stream Condition Index (VSCI) surveys (2004 - 2005). The station is located on a small second order stream upstream of Smith Mountain Lake backwaters in a watershed influenced by agricultural land use. More information was desired before a conclusive assessment could be made on this station's benthic community. The average Virginia Stream Condition Index (VSCI) score was 54.2 from 6 surveys (2010 IR) conducted in the spring and fall seasons of both 2004, 2005 and 2008.

There are no additional data beyond the 2010 IR and no new data within the 2016 or 2018 data windows. Two 2008 VSCI surveys remain within the 2014 data window averaging 47.9. Four VSCI Surveys (2005-2008) within the 2012 data window score an average of 46.6. The 2010 Listing is based on 6 VSCI surveys (2004 - 2008) with an average score of 54.2. This station is located just upstream of a cove on Smith Mountain Lake. The impounded waters do not appear to impact this stream reach. Sediment deposition scores were low for all samples. Water flow, velocity, and bank erosion scores worsened during 2004-2005. Relative Bed Stability habitat analyses from 2004 and 2005 determined that approximately 40-50% of the stream substrate consisted of sand and fine sediments. The land cover for this watershed is 44 % agriculture consisting mostly of pasture. During the 2005 samples, it appeared that there had been a change in flow and velocity so that fine sediments deposition had increased in the sampled reach. Contributing factors possibly include low rainfall and subsequent low flow levels. Also, a recently (2004-2005) constructed pond may contribute to reduced flows during specific periods and or seasons.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07R_XUO01A06 / Merriman Run, UT (XUO) / Merriman Run, UT (XUO) mainstem from the backwaters of Smith Mtn. Lake upstream to its headwaters; public water supply (PWS) section 6i, eg. within 5 miles of 795 ft. Smith Mtn. Lake pool elevation (RU19).	5A	Benthic Macroinvertebrates Bioassessments	2010	M	0.88

Merriman Run, UT (XUO)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**0.88**

Sources:

Agriculture

Loss of Riparian Habitat

Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L08R-01-BAC** **Green Creek**

Cause Location: Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork of the Blackwater River begins (Callaway Quad).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Green Creek 4.09 mile bacteria impairment is a 2004 303(d) Listing due to fecal coliform (FC) exceedances (formerly VAW-L08R-01). The Bacteria Total Maximum Daily Load (TMDL) for the South Fork Blackwater River is U.S. EPA approved 02/02/2001 [Fed IDs: 1886/7791/21330/24549] and SWCB approved 6/17/2004. The SWCB approved the Bacteria Implementation Plan on 6/17/2004.

The Upper Blackwater River Bacteria Implementation Plan (IP) received SWCB approval on 6/17/2004. Green Creek is tributary to the South Fork and is included in the TMDL Watershed and allocations. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Bacteria IP encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL and Implementation Plans can be viewed at http://www.deq.virginia.gov.

4AGCR000.01- (Rt. 739 Bridge at Algoma) There are no additional data beyond the 2012 data window. Six of 33 escherichia coli (E.coli) samples are in excess of the 235 cfu/100 ml instantaneous criterion ranging from 250 to 480 cfu/100 ml for 2012. Data remaining within the 2016 data window are 1 of 12 and 2014 3 of 24 measurements. The 2010 assessment finds 5 of 21 E.coli samples in excess of the instantaneous criterion ranging from 280 to 480 cfu/100 ml. 2008 results are 3 of 9 E.coli samples in excess of the instantaneous criterion ranging from 280 to 300 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_GCR01A00 / Green Creek / Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork Blackwater River begins (RU21).	4A	Escherichia coli (E. coli)	2008	L	4.09

Green Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.09**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-01-TEMP** **Green Creek**

Cause Location: Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork of the Blackwater River begins.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The 4.09 mile temperature impairment returns with the 2012 assessment. The 2010 IR de-listed the temperature impairment.

4AGCR000.01- (Rt. 739 Bridge at Algoma) The 2018 IR finds no exceedances of the temperature Class VI 20°C criterion from 2 samples taken in 2015. Impairment remains due to the small 2018 IR sample size (n=2). Prior to 2018, there were no additional data beyond the 2012 IR. The 2012 assessment finds 4 of 33 temperature measurements exceed the Class VI 20°C criterion for an exceedance rate of 12%. The exceeding values occur in the summer months with an exceedance range from 21.6°C to 22.6°C. Data remaining within the 2016 data window are 2 of 12 measurements exceed and within the 2014 data window 2 of 24. The waters were initially Listed in 2002 with 2 of 17 temperature measurements exceeding the Class VI 20°C criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_GCR01A00 / Green Creek / Green Creek mainstem from its perennial headwaters downstream to the community of Algoma where the South Fork Blackwater River begins (RU21).	5C	Temperature	2012	L	4.09

Green Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**4.09**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-02-BAC** **Blackwater River, South Fork**

Cause Location: South Fork Blackwater waters from the Rt. 739 Bridge in Algoma, Va. (Callaway Quad) on downstream just west of the Rt. 641 Bridge where the North and South Forks join forming the Blackwater River.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The South Fork Blackwater River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 2/02/2001 [Fed. IDs: 1886/7791/21330/24549] and SWCB approved 6/17/2004. The Bacteria Implementation Plan (IP) is SWCB approved 6/17/2004. The waters are originally 303(d) Listed in 1996 for fecal coliform bacteria (FC) for 6.21 miles. The Upper Blackwater River Bacteria Implementation Plan is complete as of 8/23/2001 with SWCB approval on 6/17/2004. The TMDL Study identified Wildlife as a major source based on TMDL Bacteria Source Tracking (BST). The Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The South Fork Blackwater River 1996 303(d) Listed impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform bacteria sample collections. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform (FC) geometric mean (200 cfu/100 ml & 2 samples 30 day) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) now replaces FC as the bacteria indicator in the Blackwater River drainage as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The 6.21 mile bacteria impairment remains. 4ABSF001.15- (Rt. 641 Bridge east of Callaway) The 2018 IR window finds 27 of 36 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. The range of exceedances spans 262 to 6867 cfu/100 ml. 2016 excessive E.coli values range from 250 to 2489 cfu/100 ml in 28 of 36 samples. Twenty-nine of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2012 and 2014 data windows. Values in excess of the criterion for both cycles range from 250 to greater than 2000 cfu/100 ml. 2010 E.coli results find 25 of 33 samples exceeding the instantaneous criterion where excessive values range from 280 cfu/100 ml to greater than 2000. 2008 E.coli samples exceed the instantaneous criterion in 19 of 27 samples. Excursions range from 420 to greater than 2000 cfu/100 ml. Twenty of 26 samples exceed the instantaneous criterion in 2006 ranging from 250 to greater than 2000 cfu/100 ml. 4ADRU002.43 (Rt. 642 Bridge) - The 2018 data window finds two of 12 E.coli samples exceed the instantaneous 235 cfu/100 ml criterion at 272 and 298 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BSF01A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from the Callaway Community downstream to the South Fork's confluence with the North Fork Blackwater River (RU21).	4A	Escherichia coli (E. coli)	2004	L	2.26
VAW-L08R_BSF02A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from Algoma, Green Creek mouth, downstream to the Callaway community (RU21).	4A	Escherichia coli (E. coli)	2004	L	3.94
VAW-L08R_DRU01A16 / Daniel's Run / Daniel's Run from its confluence with the South Fork Blackwater River upstream to an Unnamed Tributary (37 00'21.4" / 80 05'43.7") (RU21).	4A	Escherichia coli (E. coli)	2018	L	3.23

Blackwater River, South Fork **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.43**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-02-TEMP** **Blackwater River, South Fork**

Cause Location: South Fork Blackwater River mainstem from Algoma, Green Creek mouth, downstream to the South Fork's confluence with the North Fork Blackwater River (RU21).

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The Temperature impairment on the South Fork Blackwater River returns with the 2016 Integrated Report (IR). The temperature impairment was last de-listed in 2014 after the impairment returned with the 2012 IR. The temperature impairment has previously been de-listed in 2004 and 2010.

The Aquatic Life Use is impaired due to excursions of the WQS Class V temperature criterion of 21°C.

4ABSF001.15 (Rt. 641 Bridge east of Callaway) The 2018 and 2016 data windows each find 4 of 36 temperature measurements in excess of the WQS Class V Stockable Trout Water criterion of 21°C. Values in excess of the criterion mostly occur in the summer months on 6/22/2010 at 23.3°C; 8/9/2010 at 22.9°C; 7/7/2011 at 23.7°C; 6/10/2014 at 21.1°C; and 7/14/2015 at 22.6°C. One early fall excursion occurred on 9/9/2015 at 21.3°C. Three of 36 temperature measurements exceed the Class V criterion of 21°C in 2014; an exceedance rate of 8.3%. The waters were delisted with the 2014 Integrated Report (IR) where temperature measurements in excess of the Class V criterion are 23.3°C (6/22/2010), 22.9°C (8/9/2010) and 23.7°C (7/7/2011). Five of 36 temperature measurements exceed the Class V criterion of 21 °C in 2012. Exceedances occur in the summer months of June and August and range from 22.4 to 24.1°C. The South Fork Blackwater River was delisted in 2004 for temperature but returned with the 2008 assessment. 2008 data report 3 excessive measurements from a total of 26.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BSF01A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from the Callaway Community downstream to the South Fork's confluence with the North Fork Blackwater River (RU21).	5C	Temperature	2016	L	2.26
VAW-L08R_BSF02A00 / S.F. Blackwater River / South Fork Blackwater River mainstem from Algoma, Green Creek mouth, downstream to the Callaway community (RU21).	5C	Temperature	2016	L	3.94

Blackwater River, South Fork **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**6.20**

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-03-BAC** **Blackwater River, North Fork**

Cause Location: North Fork Blackwater River headwaters (~12.25 mi. upstream) on the Bent Mt. Quad on downstream to its confluence with the South Fork Blackwater River forming the Blackwater River (Callaway Quad).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The North Fork of the Blackwater River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 3/09/2001 [Fed. IDs: 7790 & 20479] and SWCB approved on 6/17/2004. The Upper Blackwater River Bacteria Implementation Plan (IP) is complete (8/23/2001) receiving SWCB approval on 6/17/2004. The TMDL Study identified Wildlife as a major source based on TMDL Bacteria Source Tracking (BST). The Upper Blackwater River Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL Study allocations and Implementation Plans can be viewed at http://www.deq.virginia.gov.

The 12.44 mile North Fork Blackwater River bacteria impairment initially 303(d) Listed in 1996 is based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. Abundant fecal coliform bacteria counts failed to support the Recreational Use by exceedances of both the former fecal coliform (FC) geometric mean (200 cfu/100 ml & 2 samples/month) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform as the bacteria indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ABNR004.56- (Rt. 742 Bridge near Dillions Mill) There are no additional escherichia coli (E.coli) data beyond the 2010 IR where E.coli exceed the 235 cfu/100 ml instantaneous criterion in 4 of 15 observations. Values in excess of the criterion range from 250 cfu/100 ml to greater than 800 cfu/100 ml. In both 2008 and 2006 2 of 6 E.coli observations exceed the instantaneous criterion. Values in excess of the criterion are both greater than 800 cfu/100 ml.

4ABNR000.40- (Rt. 740 Bridge S.W. of Retreat) Escherichia coli (E.coli) excursions of the 235 cfu/100 ml instantaneous criterion were found in 16 of 34 samples during the 2018 Integrated Reporting window. The range of excursions was 246 to greater than 2000 cfu/100 ml. The 2016 E.coli range of exceeding values are from 250 to greater than 2000 in 16 of 34 observations. E.coli exceed the 235 cfu/100 ml instantaneous criterion in 17 of 34 samples in 2014 and 23 of 36 samples in 2012. Maxima range from 250 cfu/100 ml to greater than 2000 for both data windows. E.coli exceed the instantaneous criterion in 21 of 36 samples within the 2010 data window. Exceeding values have the same range as 2012,2014 and 2016. 2008 data find E.coli exceeds the instantaneous criterion in 20 of 33 samples also ranging from 250 cfu/100 ml to greater than 2000. The 2006 Integrated Report (IR) finds E.coli exceeds in 19 of 32 samples. Values in excess of the criterion range from 575 cfu/100 ml to greater than 1800.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BNR01A00 / N.F. Blackwater River / North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River (RU20).	4A	Escherichia coli (E. coli)	2004	L	3.21
VAW-L08R_BNR02A00 / N.F. Blackwater River / North Fork Blackwater River mainstem headwaters downstream to the Dillions Mill Community (RU20).	4A	Escherichia coli (E. coli)	2006	L	9.23

Blackwater River, North Fork **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**12.44**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-03-BEN** **Blackwater River, North Fork**

Cause Location: North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

North Fork Blackwater River General Standard Benthic Total Maximum Daily Load (TMDL) is U.S. EPA approved 4/26/2004 [Fed ID 24548 Phosphorus & 24550 Sediment] and SWCB approved 8/31/2004. Originally 303(d) listed in 1996 the 3.21 mile benthic impairment remains.

4ABNR001.53 (Rt. 738 Bridge) The 2018 IR window finds Bio 'IM' from 2 2011 Virginia Stream Condition Index (VSCI) scores: Spring 42.3 and Fall 60.0 (average VSCI = 51.2). Four 2010-2011 Virginia Stream Condition Index (VSCI) surveys report an average score of 55.40 for 2014 and 2016. The average score within the 2012 data window is 50.48. The instream habitat (substrate) at this site has been impacted by fine sediment. The riparian zone vegetation is in the marginal to poor categories.

Previous to the 2012 Integrated Report (IR) there were no additional data beyond the 2008 IR where 2 VSCI surveys (2001 - 2002 all Spring) score an average of 52.8. This site was first surveyed on 7/26/00 as part of benthic TMDL special study in the Blackwater River Watershed. It was sampled in spring 2001 and 2002 along with the other impact sites in the North Fork of the Blackwater River. The benthic community was dominated by several pollution tolerant organisms including midge fly larvae (Chironomidae) which are tolerant of sediment and low dissolved oxygen. The 1999-2001 drought impacted the ecoregion reference stations at Green Creek and Pigg River resulting in a decrease in the benthic community scores. However, the historically impaired stations in the North Fork and the Blackwater did not appear to decrease with the reference site. Instead, some metrics (%Chironomidae, %Ephemeroptera) improved. It appears that less runoff from adjacent fields and pastures may have helped improve the benthic community scores during the drought.

4ABNR000.40- (Rt. 740 Bridge) Bio 'IM' 5 (2009-2011) VSCI surveys with an average score of 47.1 remain within the 2016 data window. Six (2007-2012) VSCI surveys scored an average of 49.5 within the 2014 data window. Six (2006-2010) VSCI surveys conducted within the 2012 data window produced an average score of 53.69. The 2010 IR reports an average VSCI score of 53.69 as well. Each cycle resulting in an impaired condition. Instream habitat (substrate) has been impacted by fine sediment. Riparian zone vegetation has been removed and stream banks eroded due to unrestricted cattle access to the stream. This region was affected by several drought years in earlier assessments. Less runoff of non-point source pollution during the low rainfall periods potentially resulted in an improvement in the benthic community. Additionally, recent installation of agricultural best management practices in the watershed may have improved water quality. The 2007 fall samples were replicate samples. The average score of the replicate samples was 61.53. This indicates an improvement from the Fall of 2006 survey. The 2008 IR reported 4 VSCI surveys (2001/2002-Spring & 2006). The average VSCI score was 47.4.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BNR01A00 / N.F. Blackwater River / North Fork Blackwater River mainstem from the Dillions Mill community downstream to the North Fork's confluence with the South Fork on the Blackwater River (RU20).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	3.21

Blackwater River, North Fork **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.21**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	Sediment Resuspension (Clean Sediment)	Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-04-BAC** **Blackwater River (Upper)**

Cause Location: Blackwater River from the confluence of the North and South Forks of the Blackwater River (Callaway Quad) on downstream to the Rt. 122 bridge crossing.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Bacteria Total Maximum Daily Load (TMDL) Studies and allocations are complete for the Upper, Middle and Lower Blackwater River drainages. These studies incorporate tributary streams that lie within the boundaries of watershed VAW-L08R and a portion of L10R. This Fact sheet addresses the Upper and Middle Blackwater River drainages.

Bacteria TMDL approvals from the U.S. EPA were obtained on 03/09/2001 for the Upper Blackwater River [Fed. ID 1887/9634], the Middle Blackwater on 12/04/2001 [Fed. IDs: 1887/1889/9633] and the Lower Blackwater River on 04/27/2001 [Fed. ID 1888]. Each of the aforementioned TMDLs were approved by the SWCB on 6/17/2004. Each TMDL found Wildlife is a major source of bacterial contamination via TMDL Bacteria Source Tracking (BST). The studies were formerly coded:
Upper Blackwater River - VAW-L08R-01-Green Creek and VAW-L08R-04-Blackwater.
Middle Blackwater - VAW-L08R-04 - Blackwater, VAW-L08R-05 - Little Creek, VAW-L08R-06 - Teels Creek).
Lower Blackwater River - VAW-L08R-04 - Blackwater

The Upper Blackwater River Bacteria Implementation Plan (IP) covering Upper and Middle Blackwater River TMDLs is complete (8/23/2001) and SWCB approved on 6/17/2004. The Lower Blackwater River Bacteria IP is complete and SWCB approved 9/27/2006. The Upper Blackwater River Bacteria IP encompasses the Upper Blackwater River drainage (L08R) to include the North and South Forks, Little and Teels Creeks. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills Creeks (L11R). The entirety of the approved studies with allocations and Implementation Plans can be viewed at http://www.deq.virginia.gov.

Blackwater River:
The Blackwater River impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. The impaired waters, initially 303(d) Listed in 1996, found abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform geometric mean (200 cfu/100 ml & 2 samples 30 day) and former (2002) instantaneous criterion of 1000 cfu/100 ml. This Fact Sheet addresses 28.27 miles of the Blackwater River mainstem bacteria impaired miles that total 39.48 (See L10R-01-BAC Fact Sheet for the remainder). Escherichia coli (E.coli) has replaced fecal coliform as the indicator bacteria as per [9 VAC 25-260-170. Bacteria; other waters].

Upper Blackwater River (15.71 miles):
4ABWR061.20- (Rt. 641 Bridge) The 2018 data window finds 21 of 36 samples exceed the 235 cfu/100 ml E.coli instantaneous criterion with a range of 400 to greater than 2,000 cfu/100 ml. Twenty-two of 35 E.coli samples exceed the WQS instantaneous criterion within the 2016 data window. Excessive values range from 350 to greater than 2000 cfu/100 ml. 2014 results yield 24 excursions of the escherichia coli (E.coli) 235 instantaneous criterion of 235 cfu/100 ml from 36 samples. Eighteen of 2012 E.coli data results produce 26 exceeding observations from a total 35 samples. Values in excess of the instantaneous criterion for both the 2012 and 2014 data windows range from 300 to greater than 2000 cfu/100 ml. E.coli exceed the instantaneous criterion in 23 of 35 samples with excursions ranging from 290 cfu/100 ml to greater than 2000 in 2010. 2008 results find E.coli exceed the instantaneous criterion in 20 of 31 samples with the same range of exceedance as 2010. E.coli exceed in 13 of 18 samples in 2006. The maximum exceedance is greater than 800 and the lowest 310 cfu/100 ml.

4ABWR054.81- (Rt. 734 Bridge) The 2018 and 2016 data windows both find 19 of 36 E.coli samples in excess of the instantaneous criterion. Excessive values range from 250 to 1,375 cfu/100 ml. 2014 results find 18 of 36 samples in excess of the 235 cfu/100 ml instantaneous criterion. Fourteen escherichia coli (E. coli) samples exceed the instantaneous criterion from a total of 24 samples in 2012. The 2010 and 2008 Integrated Reports (IR) find 6 E. coli samples exceed the 235 cfu/100 ml instantaneous criterion from a total of 9 samples. Exceeding values within each data window for 2008, 2010, 2012 and 2014 range from 250 to greater than 2,000 cfu/100 ml. Fourteen E. coli samples exceed the instantaneous criterion from a total of 20 collections within the 2006 data window. The exceeding values range from 250 to greater than 800 cfu/100 ml.

Middle Blackwater River (12.56 miles):
4ABWR045.80- (Rt. 812 Bridge) 16 of 35 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The 2018 IR exceedance range is from 288 to 3,255 cfu/100 ml. 2016 E.coli excessive values range from 250 to

greater than 2000 cfu/100 ml in 16 of 35 samples. Nineteen of 35 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2014 data window. The 2012 assessment finds E.coli exceed in 21 of 35 samples. Excursions range from 250 cfu/100 ml to greater than 2000 in each data window for 2008, 2010, 2012 and 2014. Data within the 2010 data window find E.coli exceed the instantaneous criterion in 20 of 36 samples. E.coli exceed in 15 of 33 samples in 2008. The 2006 IR records exceedances in 15 of 32 samples ranging from 260 cfu/100 ml to greater than 1000.

4ABWR032.32- (Rt. 122 Bridge at the stream gaging station) There are no additional data beyond the 2006 IR. This station will no longer be sampled due to safety concerns. 2006 IR reports E.coli exceed the 235 cfu/100 ml instantaneous criterion in 6 of 21 samples ranging from 490 to greater than 800 cfu/100 ml. E.coli samples within the 2008 data window find 1 of 10 in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR01B06 / Blackwater River / Blackwater River mainstem from downstream of the Rt. 921 Bridge ~ 1.3 miles at the confluence of an unnamed tributary downstream to the Rt. 122 Bridge (RU22).	4A	Escherichia coli (E. coli)	2004	L	2.96
VAW-L08R_BWR02A00 / Blackwater River / Blackwater River mainstem from the Town of Rocky Mount's water intake on the Blackwater River on downstream of the Rt. 921 Bridge approximately 1.3 miles at the confluence of an unnamed tributary (RU22).	4A	Escherichia coli (E. coli)	2004	L	4.59
VAW-L08R_BWR03A00 / Blackwater River / Blackwater River mainstem from the WQS designated public water supply (PWS) section 6f ending approximately 2 miles upstream of Little Creek's mouth on the Blackwater downstream to the Town of Rocky Mount's water intake on the Blackwater River (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.00
VAW-L08R_BWR04A00 / Blackwater River / Blackwater River mainstem from the mouth of Maple Branch (37°01'14" / 79°58'42") downstream to the WQS PWS section 6f ending approximately 2 miles upstream of Little Creek's mouth on the Blackwater River (37°02'25" / 79°54'51") (RU22).	4A	Escherichia coli (E. coli)	2004	L	10.10
VAW-L08R_BWR05A00 / Blackwater River / Blackwater River mainstem from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42") (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.61

Blackwater River (Upper) **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**28.26**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-04-BEN** **Blackwater River**

Cause Location: Blackwater River from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42").

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Upper Blackwater River General Standard Benthic Total Maximum Daily Load (TMDL) is U.S. EPA approved on 4/26/2004 [Phosphorus Fed ID 7789 & Sediment Fed ID 23397] and SWCB approved on 8/31/2004 (formerly VAW-L08R-04).

The original 1996 General Standard benthic impairment was based on Green Creek (Blue Ridge) as a reference site. The reference site for the Blackwater River mainstem stations is now in the Pigg River drainage (transitional Blue Ridge to Piedmont). The Pigg River reference site is believed to more closely reflect conditions in the Blackwater River mainstem.

The original 1996 303(d) Listed benthic impaired waters extended from the confluence of the North and South Forks of the Blackwater River on downstream of the Rt. 921 Bridge approximately 1.3 miles at the confluence of an unnamed tributary (25.24 miles). The impaired waters were shortened with the 2004 Integrated Report partial delisting based on improved conditions at downstream stations 4ABWR049.73 and 4ABWR045.80 through the former Rapid Bioassessment Protocol II (RBP II Method) benthic surveys. The US Environmental Protection Agency approved the partial delisting on January 27, 2004. The General Standard (Benthic) impairment is now spans 5.61 miles- Category 4A.

Station 4ABWR061.20 (Rt. 641 Bridge) Bio 'IM' - The 2016 and 2018 IRs report average Virginia Stream Condition Index (VSCI) scores of 53.5 and 48.5, respectively. The average VSCI score within the 2014 data window is 55.0 (2007-2011). The 2012 assessment finds 6 VSCI surveys (2006 spring & fall; 2007 fall and 2009 spring - 2010 spring & fall) with an average score of 57.14. Benthic community data within the 2010 data window reports 3 (2006 spring/fall and 2007 fall) VSCI surveys with an average score of 57.2. The 2008 assessment yields 3 (2002 spring & 2006 spring/fall) VSCI surveys with an average score of 54.0. Water quality in this reach is affected by NPS pollution from dairy farms from primarily the North Fork of the Blackwater River. Habitat degradation in the form of sediment deposition and riparian vegetation removal occurs at this sight as a result of agricultural practices. This area was affected by several drought years within the 2004 thru 2008 assessment periods. Less runoff of nonpoint source pollution during low rainfall periods potentially resulted in an improvement in the benthic community. Recent installation of agricultural best management practices in the watershed may contribute to improved water quality.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR05A00 / Blackwater River / Blackwater River mainstem from the confluence of the North and South Forks of the Blackwater downstream to the mouth of Maple Branch (37°01'14" / 79°58'42") (RU22).	4A	Benthic Macroinvertebrates Bioassessments	1996	L	5.61

Blackwater River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.61**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	Sediment Resuspension (Clean Sediment)	Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-05-BAC** **Little Creek and Little Creek, UT (XKF)**

Cause Location: Little Creek and an unnamed tributary (XKF) from just west of Helm off Rt. 693 extending downstream to the Little Creek mouth on the Blackwater River (Boones Mill Quad).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Little Creek bacteria impairment is a 1998 (2002) 303(d) Listing for fecal coliform bacteria (formerly VAW-L08R-05). An unnamed tributary (XKF) contributes to the impairment for a total of 8.60 bacteria impaired miles. The Middle Blackwater River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 12/04/2001 [Fed. IDs: 1887(1889)/9633] and SWCB approved 6/17/2004. The Upper Blackwater River Bacteria Implementation Plan is complete (8/23/2001) and SWCB approved on 6/17/2004. Little Creek (formerly VAW-L08R-05) is tributary to the Blackwater River and is included in the approved Middle Blackwater River Bacteria TMDL. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Upper Blackwater River Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL with allocations and the Implementation Plan can be viewed at http://www.deq.virginia.gov.

The Blackwater River bacteria impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. The impaired waters, initially 303(d) Listed in 1996, found abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform geometric mean (200 cfu/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Little Creek (7.85 miles):
4ALLE005.22 (Rt. 697 Bridge) 20of 36 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The range of 2018 IR excursions is 288 to greater than 2000 cfu/. 2016 data results in E.coli exceedances of the 235 cfu/10 ml instantaneous criterion in 22 of 36 samples. These excursions range from 250 cfu/10 ml to greater than 2000. The same range of exceedance occurs within the 2014 data window from 21 of 36 observations. The 2012 data window finds E.coli observations yield 25 of 36 samples in excess of the instantaneous criterion. Exceedances range from 250 to greater than 2000 cfu/100 ml. Twenty-two E.coli samples exceed the instantaneous criterion from a total of 33 collections within the 2010 data window. The exceeding values range from 350 to greater than 2000 cfu/100 ml. 2008 results reveal 20 E.coli samples exceed the instantaneous criterion from a total of 27 collections. The exceeding values range from 290 to greater than 2000 cfu/100 ml. In 2006 21 E.coli samples exceed the instantaneous criterion from a total of 26 samples. The exceeding values range from 280 to 1000 cfu/100 ml.

Little Creek, UT (XKF 1.04 miles):
4AXKF000.20- (Off Rt. 735) There are no additional data beyond the 2008 Integrated Report (IR). Five of 5 E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion; all are greater than 2000 cfu/100 ml. 2006 results find 2 of 2 E.coli samples exceed the instantaneous criterion; both at greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_LLE01A00 / Little Creek / Little Creek mainstem PWS section 6f from an unnamed tributary's mouth on Little Creek off Rt. 775 downstream to the Little Creek confluence with the Blackwater River (RU22).	4A	Escherichia coli (E. coli)	2004	L	1.89
VAW-L08R_LLE02A00 / Little Creek / Little Creek mainstem from the mouth of Teels Creek downstream to the PWS section 6f upstream end (RU22).	4A	Escherichia coli (E. coli)	2004	L	0.85
VAW-L08R_LLE03A00 / Little Creek / Little Creek mainstem headwaters west of the Helm community off Rt. 693 downstream to the mouth of Teels Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	5.11
VAW-L08R_XKF01A06 / Little Creek, UT (XKF) / Little Creek, UT (XKF) mainstem from its mouth on Little Creek upstream to its	4A	Escherichia coli (E. coli)	2006	L	1.04

Roanoke and Yadkin River Basins

headwaters (RU22).

Little Creek and Little Creek, UT (XKF)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.89**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-05-BEN** **Little Creek**

Cause Location: Little Creek mainstem extending from the confluence of an unnamed tributary (XKF) from just west of Helm off Rt. 693 on downstream to the Little Creek mouth on the Blackwater River (Boones Mill Quad).

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is not supported for 7.85 miles due to contravention of the General Standard for aquatic life (formerly VAW-L08R-05). The waters are categorized 5A for the General Standard (Benthic) impairment. The benthic impairment is not addressed by the EPA approved Upper Blackwater River Benthic TMDL Study. The General Standard (Benthic) impairment is a 2002 initial 303(d) Listing.

4ALLE005.22- (Rt. 697 Bridge) There are no additional data beyond the 2014 Integrated Report (IR) where 4 (2010-2011) Virginia Stream Condition Index (VSCI) scores yield an average score of 45.2. Two VSCI surveys (2010) produce an average score of 48.98 within the 2012 data window. Previous assessments (2008 and 2010) found impairment from 2 spring VSCI surveys (2001 & 2002) producing an average score of 32.2. The assemblages collected at this site indicate excessive organic matter, excessive nutrients, and embedded substrates. Habitat surveys also indicate impacts from sediment deposition removal of riparian buffers. Ambient chemical data indicates NPS impacts from bacteria and nutrients. A TMDL study indicating sediment and phosphorus as the stressors in the Upper Blackwater and North Fork Blackwater Rivers was approved by the EPA in 2004. Currently, the Soil and Water Conservation District is implementing agricultural best management practices in the watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_LLE01A00 / Little Creek / Little Creek mainstem PWS section 6f from an unnamed tributary's mouth on Little Creek off Rt. 775 downstream to the Little Creek confluence with the Blackwater River (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	M	1.89
VAW-L08R_LLE02A00 / Little Creek / Little Creek mainstem from the mouth of Teels Creek downstream to the PWS section 6f upstream end (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	M	0.85
VAW-L08R_LLE03A00 / Little Creek / Little Creek mainstem headwaters west of the Helm community off Rt. 693 downstream to the mouth of Teels Creek (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	M	5.11

Little Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.85**

Sources:

- Livestock (Grazing or Feeding Operations)
- Loss of Riparian Habitat
- Sediment Resuspension (Clean Sediment)
- Streambank Modifications/Destabilization
- Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-06-BAC** **Teels Creek**

Cause Location: Teel Creek mainstem perennial headwaters downstream to its confluence with Little Creek (Boones Mill Quad).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Middle Blackwater River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 12/04/2001 [Fed. IDs: 1887/1889/9633] and SWCB approval on 6/17/2004. The SWCB approved the Bacteria Implementation Plan on 6/17/2004. The Teels Creek bacteria impairment is a 4.59 mile 1998 (2002) 303(d) Listing for fecal coliform (FC) bacteria (formerly VAW-L08R-06). The Upper Blackwater River Bacteria Implementation Plan is complete (8/23/2001) and SWCB approved on 6/17/2004. Teels Creek is tributary to Little Creek and then onto the Blackwater River and is included in this approved Middle Blackwater River bacteria TMDL Watershed. The TMDL identified Wildlife as a major source based on Bacteria Source Tracking (BST). The Bacteria Implementation Plan encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The entirety of the approved TMDL with allocations and Implementation Plans can be viewed at http://www.deq.virginia.gov.

The Blackwater River bacteria impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform bacteria sample collections. The 1996 303(d) Listed Blackwater River waters found abundant fecal coliform bacteria counts failed to support the Recreational Use by exceedances of both the former fecal coliform geometric mean (200 cfu/100 ml & 2 samples/calendar month) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) now replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ATEL001.02- (Rt. 697 Bridge) 17 of 36 and 15of 36 E.coli samples exceed the 235 cfu/100 ml WQS instantaneous criterion during the 2018 and 2016 data windows, respectively. The 2018 exceedance range is 250 to 1553 cfu/100 ml. The 2016 IR range of exceeding values was from 250 to 1525 cfu/100 ml. This same range of exceedance is found within the 2014 data window from 15 of 35 samples. 2012 E. coli data find 17 of 35 samples exceed the instantaneous criterion ranging from 250 cfu/100 ml to 1400. E. coli exceed the 235 cfu/100 ml instantaneous criterion in 5 of 21 samples in 2010 ranging from 280 cfu/100 ml to 1400. The 2008 Integrated Report (IR) finds E. coli exceeds the instantaneous criterion in 17 of 27 samples with a range from 250 cfu/100 ml to 1400. In 2006 E. coli exceedances are 19 of 26 samples. The maximum exceedance is greater than 800 and the lowest 250 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_TEL01A00 / Teels Creek / Teels Creek mainstem perennial headwaters downstream to its confluence with Little Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	4.76

Teels Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.76**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-06-BEN** **Teels Creek**

Cause Location: Teel Creek mainstem perennial headwaters downstream to its confluence with Little Creek (Boones Mill Quad).

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is not supported for 4.76 miles due to contravention of the General Standard for aquatic life (formerly VAW-L08R-06). The waters are categorized 5A for the 2002 initially 303(d) Listed General Standard (Benthic) impairment. The General Standard (benthic) impairment is not addressed in the EPA approved Upper Blackwater River Benthic TMDL Study.

4ATEL001.02- (Rt. 697 Bridge) Bio 'IM' - There are no additional data beyond the 2014 Integrated Report (IR) where 4 (2010-2011) Virginia Stream Condition Index (VSCI) surveys yield an average score of 58.3. The 2012 assessment reports 2 2010 VSCI surveys with an average score of 57.33. The instream habitat (substrate) at this site has been impacted by fine sediment. The riparian zone vegetation is reduced and stream banks are eroded as a result. Currently, the Soil and Water Conservation District is implementing agricultural best management practices in the watershed for the Implementation Plan of the 2004 Bacteria TMDL. The 2008 and 2010 assessments report a single 2002 VSCI survey scoring 60.2. Although the VSCI score in 2002 was above the 60.0 threshold score for non-impairment, previous surveys indicated impairment. The community in spring 2002 had approximately 50% pollution tolerant organisms. The assemblages collected at this site indicated excessive organic matter, and embedded substrates. Habitat surveys also indicate impacts from sediment deposition, eroded banks and removal of riparian buffers.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_TEL01A00 / Teels Creek / Teels Creek mainstem perennial headwaters downstream to its confluence with Little Creek (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2002	M	4.76

Teels Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.76**

Sources:

- Livestock (Grazing or Feeding Operations)
- Loss of Riparian Habitat
- Sediment Resuspension (Clean Sediment)
- Streambank Modifications/Destabilization
- Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-07-BAC** **Buck Run**

Cause Location: Buck Run from its confluence on Little Creek upstream to its headwaters.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2014 initial Listing of these waters are a result of a 58% failure rate to meet the 235 cfu/10 ml Water Quality Standard instantaneous criterion. These waters are nested within the Middle Blackwater River Bacteria TMDL Study U.S. EPA approved on 12/04/2001. Fed. ID 1887/1889/9633. SWCB approved 6/17/2004. Bacteria Implementation Plan SWCB approved 6/17/2004.

4ABCE001.32 (Above Rt. 731 Bridge) 7 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/10 ml instantaneous criterion in 2014. Exceedances range from 250 to 1100 cfu/100 ml. There are no additional data within the 2016 or 2018 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BCE01A08 / Buck Run / Buck Run from its confluence with Little Creek upstream to its headwaters (RU22).	4A	Escherichia coli (E. coli)	2014	L	3.77

Buck Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.77**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L08R-07-BEN** **Buck Run**

Cause Location: Buck Run from its confluence on Little Creek upstream to its headwaters.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The benthic community is impaired for 3.77 miles for this 2008 303(d) Listing.

4ABCE001.32 (Above Rt. 731 Bridge) Bio 'IM' There are no additional data beyond the 2014 Integrated Report (IR) where 4 (2010-2011) Virginia Stream Condition Index (VSCI) surveys yield an average score of 35.2. The instream habitat (substrate) at this site has been impacted by fine sediment. The immediate riparian zone vegetation has been reduced and stream banks are eroded due to reduced vegetation. Runoff from this type of landuse affects water quality by adding sediment, nutrients, and bacteria to the stream.

4ABCE000.87- (Downstream of Rt. 731; end of Twin Hollow Lane) Bio 'IM' There are no additional data beyond the 2010 IR. Four 2006-2007 VSCI surveys with an average score of 35.0. Two remaining 2007 VSCI surveys score 29.8 on average within the 2014 data window. Located in a small second order stream in a watershed influenced by agricultural land use (dairy farms, corn fields). The watershed upstream of this station is dominated by agricultural land cover (67%). The instream habitat was affected by sediment deposition and thick periphyton growth on rocky substrates. Bank vegetation and riparian zones are impacted by the land use. Water chemistry results indicate elevated nutrients relative to other Probabilistic stations in the region.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BCE01A08 / Buck Run / Buck Run from its confluence with Little Creek upstream to its headwaters (RU22).	5A	Benthic Macroinvertebrates Bioassessments	2008	M	3.77

Buck Run **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.77**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Sediment Resuspension (Clean Sediment)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L09R-01-BAC** **Maggodee Creek**

Cause Location: The upstream limit is Maggodee Creek mainstem waters from the North and South Forks confluence downstream to the mouth of Maggodee Creek on the Blackwater River.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Maggodee Creek Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 4/27/2001 [Fed. IDs: 1562/9475] and SWCB approval on 6/17/2004 (formerly VAW-L09R-01) for the former 20.58 mile impairment. A total of 16.15 miles remained impaired after the delisting of VAW-L09R_MEE05A00 in 2008 for the Recreational Use. The 2008 Integrated Report (IR) results from station 4AMEE021.13 (Rt. 613 Bridge Below Conflu./w Fork) found no excursions of the E.coli 235 cfu/100 ml instantaneous criterion from 12 samples. This portion (4.43 miles) was delisted (U.S. EPA approved 12/18/2008) with the 2008 IR. This portion returns with the 2012 assessment as described below for 4.43 miles returning the impaired mileage to 20.58 miles.

The TMDL Study incorporates tributary streams that lie within the boundaries of watershed VAW-L09R. The Lower Blackwater River Bacteria Implementation Plan (IP) received SWCB approval on 9/27/2006. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study with allocations can be viewed at http://www.deq.virginia.gov.

The bacteria impairment is a 1996 303(d) Listing based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform (FC) bacteria counts failed to support the Recreational Use by exceedances of both the former fecal coliform geometric mean (200 n/100 ml) & 2 samples/month) and the former (2002) instantaneous criterion of 1000 n/100 ml. Escherichia coli (E.coli) now replaces fecal coliform bacteria as the indicator per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AMEE021.13 (Rt. 613 Bridge Below Conflu./w Fork) This station was delisted in 2008 but relisted with the 2012 assessment. There are no additional data beyond the 2014 IR. 2014 data report 6 of 35 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion. Exceedances range from 275 cfu/100 ml to greater than 2000. The remaining data within the 2016 IR are 5 exceedances from 23 samples and the same range of exceedance as in 2014. 2012 data yield 4 of 26 E.coli samples exceeding the instantaneous criterion with a range from 300 cfu/100 ml to greater than 2000. The 2010 assessment reported only 1 of 24 E.coli samples exceeding the instantaneous criterion at 450 cfu/100 ml and the 2008 assessment no exceeding values from 12 samples resulting in full support of the Recreational Use and delisting this portion (VAW-L09R_MEE05A00).

4AMEE016.75- (Rt. 684 Winding Way Road Bridge) This station established in 2014 is a Probabilistic Ambient site. Calendar year 2014 finds 6 E.coli collections do not exceed the WQS instantaneous criterion. 4AMEE016.75 replaces 4AMEE017.24 the original 2014 probabilistic site. There is no additional data beyond the 2014 window.

4AMEE009.86- (Rt. 635 Bridge) There is no additional data beyond the 2014 assessment. Nine of 24 remaining observations are within the 2016 data window exceeding the instantaneous criterion and 3 of 12 within the 2018 data window. The range of exceedance is the same as 2014. 2014 data yield 14 of 36 E.coli observations in excess of the 235 cfu/100 ml instantaneous criterion. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. Thirteen of 27 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion in 2012. Exceedances range from 250 cfu/10 ml to greater than 2000. 2010 E. coli samples exceed the instantaneous criterion in 10 of 24 observations ranging from 250 to greater than 800 cfu/100 ml. E.coli exceeds the instantaneous criterion in 7 of 18 samples ranging from 250 to greater than 800 cfu/100 ml in 2008.

4AMEE007.85- (Rt. 687 Bridge above Mollie Br.) There are no additional data beyond the 2006 IR where E.coli exceed the WQS instantaneous criterion in 8 of 17 observations. The range of exceedance is from 240 to greater than 800 cfu/100 ml. Observations within the 2008 data window are 2 of 6 excursions of the instantaneous criterion.

4AMEE004.90- (Rt. 697 Bridge) 21 E.coli exceedances occur during the 2018 data window out of 36 total samples. The exceedance range is 250 to 5475 cfu/100 ml. The 2016 data window produces 18 E.coli excursions of the 235 cfu/100 ml instantaneous criterion from 35 samples. The range of exceeding values is 250 to greater than 2000 cfu/100 ml. Fifteen of 35 E.coli samples exceed the instantaneous criterion in 2014 with the same range of exceedance as 2016. The 2012 assessment finds E.coli exceeds the instantaneous criterion in 16 of 35 samples. Values in excess of the criterion range from 280 cfu/10 ml to greater than 2000. E.coli exceed the instantaneous criterion in 16 of 33 observations within the 2010 data window. The range of exceedance is from 240 cfu/100 ml to greater than 2000. 2008 data reveal E.coli exceedances in 16 of 27

observations. The range of exceedance is from 240 cfu/100 ml to greater than 800. Sixteen of 26 observations exceed in 2006 with an exceedance range of 310 cfu/100 ml to greater than 800.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE01A00 / Maggodee Creek / Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River (RU23).	4A	Escherichia coli (E. coli)	2004	L	7.47
VAW-L09R_MEE02A00 / Maggodee Creek / Maggodee Creek mainstem from just above Piedmont Mill downstream to Mill Dam (RU23).	4A	Escherichia coli (E. coli)	2004	L	1.67
VAW-L09R_MEE03A00 / Maggodee Creek / Maggodee Creek mainstem waters downstream of Boones Mill STP to just above Piedmont Mill (RU23).	4A	Escherichia coli (E. coli)	2004	L	6.02
VAW-L09R_MEE04A00 / Maggodee Creek / Maggodee Creek mainstem waters from the Boones Mill Town area downstream to Boones Mill STP (RU23) .	4A	Escherichia coli (E. coli)	2006	L	0.99
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	4A	Escherichia coli (E. coli)	2012	L	4.43

Maggodee Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**20.58**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L09R-01-BEN** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Non-support of the Aquatic Life Use is originally based (2002- formerly VAW-L09R-01) on Rapid Bioassessment Protocol II surveys (RBP II) conducted at 4AMEE002.38. The station is assessed using the Virginia Stream Condition Index (VSCI). The 7.47 mile 2002 303(d) Listed General Standard (Benthic) impairment remains.

4AMEE002.38- Bio 'IM' There are no additional data beyond the 2014 Integrated Report (IR). The 2014 data window yields 4 (2010-2011) VSCI surveys with an average score of 57.4. Two 2010 VSCI surveys with an average score of 52.1 for the 2012 assessment. The instream habitat (substrate) at this site has been impacted by fine sediment. The immediate riparian zone vegetation has been reduced and stream banks are eroded due to reduced vegetation. Runoff from this type of landuse affects water quality by adding sediment, nutrients, and bacteria to the stream.

4AMEE000.70- (Below Rt. 122 Bridge) Bio 'IM' There are no additional data beyond the 2008 IR. One 2002 Virginia Stream Condition Index (VSCI) survey scoring 47.2. Sediment deposition from agricultural runoff appears to have a large impact on the benthic community. Habitat scores for embeddedness and sediment deposition were the lowest of the 10 habitat parameters. Both parameters fell in the marginal category. In 2006 3 RBP II surveys, outside the 2008 data window, produce an average score of 44.9 at this site. Two surveys in the spring result in scores of 30.43 (2000) and 52.17 (2002). The fall 2000 survey score is 52.17.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE01A00 / Maggodee Creek / Maggodee Creek mainstem from Piedmont Mill Dam downstream to the mouth of Maggodee Creek on the Blackwater River (RU23).	5A	Benthic Macroinvertebrates Bioassessments	2002	M	7.47

Maggodee Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.47**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	Sediment Resuspension (Clean Sediment)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L09R-01-TEMP** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The Aquatic Life Use is not supported for 4.43 miles due to temperature exceedances for this stockable trout water (21°C).

4AMEE021.13- (Rt. 613 Bridge Below Conflu./w Fork) There are no additional data beyond the 2014 IR where 7 of 36 temperature measurements exceed the stockable trout water criterion of 21°C within the 2014 data window. Temperature exceedances range from 21.2 to 25.2°C and occur in the summer months. Five of 23 measurements exceed within the 2016 data window. The 2012 assessment reports 6 of 27 temperature measurements exceed the stockable trout water criterion ranging from 21.4 to 25.2°C. Four of 24 temperature measurements exceed the criterion in 2010. Temperature exceedances occur at 21.1°C on 8/5/2004; 21.4°C on 6/30/2005; 25.2°C on 8/01/2007; and 23.4°C on 6/11/2008. The 2008 assessment reports 1 temperature exceedance at 21.1°C on 8/5/2004 and a second at 21.4°C on 6/30/2005 from 12 measurements. These excursions are in excess of the 21°C stockable trout water criterion causing the initial Listing of these waters in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	5C	Temperature	2008	L	4.43

Maggodee Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**4.43**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L09R-02-BAC** **Mollie Branch**

Cause Location: The impairment begins in the headwaters of Mollie Branch and extends to its mouth on Maggodee Creek (Boones Mill and Redwood Quads).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Maggodee Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 4/27/2001 [Fed. ID 1562/9475] and SWCB approved on 6/17/2004 (formerly VAW-L09R-02). Originally 303(d) Listed in 1998 (2002) for FC. The study incorporates tributary streams that lie within the boundaries of watershed VAW-L09R. The Lower Blackwater River Bacteria Implementation Plan (IP) is complete with SWCB approval on 9/27/2006. The Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study can be viewed at http://www.deq.virginia.gov.

The Mollie Branch bacteria impairment is recorded as a 2.74 mile 1998 303(d) Listing for fecal coliform (FC) bacteria based on a 319 funded special study (SS 925102) and ambient sample collections. Actual listing occurred with the 2002 Assessment Cycle. Abundant fecal coliform bacteria counts failed to support the recreational use by exceedances of both the former fecal coliform geometric mean (200 n/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. Escherichia coli (E.coli) replaces fecal coliform bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AMHA000.01 (Off Rt. 687 at confluence/w Maggodee) There are no additional data beyond the 2004/2006 data windows where E.coli exceedances of the 235 cfu/100 ml instantaneous criterion are found in 10 of 16 samples. The range of excursions is 370 cfu/100 ml to greater than 2000. E.coli observations within the 2008 data window find 3 of 6 E.coli excursions of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MHA01A00 / Mollie Branch / Mollie Branch mainstem from an unnamed tributary upstream of Piedmont Mill downstream to Mollie Branch mouth on Maggodee Creek (RU23).	4A	Escherichia coli (E. coli)	2004	L	0.91
VAW-L09R_MHA02A00 / Mollie Branch / Mollie Branch mainstem perennial headwaters downstream to an unnamed tributary above Piedmont Mill (RU23).	4A	Escherichia coli (E. coli)	2006	L	1.83

Mollie Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.74**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L09R-02-BEN** **Maggodee Creek**

Cause Location: Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to the Boones Mill STP outfall (RU23).

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2016 initial 5.42 mile General Standard - Benthic impairment of the Aquatic Life Use is the result of macroinvertebrate surveys resulting in an impaired status.

4AMEE017.24 (Upstream of Rt. 220 near Boones Mill) Bio 'IM' There are no additional data beyond the 2016 data window where 2 2014 Virginia Stream Condition Index (VSCI) surveys scoring spring 46.8 and fall 57.9 indicating impairment. The average VSCI score was 52.4 indicating a benthic community lacking in diversity and dominated by pollution-tolerant organisms. Some instream habitat scores were good; however, those related to sediment deposition were low. Bank erosion and riparian zone width scores were also low. This section of Maggodee Creek appears to be impacted by runoff from Rt. 220 and Rt. 613 upstream of the sampling site as well as agricultural land in the headwaters.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L09R_MEE04A00 / Maggodee Creek / Maggodee Creek mainstem waters from the Boones Mill Town area downstream to Boones Mill STP (RU23) .	5A	Benthic Macroinvertebrates Bioassessments	2016	L	0.99
VAW-L09R_MEE05A00 / Maggodee Creek / Maggodee Creek mainstem waters from the confluence of North and South Forks of Maggodee Creek downstream to just below the Rt. 220 crossing at Boones Mill (RU23).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.43

Maggodee Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.42**

Sources:

Agriculture	Clean Sediments	Livestock (Grazing or Feeding Operations)	Non-Point Source
Sediment Resuspension (Clean Sediment)	Urban Runoff/Storm Sewers		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L10L-01-HG** **Blackwater River**

Cause Location: Blackwater River mainstem waters from the Maggodee Creek confluence downstream ending at 37°03'03" / 79°43'49" located ~1.7 miles upstream of the 4H Camp in Smith Mountain Lake.

City / County: Franklin Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) and Virginia Department of Health (VDH) level of concern of 0.5 ppm are found in fish tissue causing impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. Please visit http://www.deq.virginia.gov/ for more information about mercury contamination and http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/ for VDH Advisories or Bans.

4ABWR019.75 (Rt. 834 Bridge - Brooks Mill Bridge)- 2006 fish tissue collections find from a total of 12 fish, a flathead catfish and a largemouth bass whose tissue values are in excess of the WQS based tissue value (TV) of 0.3 ppm for mercury; flathead catfish (1 fish 96.0 cm) at 0.477 ppm and largemouth base (1 fish 46.5 cm) at 0.514.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10L_BWR03A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from ~1.6 miles downstream of the Brooks Mill Bridge on downstream to the 4H Camp (RU24).	5A	Mercury in Fish Tissue	2010	L	351.97
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	5A	Mercury in Fish Tissue	2010	L	114.22
VAW-L10L_PCP01A10 / Smith Mtn. Lake (Poplar Camp Creek) / Poplar Camp Creek from its confluence with the Blackwater River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	58.59
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	5A	Mercury in Fish Tissue	2010	L	0.39
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	5A	Mercury in Fish Tissue	2010	L	5.20
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	5A	Mercury in Fish Tissue	2010	L	2.62

Blackwater River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**524.78**	**8.21**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L10L-05-BAC** **Smith Mountain Lake - Crazy Horse Camp Ground**

Cause Location: Crazy Horse Camp Ground Beach and Marina area.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Crazy Horse Camp Ground and Marina is located on an unnamed tributary to the Blackwater River. The VDH issued a beach closure at the facility for one week each in June and July 2000 noting a recurrence of bacterial contamination is likely. The facility is located off Route 601 at 37°04'04"/79°38'54" on the Moneta SW Quad. This is a 2004 Listing (formerly VAW-L12LR-05 & L12L-05-BAC). There are no additional data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10L_XUV01A10 / Smith Mtn. Lake - Crazy Horse Camp Ground and Marinia / Off Route 601, Franklin County, on backwaters of an unnamed tributary (XUV) to Blackwater River in Smith Mountain Lake 37°04'04" / 79°38'54".	5A	Escherichia coli (E. coli)	2004	L	30.27

Smith Mountain Lake - Crazy Horse Camp Ground **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**30.27**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L10R-01-BAC** **Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)**

Cause Location: Blackwater River from the Rt. 122 Bridge Crossing on downstream into Smith Mountain Lake (Redwood Quad). Downstream ending at ~1.6 miles downstream of the Brooks Mill Bridge. And Foul Ground Creek from its headwaters (37°01'45" / 79°47'28") downstream to its inundation on the Blackwater River in Smith Mountain Lake (37°03'03" / 79°45'26").

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A Fecal Coliform / 4A

The Bacteria Total Maximum Daily Load (TMDL) Studies are complete for the Upper, Middle and Lower Blackwater River drainages. These studies incorporate tributary streams that lie within the boundaries of VAW-L08R, L09R, L10R and L11R. This Fact sheet addresses the Lower Blackwater River drainage.

TMDL approvals from the U.S. EPA were obtained on 03/09/2001 for the Upper Blackwater River [Fed. ID 1887/9634], the Middle on 12/04/2001 [Fed. ID 1887(1889)/9633] and the Lower on 04/27/2001 [Fed. ID 1888]. Each of the aforementioned TMDLs were approved by the SWCB on 6/17/2004. Each TMDL found Wildlife is a major source of bacterial contamination via Bacteria Source Tracking (BST).

The Upper Blackwater River Bacteria Implementation Plan (IP) covering Upper and Middle Blackwater River TMDL Studies is complete (8/23/2001) and SWCB approved on 6/17/2004. The Lower Blackwater River Bacteria IP is complete with SWCB approval on 9/27/2006. The Upper Blackwater River Bacteria IP encompasses the Upper Blackwater River (L08R), the North and South Forks, Little and Teels Creeks. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L12L), Maggodee (L09R) and Gills Creeks (L11R). The entirety of the approved TMDLs with allocations and Implementation Plans can be viewed at http://www.deq.virginia.gov.

352.23 acres in Smith Mountain Lake are delisted with the 2014 Integrated Report (IR). Escherichia coli (E.coli)) excursions of the 235 cfu/100 ml instantaneous criterion are 2 of 38 observations at station 4ABWR017.42 (Smith Mtn. Lake- Franklin Co.). A 5.3% exceedance rate. 114.22 acres remain impaired for the Recreational Use.

Blackwater River:
The Blackwater River Impairment is originally based on a 319 funded special study (SS 925102) data and ambient fecal coliform (FC) bacteria sample collections. The impaired waters, initially 303(d) Listed in 1996, found abundant fecal coliform (FC) bacteria counts failed to support the recreational use by exceedances of both the former geometric mean (200 cfu/100 ml) and former (2002) instantaneous criterion of 1000 cfu/100 ml. The Blackwater River mainstem bacteria impaired miles total 39.48 (See L08R-04-BAC Fact Sheet). Escherichia coli (E.coli) has replaced fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Lower Blackwater River (11.21 miles):
4ABWR032.32- (Rt. 122 Bridge at the stream gaging station) There are no additional data beyond the 2006 Integrated Report (IR). This station will no longer be sampled due to safety concerns. The 2006 IR reports E.coli exceed the 235 cfu/100 ml instantaneous criterion in 6 of 21 samples ranging from 490 to greater than 800 cfu/100 ml. E.coli samples within the 2008 data window find 1 of 10 in excess of the instantaneous criterion.

4ABWR019.75- (Rt. 834 Bridge or Brooks Mill Bridge) E.coli exceeds the instantaneous criterion of 235 cfu/100 ml in 11 of 36 samples within the 2016 data window and 12 of 36 samples within the 2018 data window. Exceeding values range from 320 cfu/100 ml to 2,613.
2014 data find 9 of 36 E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion. Exceedances range from 280 cfu/100 ml to 2000. The 2012 data window finds E.coli exceeds the instantaneous criterion in 7 of 36 samples. Exceeding values range from 280 cfu/100 ml to greater than 2000. The 2010 assessment finds E.coli exceeds the instantaneous criterion of 235 cfu/100 ml in 6 of 33 samples with the same range of exceedance as 2012. 2008 E.coli exceeds the instantaneous criterion in 4 of 21 samples. The exceeding range is from 420 cfu/100 ml to greater than 2000. 2006 results are exceedances of the instantaneous criterion in 2 of 9 samples. The exceeding values are 420 and 620 cfu/100 ml.

Foul Ground Creek (4.04 miles):
A 2004 addition to the original bacteria impairment is a 4.04 mile section on Foul Ground Creek. [Fed. ID 1888]. The

impairment begins at the Foul Ground Creek headwaters (37°01'45"/79°47'28") and extends downstream to its inundation on the Blackwater River in Smith Mountain Lake (37°03'03"/79°45'26").

4AFGC002.52- (Rt. 834 Bridge) There are no additional data beyond the 2004 IR where 5 of 11 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Exceeding values range from 500 cfu/100 ml to greater than 8000. FC results produce no exceedances from 2 samples within the 2008 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L08R_BWR01A00 / Blackwater River / Blackwater River mainstem from the Rt. 122 Bridge downstream to the mouth of Maggodee Creek (RU22).	4A	Escherichia coli (E. coli)	2004	L	3.02
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	4A	Escherichia coli (E. coli)	2006	L	114.22
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	4A	Escherichia coli (E. coli)	2006	L	0.39
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	4A	Escherichia coli (E. coli)	2006	L	5.20
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	4A	Escherichia coli (E. coli)	2006	L	2.62

Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**114.22**	**11.23**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10R_FGC01A00 / Foul Ground Creek / Foul Ground Creek mainstem from its inundation at Smith Mountain Lake on the Blackwater River upstream to its headwaters. The segment is within the WQS designated public water supply (PWS) section 6i (RU24).	4A	Fecal Coliform	2004	L	4.19

Blackwater River (Lower), Foul Ground Creek and Smith Mountain Lake (Blackwater Riverine)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Recreation			
Fecal Coliform - Total Impaired Size by Water Type:			**4.19**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L10R-01-BEN** **Blackwater River**

Cause Location: Blackwater River mainstem from the mouth of Maggodee Creek downstream to the backwaters of Smith Mountain Lake (L10R) at the 795 ft pool elevation.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

An upstream portion of the Blackwater River General Standard - Benthic impairment is delisted based on Virginia Stream Condition Index (VSCI) survey data from station 4ABWR029.51 for 5.99 miles. The waters downstream of Maggodee Creek (8.19 miles) remain impaired until sufficient benthic survey data can confirm support or non-support of the Aquatic Life Use in this downstream reach. Habitat impacts include excessive sediment deposition. Water quality in this reach is affected by NPS pollution.

4ABWR029.51- (Downstream of Rt. 122 Bridge) Both the 2010 and 2008 assessments find benthic impairment from 2 2004 Virginia Stream Condition Index (VSCI) surveys scoring 60.7 spring and 50.1 fall. The average VSCI score is 55.4. Subsequent surveys in 2011 and 2012 find 3 non-impaired and 1 impaired score but averaging 69.4. The station is located upstream of Maggodee Creek with no additional benthic survey data downstream of Maggodee Creek. A partial delisting (5.99 miles) is a result of these additional surveys. 2011 scores are: spring 69.4; fall 73.6. And 2012 scores are: spring 58.6; fall 74.8.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	M	0.39
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	M	5.20
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	5A	Benthic Macroinvertebrates Bioassessments	2008	M	2.62

Blackwater River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.21**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	Sediment Resuspension (Clean Sediment)	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L11R-01-BAC** **Gills Creek**

Cause Location: Gills Creek mainstem from west of the Rt. 684 Bridge in Franklin County (Garden City Quad) on downstream into the inundated Gills Creek backwaters of Smith Mountain Lake near the end of Rt. 665. (Moneta S.W. Quad).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study received U.S. EPA approval on 5/31/2002 [Fed ID: 9472/18765] and SWCB approval on 6/17/2004 (formerly VAW-L11R-01). The TMDL Study incorporates tributary streams that lie within the boundaries of watershed VAW-L11R. The Lower Blackwater River Bacteria Implementation Plan (IP) is approved by the SWCB on 9/27/2006. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study with allocations can be viewed at http://www.deq.virginia.gov.

The bacteria impairment is a 1996 303(d) Listing based on a 319 funded special study (SS 925102) and ambient sample collections. Abundant fecal coliform (FC) bacteria counts failed to support the recreational use by exceedances of both the former geometric mean (200 cfu/100 ml) and the former (2002) instantaneous criterion (1000 cfu/100 ml). The Recreational Use impairment remains for 20.46 miles and 197.42 acres in the backwaters of Smith Mountain Lake.

4AGIL023.22- (Rt. 657 Bridge) There are no additional data beyond the 2012 Integrated Report (IR) where 11 of 23 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion with exceedances ranging from 280 to greater than 2000 cfu/100 ml. Four of 11 E.coli observations exceed the instantaneous criterion in 2010. The exceeding values range from 580 cfu/100 ml to 1400. The 2006 Integrated Report (IR) reports 3 of 20 FC observations exceed the former 400 cfu/100 ml instantaneous criterion. The exceeding values range from 500 cfu/100 ml to greater than 8000. The 2004 IR records 6 of 27 fecal coliform bacteria sample counts exceed the former instantaneous criterion.

4AGIL008.30- (Rt. 834 Bridge near Booker T. Washington National Park) There are no additional data beyond the 2012 (IR). The 2012 assessment finds escherichia coli (E.coli) exceed the WQS instantaneous criterion of 235 cfu/100 ml in 12 of 24 samples. Exceedances range from 300 cfu/100 ml to greater than 2000. 2010 data reveal E.coli bacteria exceed the WQS instantaneous criterion in 3 of 15 samples. Exceedances range from 350 cfu/100 ml to 1400. The 2006 IR reports 8 of 18 E.coli samples exceed the instantaneous criterion. Exceeding values range from 250 cfu/100 ml to greater than 800. E.coli results within the 2008 data window find 1 of 6 samples in excess of the instantaneous criterion as there are no additional beyond the 2006 assessment.

4AGIL004.46 (Rt. 688 Bridge)- 15of 30 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The 2016 IR finds 18 of 36 E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion. Excessive values range from 250 cfu/100 ml to 24,196. Sixteen of 36 E.coli observations exceed the instantaneous criterion within the 2014 data window. Excessive values range from 250 to greater than 2000 cfu/100 ml. Eleven of 24 E.coli observations exceed the instantaneous criterion in 2012. Excessive values range from 250 to greater than 2000 cfu/100 ml. 2010 assessment data find 3 of 12 E.coli observations exceed the 235 cfu/100 ml instantaneous criterion. Excessive values range from 500 to 1400 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11L_GIL02A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from the end of Route 665 upstream to its backwaters (RU25).	4A	Escherichia coli (E. coli)	2004	L	197.42
VAW-L11R_GIL01A00 / Gills Creek / Gills Creek mainstem from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Smith Mountain Lake, eg. waters within 5 miles of the 795 ft. pool elevation of Smith Mtn. Lake (RU25).	4A	Escherichia coli (E. coli)	2004	L	4.85
VAW-L11R_GIL02A02 / Gills Creek / Gills Creek mainstem from an unnamed tributary just north of the Rt. 122 crossing downstream to the WQS designated public water supply (PWS) section 6i. These waters are not within 5 miles upstream of the 795 ft. pool elevation of	4A	Escherichia coli (E. coli)	2004	L	4.39

Roanoke and Yadkin River Basins

Smith Mtn. Lake (RU25).

VAW-L11R_GIL03A02 / Gills Creek / Gills Creek mainstem perennial headwaters downstream to an unnamed tributary just north of the Rt. 122 crossing of Gills Creek. These waters are not within 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU25).	4A	Escherichia coli (E. coli)	2010	L	11.22

Gills Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**197.42**	**20.46**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L11R-02-BAC** **North Fork Gills Creek**

Cause Location: North Fork Gills Creek and tributaries from its mouth on Gills Creek upstream to its headwaters (RU25).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Gills Creek Bacteria Total Maximum Daily Load (TMDL) Study received U.S. EPA approval on 5/31/2002 [Fed ID: 9472/18765] and SWCB approval on 6/17/2004 (formerly VAW-L11R-01). The TMDL Study incorporates tributary streams that lie within the boundaries of watershed VAW-L11R. The Lower Blackwater River Bacteria Implementation Plan (IP) is approved by the SWCB on 9/27/2006. The Lower Blackwater River Bacteria IP encompasses the lower Blackwater River (L10R) including the backwaters of Smith Mtn. Lake (L10L), Maggodee (L09R) and Gills (L11R) Creeks. The entirety of the approved study with allocations can be viewed at http://www.deq.virginia.gov.

4AGNF002.84 (Bellwood Ln. Bridge) - 2018 IR finds 9 of 12 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 299 to 1956 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L11R_GNF01A02 / North Fork Gills Creek & Tributaries / North Fork Gills Creek and tributaries from its mouth on Gills Creek upstream to its headwaters (RU25).	4A	Escherichia coli (E. coli)	2018	L	16.50

North Fork Gills Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**16.50**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L12L-01-HG** **Smith Mountain Lake**

Cause Location: Smith Mtn. Lake from the backwaters of the Roanoke River (elevation 795 ft) downstream to a point 37°04'39" / 79°37'15"; downstream of the State Park.

City / County: Bedford Co. Franklin Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards (WQS) effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov/info/mercury.html for more information about mercury contamination and http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/ for VDH Advisories or Bans.

4AROA175.63 (Hales Ford Bridge)- Mercury (Hg) fish tissue exceedances of the DEQ WQS based 0.3 ppm TV are found in 2 species from 2006 collections; largemouth bass from 4 individual fish (49.2 cm) at 0.691, (47.3 cm) at 0.484, (44.5 cm) at 0.376 and (40.9 cm) at 0.305 ppm; and flathead catfish (83.4 cm) at 0.406 ppm.

2002 Data from station 4AROA196.05 (McVeigh Ford)- records 1 species, an individual flathead catfish (91.3 cm) at 0.34 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L07L_BDA01A10 / Smith Mtn. Lake (Beaverdam Creek) / Beaverdam Creek from its mouth on the Roanoke River upstream to its backwaters (RU17).	5A	Mercury in Fish Tissue	2010	L	151.70
VAW-L07L_BKY01A10 / Smith Mtn. Lake (Beckys Creek) / Beckys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	5A	Mercury in Fish Tissue	2010	L	246.94
VAW-L07L_BTT01A10 / Smith Mtn. Lake (Bettys Creek) / Bettys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	5A	Mercury in Fish Tissue	2010	L	213.19
VAW-L07L_FIN02A10 / Smith Mtn. Lake (Falling Creek) / Falling Creek from its confluence with the Roanoke River upstream to its backwaters (795 Ft. pool elevation) (RU16).	5A	Mercury in Fish Tissue	2010	L	18.36
VAW-L07L_HFW01A10 / Smith Mtn. Lake (Hales Creek) / Hales Creek from its mouth on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	117.90
VAW-L07L_IND01A10 / Smith Mtn. Lake (Indian Creek) / Indian Creek from its mouth on the Roanoke River upstream to the 795 Ft. pool elevation of Smith Mountain Lake.	5A	Mercury in Fish Tissue	2010	L	161.67
VAW-L07L_JUM01A10 / Smith Mtn. Lake (Jumping Run) / Jumping Run from its confluence with the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	29.10
VAW-L07L_LVL01A10 / Smith Mtn. Lake (Lynville Creek) / Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	76.75
VAW-L07L_ROA02A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from 37°04'39" / 79°37'15" below the State Park upstream to approximately 1 mile downstream of the Hales Ford Bridge.	5A	Mercury in Fish Tissue	2010	L	######
VAW-L07L_ROA03A10 / Smith Mtn. Lake (Roanoke River) /	5A	Mercury in Fish Tissue	2010	L	######

Roanoke and Yadkin River Basins

Roanoke River from approximately 1 mile downstream of the Hales Ford Bridge upstream to the mouth of Falling Creek.					
VAW-L07L_ROA04A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.	5A	Mercury in Fish Tissue	2010	L	184.71
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	5A	Mercury in Fish Tissue	2010	L	165.29
VAW-L07L_SWC01A10 / Smith Mtn. Lake (Stony Creek) / Stony Creek from its mouth on the Roanoke River upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	48.61
VAW-L07L_XNK01A10 / Smith Mtn. Lake (Roanoke R., UT XNK) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	79.98
VAW-L07L_XNL01A10 / Smith Mtn. Lake (Roanoke R., UT XNL) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	109.32
VAW-L07L_XNM01A10 / Smith Mtn. Lake (Roanoke R., UT XNM) / An unnamed tributary (XNM) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	38.40
VAW-L07L_XNN01A10 / Smith Mtn. Lake (Roanoke R., UT XNN) / An Unnamed tributary (XNN) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	87.77
VAW-L07L_XOC01A10 / Smith Mtn. Lake (Roanoke R., UT XOC) / An unnamed tributary (XOC) to the Roanoke River from its mouth upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	119.55

Smith Mountain Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**6,480.10**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L12L-01-PCB** **Roanoke River, Tinker Creek and Peters Creek.**

Cause Location: Roanoke River from the confluence of the North and South Forks downstream to Niagara Dam. The impairment includes Peters Creek from the Rt. 460 Bridge downstream to its confluence on the Roanoke River; and Tinker Creek from the mouth of Deer Branch downstream to the Tinker Creek confluence on the Roanoke River.

City / County: Montgomery Co. Roanoke City Roanoke Co. Salem City

Use(s): Fish Consumption Public Water Supply Wildlife

Cause(s) / VA Category: PCBs in Fish Tissue / 4A Polychlorinated Biphenyls (PCBs) / 4A

The waters of the Roanoke River (28.61 miles), Peters Creek (2.52 miles) and Tinker Creek (5.37 miles) are under a Virginia Department of Health (VDH) Fish Consumption Advisory for Polychlorinated Biphenols (PCB) issued 7/27/05. An additional 3.16 miles on the Roanoke from Niagara Dam to Smith Mtn. Lake are under advisory and described in Fact Sheet L12L-02-PCB. The VDH Advisory is based on fish tissue found to originally contain greater than 50 parts per billion (ppb) of PCBs. The DEQ Water Quality Standard (WQS) based tissue value (TV) criterion is 20 ppb in fish tissue. The previous advisory (issued 10/20/03) recommended that no more than 2 8 oz. meals per month of flathead catfish (less than 32 inches in size), striped bass, gizzard shad, redhorse sucker, largemouth bass and carp should be consumed. Per the previous advisory, flathead catfish (greater than 32 inches in size) should not be eaten. The advisory has been updated to also recommend that no more than 2 8 oz. meals per month of channel catfish should be consumed.

The Roanoke (Staunton) River PCB TMDL Study is U.S. Environmental Protection Agency (EPA) approved on 4/9/2010 and State Water Control Board (SWCB) approved 12/9/2010. A 3.16 mile portion of the Roanoke River is not included in the PCB TMDL Study. The following Federal Identification Numbers by watershed are approved:
L03R Roanoke River: 38624, 38625, 38627, 38629, 38543, 38630
L04R Roanoke River: 24537, 38552, 38632, 38633, 38634, 38635, 38636
Peters Creek: 38468
L05R Tinker Creek: 38467

Fish tissue collections from locations on the Roanoke mainstem, Blackwater River, Mason Creek, Mudlick Creek, Paint Bank Branch, Peters Creek, Tinker Creek and the North and South Forks of the Roanoke River are reviewed by the VDH in making an advisory determination. The VDH Advisory information is also available via the web at http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm.

Thirty day deployment of Semi-Permeable Membrane Devices (SPMD) or virtual fish in 2008 find exceedances of the WQS PCB water column criterion of 0.00064 micrograms per liter (µg/L) or 640 picograms per liter (pg/L). Exceedances are recorded for the Fish Consumption Use via WQS 'Other Waters' (12.09 miles) as well as the Wildlife Use (12.09 miles) and the 'Public Water Supply Use' (PWS 1.64 miles) for the human health criterion at the stations listed below. The 640 pg/L criterion applies to these Uses. The 'PCB in Water Column' impairment on the mainstem of the Roanoke River extends from the confluence of Mason Creek downstream to the mouth of Back Creek (15.23 miles). Fact Sheet L12L-02-PCB describes and the additional 3.14 miles for each of these uses. The 'PCB in Water Column' impairment overlays a total 15.23 mile portion of the overall VDH Fish Consumption Advisory area above Smith Mountain Lake.
4AROA207.08- (Near Memorial Bridge downstream of Peters Creek)- 2008 SPMD 'OE'. Exceeds PCB WQS 'Other Waters' 640 pg/L criterion from 1 of 2 deployments at 642.

4AROA204.76 (Downstream of Ore Br., near VA Scrap Iron Co. above American Visco)- 2 2008 SPMD deployments find exceedance of the WQS 'Other Waters' 640 pg/L criterion at 987 and 3,014 pg/L.

4AROA202.20 (13th Street Bridge - above STP)- 2 2008 SPMD deployments find exceedance of the WQS 'Other Waters' 640 pg/L criterion at 1,376 and 3,044 pg/L.

4AROA199.20 (Blue Ridge Parkway Bridge - Niagara)- 2 2008 SPMD deployments find exceedance of the WQS 'Other Waters' and 'PWS' 640 pg/L criterion at 1,213 and 1,588 pg/L.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L03R_ROA01A00 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth upstream to the Rt. 419	4A	PCBs in Fish Tissue	2002	L	1.20

Bridge (RU09).					
VAW-L03R_ROA02A00 / Roanoke River / Roanoke River mainstem from the Rt. 419 Bridge upstream to the City of Salem downtown intake on the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	2.67
VAW-L03R_ROA03A00 / Roanoke River / Roanoke River mainstem from the Salem City WTP downtown intake upstream to the Big Bear Branch mouth on the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	3.42
VAW-L03R_ROA04A00 / Roanoke River / Roanoke River mainstem from the Big Bear Rock Branch mouth upstream to end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns (RU09).	4A	PCBs in Fish Tissue	2002	L	5.57
VAW-L03R_ROA05A00 / Roanoke River / Roanoke River mainstem from the end of the WQS designated public water supply (PWS) section just downstream of an unnamed tributary at Dixie Caverns upstream to the Roanoke County Spring Hollow Reservoir intake (RU09).	4A	PCBs in Fish Tissue	2002	L	1.43
VAW-L03R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Roanoke County Spring Hollow Reservoir intake upstream to the Montgomery/Roanoke County Line (RU09).	4A	PCBs in Fish Tissue	2002	L	0.95
VAW-L03R_ROA07A12 / Roanoke River / Roanoke River mainstem from the Montgomery/Roanoke County Line upstream to the confluence of the North & South Forks of the Roanoke River (RU09).	4A	PCBs in Fish Tissue	2002	L	1.26
VAW-L04R_PEE01A02 / Peters Creek / Peters Creek mainstem from its confluence with the Roanoke River upstream to the Melrose Avenue Bridge (Rt. 11/460) (RU14).	4A	PCBs in Fish Tissue	2004	L	2.58
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	PCBs in Fish Tissue	2002	L	0.76
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	PCBs in Fish Tissue	2002	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	PCBs in Fish Tissue	2002	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	PCBs in Fish Tissue	2002	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	PCBs in Fish Tissue	2002	L	4.34
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	PCBs in Fish Tissue	2002	L	3.32
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	PCBs in Fish Tissue	2002	L	2.22

Roanoke and Yadkin River Basins

VAW-L05R_TKR01A00 / Tinker Creek / Tinker Creek mainstem from the its confluence with the Roanoke River upstream to the mouth of Carvin Creek (RU13).	4A	PCBs in Fish Tissue	2006	L	5.37

Roanoke River, Tinker Creek and Peters Creek.

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			**36.56**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA02A00 / Roanoke River Niagara / These are the Roanoke River mainstem impounded waters of the Niagara Dam (PWS section 6i) (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.76
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.76
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.76
VAW-L04R_ROA03A00 / Roanoke River Niagara / Roanoke River mainstem from near the backwaters of the Niagara Impoundment upstream to the end of the WQS designated public water supply (PWS section 6i) segment. The upstream ending of the PWS segment from SML 795 ft. pool elevation (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.87
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.87
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.87
VAW-L04R_ROA04A00 / Roanoke River / Roanoke R. mainstem from near the backwaters of Niagara Impoundment upstream to the Tinker Cr. confluence on the Roanoke R. (section 6). The upstream ending of the WQS designated public water supply (PWS) segment from SML 795 ft. pool elevation (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.20
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.20
VAW-L04R_ROA05A00 / Roanoke River / Roanoke River mainstem from the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant downstream to the Tinker Creek confluence (WQS section 6) (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.40
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.40
VAW-L04R_ROA06A00 / Roanoke River / Roanoke River mainstem from the Murray Run mouth downstream to the Western Virginia Water Authority Roanoke Regional Water Pollution Control Plant (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	4.34
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	4.34
VAW-L04R_ROA07A00 / Roanoke River / Roanoke River mainstem from the Peters Creek mouth downstream to the Murray Run confluence on the Roanoke River (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.32
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.32
VAW-L04R_ROA08A02 / Roanoke River / Roanoke River mainstem from the Mason Creek mouth downstream to the confluence of Peters Creek on the Roanoke River (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	2.22
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	2.22

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Roanoke River, Tinker Creek and Peters Creek.

Wildlife	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Polychlorinated Biphenyls (PCBs) - Total Impaired Size by Water Type:			**25.85**

Sources:

Landfills	Source Unknown	Urban Runoff/Storm Sewers	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L12L-02-PCB** **Roanoke River, Blackwater River and Smith Mountain Lake.**

Cause Location: Roanoke River from Niagara Dam downstream to Smith Mtn. Dam and the Blackwater River from the Rt. 122 crossing downstream to its confluence with the Roanoke River in Smith Mtn. Lake.

City / County: Bedford Co. Franklin Co. Pittsylvania Co. Roanoke Co.

Use(s): Fish Consumption Public Water Supply Wildlife

Cause(s) / VA Category: PCBs in Fish Tissue / 4A Polychlorinated Biphenyls (PCBs) / 4A

The waters of the Roanoke River (3.16 miles), Blackwater River (11.29 miles) and Smith Mountain Lake (19,820.09 acres) are under a Virginia Department of Health (VDH) Fish Consumption Advisory for Polychlorinated Biphenols (PCB) issued 7/27/05. The VDH Advisory is based on fish tissue found to originally contain greater than 50 parts per billion (ppb) of PCBs. The DEQ Water Quality Standard (WQS) based tissue value (TV) criterion is 20 ppb in fish tissue. The previous advisory (issued 10/20/03) recommended that no more than 2 8 oz. meals per month of flathead catfish (less than 32 inches in size), striped bass, gizzard shad, redhorse sucker, largemouth bass and carp should be consumed. Per the previous advisory, flathead catfish (greater than 32 inches in size) should not be eaten. The advisory has been updated to also recommend that no more than 2 8 oz. meals per month of channel catfish should be consumed.

The Roanoke (Staunton) River PCB TMDL Study is U.S. Environmental Protection Agency (EPA) approved on 4/9/2010 and State Water Control Board (SWCB) approved 12/9/2010. The Roanoke River (3.14 miles), Blackwater River (11.29 miles) and the waters of Smith Mountain Lake (19,820.09 acres) are nested within the Roanoke (Staunton) River TMDL. EPA approved the nesting on 7/9/2012 for PCB in Fish Tissue and PCB in Water Column. The Roanoke River portion (VAW-L04R_ROA01A00) is assigned Federal ID 24537 and the remaining waters are assigned Federal ID 38618.

Fish tissue collections from locations on the Roanoke mainstem, Blackwater River are reviewed by the VDH in making an advisory determination. A complete listing of collection sites and associated fish tissue data are available at http://www.deq.virginia.gov/fishtissue/fishtissue.html. A more detailed presentation of the data can also be found using an interactive mapping application at http://www.deq.virginia.gov/wqa/. The VDH Advisory information is also available via the web at http://www.vdh.virginia.gov/epidemiology/DEE/PublicHealthToxicology/Advisories/index.htm.

Thirty day deployment of Semi-Permeable Membrane Devices (SPMD) or virtual fish in 2008 find exceedances of the WQS PCB water column criterion of 0.00064 micrograms per liter (µg/L) or 640 picograms per liter (pg/L). Exceedances are recorded for both the Fish Consumption Use via WQS 'Other Waters' (3.16 miles in the Roanoke) as well as the Wildlife Use (3.16 miles) and for the 'Public Water Supply Use' (PWS 3.16 miles) human health criterion at the station listed below. The 640 pg/L criterion applies to both Uses. The 'PCB in Water Column' impairment on the mainstem of the Roanoke River extends from the confluence of Mason Creek downstream to the mouth of Back Creek (15.23 miles). The 'PCB in Water Column' impairment overlays a total of 15.23 miles of the overall VDH Fish Consumption Advisory area above Smith Mountain Lake on the Roanoke River.

4AROA199.20 (Blue Ridge Parkway Bridge - Niagara)- There are no additional data. Two 2008 SPMD deployments find exceedance of the WQS 'Other Waters' and 'PWS' 640 pg/L criterion at 1,213 and 1,588 pg/L.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	PCBs in Fish Tissue	2002	L	3.16
VAW-L07L_BDA01A10 / Smith Mtn. Lake (Beaverdam Creek) / Beaverdam Creek from its mouth on the Roanoke River upstream to its backwaters (RU17).	4A	PCBs in Fish Tissue	2006	L	151.70
VAW-L07L_BKY01A10 / Smith Mtn. Lake (Beckys Creek) / Beckys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	4A	PCBs in Fish Tissue	2006	L	246.94
VAW-L07L_BTT01A10 / Smith Mtn. Lake (Bettys Creek) / Bettys Creek from its confluence with the Roanoke River upstream to its backwaters (RU19).	4A	PCBs in Fish Tissue	2006	L	213.19

Roanoke and Yadkin River Basins

VAW-L07L_FIN02A10 / Smith Mtn. Lake (Falling Creek) / Falling Creek from its confluence with the Roanoke River upstream to its backwaters (795 Ft. pool elevation) (RU16).	4A	PCBs in Fish Tissue	2006	L	18.36
VAW-L07L_HFW01A10 / Smith Mtn. Lake (Hales Creek) / Hales Creek from its mouth on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	117.90
VAW-L07L_IND01A10 / Smith Mtn. Lake (Indian Creek) / Indian Creek from its mouth on the Roanoke River upstream to the 795 Ft. pool elevation of Smith Mountain Lake.	4A	PCBs in Fish Tissue	2002	L	161.67
VAW-L07L_JUM01A10 / Smith Mtn. Lake (Jumping Run) / Jumping Run from its confluence with the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	29.10
VAW-L07L_LVL01A10 / Smith Mtn. Lake (Lynville Creek) / Lynville Creek from its confluence on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	76.75
VAW-L07L_ROA01A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Blackwater River confluence upstream to 37°04'39" / 79°37'15" below State Park.	4A	PCBs in Fish Tissue	2006	L	######
VAW-L07L_ROA02A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from 37°04'39" / 79°37'15" below the State Park upstream to approximately 1 mile downstream of the Hales Ford Bridge.	4A	PCBs in Fish Tissue	2006	L	######
VAW-L07L_ROA03A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from approximately 1 mile downstream of the Hales Ford Bridge upstream to the mouth of Falling Creek.	4A	PCBs in Fish Tissue	2002	L	######
VAW-L07L_ROA04A10 / Smith Mtn. Lake (Roanoke River) / Roanoke River from ~ 3/4 miles upstream of the Hardy Road Bridge downstream to the confluence of Falling Creek.	4A	PCBs in Fish Tissue	2006	L	184.71
VAW-L07L_ROA05A14 / Smith Mtn. Lake (Roanoke River) / Roanoke River from the Back Creek confluence downstream to ~ 3/4 miles upstream of the Hardy Road Bridge.	4A	PCBs in Fish Tissue	2006	L	165.29
VAW-L07L_SWC01A10 / Smith Mtn. Lake (Stony Creek) / Stony Creek from its mouth on the Roanoke River upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	48.61
VAW-L07L_XNK01A10 / Smith Mtn. Lake (Roanoke R., UT XNK) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2002	L	79.98
VAW-L07L_XNL01A10 / Smith Mtn. Lake (Roanoke R., UT XNL) / An unnamed tributary to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	109.32
VAW-L07L_XNM01A10 / Smith Mtn. Lake (Roanoke R., UT XNM) / An unnamed tributary (XNM) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	38.40
VAW-L07L_XNN01A10 / Smith Mtn. Lake (Roanoke R., UT XNN) / An Unnamed tributary (XNN) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	87.77
VAW-L07L_XNT01A10 / Smith Mtn. Lake (Roanoke R., UT XNT) / An unnamed tributary (XNT) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	68.39
VAW-L07L_XNU01A10 / Smith Mtn. Lake (Roanoke R., UT XNU) / An unnamed tributary (XNU) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	125.41

Roanoke and Yadkin River Basins

VAW-L07L_XOC01A10 / Smith Mtn. Lake (Roanoke R., UT XOC) / An unnamed tributary (XOC) to the Roanoke River from its mouth upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	119.55
VAW-L08R_BWR01A00 / Blackwater River / Blackwater River mainstem from the Rt. 122 Bridge downstream to the mouth of Maggodee Creek (RU22).	4A	PCBs in Fish Tissue	2006	L	3.02
VAW-L10L_BSA01A10 / Smith Mtn. Lake (Bull Run) / Bull Run from its mouth on the Blackwater River upstream to its backwaters (RU26).	4A	PCBs in Fish Tissue	2006	L	######
VAW-L10L_BWR01A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its mouth on the Roanoke River upstream to the mouth of Gills Creek.	4A	PCBs in Fish Tissue	2006	L	######
VAW-L10L_BWR02A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from the mouth of Gills Creek upstream to near the 4H Camp.	4A	PCBs in Fish Tissue	2006	L	######
VAW-L10L_BWR03A10 / Smith Mtn. Lake (Blackwater River) / Blackwater River from ~1.6 miles downstream of the Brooks Mill Bridge on downstream to the 4H Camp (RU24).	4A	PCBs in Fish Tissue	2006	L	351.97
VAW-L10L_BWR03B14 / Smith Mtn. Lake (Blackwater River) / Blackwater River from its back waters downstream to ~1.6 miles downstream of the Brooks Mill Bridge (RU24).	4A	PCBs in Fish Tissue	2006	L	114.22
VAW-L10L_COA01A10 / Smith Mtn. Lake (Cool Branch) / Cool Branch from its mouth on the Blackwater River upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	362.12
VAW-L10L_PCP01A10 / Smith Mtn. Lake (Poplar Camp Creek) / Poplar Camp Creek from its confluence with the Blackwater River upstream to its backwaters.	4A	PCBs in Fish Tissue	2006	L	58.59
VAW-L10L_XNZ01A10 / Smith Mtn. Lake (Little Bull Run, UT XNZ) / Unnamed tributary (XNZ) from its backwaters downstream to its mouth on Little Bull Run.	4A	PCBs in Fish Tissue	2006	L	15.21
VAW-L10L_XUV01A10 / Smith Mtn. Lake - Crazy Horse Camp Ground and Marinia / Off Route 601, Franklin County, on backwaters of an unnamed tributary (XUV) to Blackwater River in Smith Mountain Lake 37°04'04" / 79°38'54".	4A	PCBs in Fish Tissue	2006	L	30.27
VAW-L10R_BWR01A00 / Blackwater River / Blackwater mainstem from the Dillions Mill Branch mouth downstream into Smith Mountain Lake. The waters are within the WQS designated public water supply (PWS) section 6i, 5 miles upstream of the 795 ft. pool elevation of Smith Mtn. Lake (RU24).	4A	PCBs in Fish Tissue	2006	L	0.39
VAW-L10R_BWR02A00 / Blackwater River / Blackwater River mainstem waters from the upper end of the WQS designated public water supply (PWS) section 6i downstream to Dillions Mill Branch (RU24).	4A	PCBs in Fish Tissue	2006	L	5.20
VAW-L10R_BWR03A00 / Blackwater River / Blackwater River mainstem from the Maggodee Creek mouth on downstream to the upper end of the WQS designated public water supply (PWS) section 6i (RU24).	4A	PCBs in Fish Tissue	2006	L	2.62
VAW-L11L_GIL01A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from its mouth on the Blackwater River upstream to near the end of Route 665 (RU25).	4A	PCBs in Fish Tissue	2006	L	527.21
VAW-L11L_GIL02A10 / Smith Mtn. Lake (Gills Creek) / Gills Creek from the end of Route 665 upstream to its backwaters (RU25).	4A	PCBs in Fish Tissue	2006	L	197.42

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

VAW-L12L_CCK01A02 / Smith Mtn. Lake (Craddock Creek) / Craddock Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	######
VAW-L12L_LOS01A10 / Smith Mtn. Lake (Louse Creek) / Louse Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	152.09
VAW-L12L_ROA01A02 / Smith Mtn. Lake (Roanoke River) / Roanoke River from Smith Mountain Dam upstream to the confluence of the Blackwater River (RU27).	4A	PCBs in Fish Tissue	2006	L	######
VAW-L12L_WTH01A10 / Smith Mtn. Lake (Witcher Creek) / Witcher Creek from its mouth on the Roanoke River upstream to its backwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	322.34
VAW-L12L_XNW01A10 / Smith Mtn. Lake (Witcher Creek, UT(XNW) / An unnamed tributary (XNW) to Witcher Creek (Roanoke River) from its mouth upstream to its headwaters (RU27).	4A	PCBs in Fish Tissue	2006	L	136.22

Roanoke River, Blackwater River and Smith Mountain Lake.

Fish Consumption

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		**19,814.24**	**14.39**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L04R_ROA01A00 / Roanoke River / Roanoke River mainstem waters from Niagara Dam downstream to the mouth of Back Creek (PWS section 6i) (RU14).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.16
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.16
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.16

Roanoke River, Blackwater River and Smith Mountain Lake.

Public Water Supply

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Polychlorinated Biphenyls (PCBs) - Total Impaired Size by Water Type:			**9.48**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L12R-01-BAC** **Craddock Creek (XME)**

Cause Location: An unnamed tributary (XME) to Craddock Creek from it's headwaters downstream to it's inundation on Smith Mountain Lake.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

4ACCK004.26 (Surry Drive Bridge) 5 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. The exceedances range from 399 to 2,282 cfu/100 ml. Prior to the 2018 IR, there were no additional data beyond the 2012 IR where 3 of 11 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Exceedances range from 320 to 980 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L12R_XME01A02 / Craddock Creek, UT (XME) / An unnamed tributary to Craddock Creek and Smith Mountain Lake. These waters are within the WQS public water supply (PWS) designated section 6i eg. 5 miles of the 795 ft. pool elevation of Smith Mtn. Lake (RU27).	5A	Escherichia coli (E. coli)	2012	M	1.23

Craddock Creek (XME) **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.23**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L13L-02-BAC** **Leesville Lake (Pigg River)**

Cause Location: Pigg River from its confluence with the Roanoke River in Leesville Lake upstream to its backwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River TMDL received U.S. EPA approval on 9/11/2006. Fed ID 30413 and SWCB approval on 6/27/2007.

4APGG003.29- (Rt. 605 Graves Bridge) 11 35 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2018 data window. Excessive values range from 300 to 19863 cfu/100 ml. The 2016 data window finds 7 of 24 escherichia coli (E.coli) observations exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2016 data window. Excessive values range from 300 to greater than 2000 cfu/100 ml. The 2014 data window finds 3 of 12 E.coli samples exceeding the 235 cfu/10 ml instantaneous criterion. The range of exceeding values is from 300 cfu/100 ml to 1200. There are no additional data beyond the 2008 assessment where 9 of 27 E.coli exceed the instantaneous criterion. The range of exceeding values is from 300 cfu/100 ml to 1200. The station is located in the immediate backwaters of Leesville Reservoir.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L13L_PGG01A02 / Leesville Lake (Pigg R.) / Pigg River from its confluence with the Roanoke River in Leesville Lake upstream to its backwaters (RU37).	4A	Escherichia coli (E. coli)	2006	L	158.36

Leesville Lake (Pigg River) **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**158.36**	

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L13R-01-BAC** **Old Womans Creek**

Cause Location: Old Womans Creek mainstem perennial headwaters downstream to its inundation at Leesville Lake.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station IDs:
4AOWC002.35 (TMDL Monitoring)(Paisley Rd. (Rt. 756))
E. coli - 3/9 Exceedance Rate
4AOWC005.36 (Ambient)(Station #17 Route 760 Bridge)
E. coli - 5/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L13R_OWC01A18 / Old Womans Creek / Old Womans Creek mainstem perennial headwaters downstream to its inundation at Leesville Lake (RU38).	4A	Escherichia coli (E. coli)	2006	L	4.90

Old Womans Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.90**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L14R-01-BAC** **Pigg River and Doe Run**

Cause Location: Pigg River from near the Five Mile Mountain Road (~ 1 mile upstream of the South Prong Pigg River confluence with the Pigg River) on downstream of the Rocky Mount STP to an unnamed tributary to the Pigg River upstream of the community of Gladehill. Doe Run mainstem from its mouth on the Pigg River upstream to its headwaters. (Rocky Mount & Gladehill Quads).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A Fecal Coliform / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 and State Water Control Board (SWCB) approved on 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Doe Run bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial study contractual design. However allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

The 2004 Integrated Report (IR) extended the 1996 Pigg River bacteria 303(d) Listing upstream from the confluence of Storey Creek on the Pigg River continuing on upstream to the mouth of the South Prong Pigg River. The extension is due to sample collections in support of the Bacteria TMDL Study. Additional upstream samples from station 4APGG077.15 within the 2016 data window extend the impairment further upstream adding 2.95 miles to the total impairment.

This fact sheet describes the upper 37.76 mile impaired portion that includes the 2004 addition of 13.40 miles to the original 1996 impaired miles (21.41) and the 2016 addition of 2.95 miles on the Pigg River. Doe Run is a nested 2006 addition (5.68 miles). The Lower Pigg River portion is described in a separate fact sheet (L18R-01-BAC) and comprises 28.95 miles.

4ADOE002.47- (Rt. 720 Bridge) There are no additional data beyond the 2006 IR where fecal coliform (FC) exceeds the 400 cfu/100 ml instantaneous criterion in 3 of 12 samples. Exceedances range from 800 to 2100 cfu/100 ml. Escherichia coli has replaced fecal coliform as the indicator organism.

4APGG077.15- Both the 2016 and 2018 data windows find Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in 12 of 17 samples. The range of exceeding values is from 325 to greater than 2000 cfu/100 ml. These data add an additional 2.95 miles to the bacteria impairment during the 2016 assessment cycle.

4APGG074.87- (Rt. 908 Ford) There are no additional data beyond the 2010 IR. The 2010 range of exceeding escherichia coli (E.coli) samples is from 300 to greater than 2000 cfu/100 ml where 12 of 24 observations exceed the 235 cfu/100 ml instantaneous criterion. The 2008 range of exceeding E.coli samples is from 250 to greater than 2000 cfu/100 ml where 5 of 12 observations exceed the instantaneous criterion. 2006 results are 4 of 9 observations in excess of the E.coli instantaneous criterion and the same range of exceedance as in 2008.

4APGG068.49- (Rt. 756 Bridge) The 2018 and 2016 assessments find 18 of 30 and 9 of 18 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion, respectively. The range of exceedance is from 250 to greater than 2000 cfu/100 ml. There are no additional data beyond the 2008 IR where 8 of 12 E.coli samples exceed the instantaneous criterion. The range of exceedance is from 254 to 820 cfu/100 ml. E.coli exceeds the criterion in 4 of 6 samples in 2006 ranging from 300 to 610 cfu/100 ml.

4APGG057.85 (Bus. 220 Bridge - above Old STP)- 2010 results find 5 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceedance is from 250 to 1100 cfu/100 ml. There are no additional data beyond the 2010 IR.

4APGG055.72 (Rt. 220 Bridge - below Old STP)-There are no additional data beyond the 2010 IR where 4 of 12 samples exceed the 235 cfu/100 ml instantaneous criterion in 2010. Exceedances range from 500 to 1000 cfu/100 ml.

4APGG052.73- (Rt. 713 Bridge)- The 2018 data window finds 17 of 36 samples exceed the 235 cfu/100 ml instantaneous criterion (exceedance range: 250 - 24,196 cfu/100 ml). 2016 E.coli exceedances range from 275 to greater than 2000 cfu/100 ml where 14 of 35 samples exceed the 235 cfu/100 ml instantaneous criterion. Thirteen of 35 escherichia coli (E.coli) exceed the 235 cfu/100 ml instantaneous criterion in 2014. Excessive values range from 275 to greater than 2000 cfu/100 ml. 2012 results find E.coli exceedances range from 480 to greater than 2000 cfu/100 ml where 16 of 38 samples exceed the

instantaneous criterion. 2010 E.coli exceedances range from 480 to greater than 2000 cfu/100 ml where 19 of 38 samples exceed the 235 cfu/100 ml instantaneous criterion. 2008 data reveals 16 of 26 E.coli samples exceed the instantaneous criterion. The exceedance range is the same as 2010. 2006 E.coli exceedances range from 480 to greater than 2000 cfu/100 ml where 8 of 11 samples exceed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_PGG02A00 / Pigg River / Pigg River mainstem from the town of Rocky Mount STP downstream to an unnamed tributary confluence on the Pigg River (RU30).	4A	Escherichia coli (E. coli)	2008	L	10.92
VAW-L14R_PGG03A00 / Pigg River / Pigg River mainstem from just downstream of the Rt. 220 Business Bridge on downstream to the Town of Rocky Mount STP (RU30).	4A	Escherichia coli (E. coli)	2006	L	4.72
VAW-L14R_PGG04A00 / Pigg River / Pigg River mainstem from the Storey Creek mouth on down to just downstream of the Rt. 220 Business Bridge (RU30).	4A	Escherichia coli (E. coli)	2006	L	5.77
VAW-L14R_PGG05A02 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the mouth of Storey Creek (RU29).	4A	Escherichia coli (E. coli)	2006	L	11.92
VAW-L14R_PGG05B12 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the confluence of Turners Creek (RU29).	4A	Escherichia coli (E. coli)	2006	L	1.48
VAW-L14R_PGG06A02 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong of the Pigg River downstream to the South Prong Pigg River confluence on the Pigg River (RU29).	4A	Escherichia coli (E. coli)	2016	L	1.01
VAW-L14R_PGG06B12 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong Pigg upstream to near Five Mile Mountain Rd. (Rt. 748) (RU29).	4A	Escherichia coli (E. coli)	2016	L	1.94

Pigg River and Doe Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**37.76**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_DOE01A06 / Doe Run / Doe Run mainstem from its mouth on the Pigg River upstream to its headwaters (RU30).	4A	Fecal Coliform	2006	L	5.68

Pigg River and Doe Run **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**5.68**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Residential Districts
Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L14R-01-BEN** **Pigg River**

Cause Location: Pigg River mainstem from near Five Mile Mountain Road (Rt. 748) on downstream to the confluence of Turners Creek.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired with this initial 2012 General Standard- Benthic Listing for 4.43 miles.

4APGG077.15 (Ferrum Mtn. Rd. (Rt. 602) Bridge) Bio 'IM' The 2018 data window finds 4 VSCI scores averaging 58.0. The 2018 window adds the 205 Spring VSCI score of 55.4 to the 3 scores within the 2016 IR window. Three Virginia Stream Condition Index (VSCI) surveys (fall 2013 and 2014 spring/fall) with an average 2016 score of 58.8. This station surveyed as a follow up to an initial 303(d) listing at 4APGG076.93. The average Stream Condition Index (SCI) score was 58.8 indicating a stressed benthic community. The two metrics that vary most are % Scrapers and %Chiro. The metric % 2Dom averaged 57% indicating that 2 taxa of benthic macroinvertebrates made up >50% of the samples. Total Habitat scores averaged 98, yielding a marginal score. Stream bank and riparian zone scores were poor and sediment deposition scores were all marginal

4APGG076.93 (~ 1 mile upstream of the South Prong Pigg River confluence) Bio 'IM' A 2009 Probabilistic site. Two 2009 VSCI surveys with an average score of 50.5. There are no additional data beyond the 2012 Integrated Report. A stressed benthic community. A high number of mayflies were in this sample; however, the family Ephemerellidae is tolerant of moderate sediment impacts. The stream substrate was impacted by sediment deposition and some benthic macroinvertebrates were covered with bacteria which may indicate nutrient enrichment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_PGG05B12 / Pigg River / Pigg River mainstem from the confluence of the South Prong Pigg River downstream to the confluence of Turners Creek (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	M	1.48
VAW-L14R_PGG06A02 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong of the Pigg River downstream to the South Prong Pigg River confluence on the Pigg River (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	M	1.01
VAW-L14R_PGG06B12 / Pigg River / Pigg River mainstem from one mile above the mouth of the South Prong Pigg upstream to near Five Mile Mountain Rd. (Rt. 748) (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2012	M	1.94

Pigg River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.43**

Sources:

Crop Production (Crop Land or Dry Land)	Dairies	Livestock (Grazing or Feeding Operations)	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L14R-02-BAC** **Storey Creek**

Cause Location: The Storey Creek upper limit is west of Ferrum near the intersection of Rt. 40 and Rt. 748, perennial headwaters (Ferrum Quad). The downstream limit is the mouth of Storey Creek on the Pigg River (RU29).

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30412] and incorporates the Storey Creek drainage. The Pigg River bacteria study received approval from the State Water Control Board (SWCB) on 6/27/2007 incorporating the Storey Creek 11.86 mile impairment. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Additional stations were added along Storey Creek in support of the Bacteria TMDL Study. Stations on Storey Creek find the recreational use impaired due to exceedance of the former fecal coliform (FC) bacteria 400 cfu/100 ml instantaneous criterion and the current escherichia coli (E.coli) instantaneous criterion of 235 cfu/100 ml.

4ASDA009.79- (Rt. 623 above Ferrum STP) 2010 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in 10 of 23 collections ranging from 250 to greater than 2000 cfu/100 ml. E.coli exceeds the instantaneous criterion in 5 of 12 samples in 2008 ranging from 250 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) finds E.coli exceeds the criterion in 3 of 9 samples with the same range of exceedance.

4ASDA009.77- (off Rt. 864 below Ferrum STP) There are no additional data beyond the 2010 Integrated Report (IR) where E.coli exceed the 235 cfu/100 ml instantaneous criterion in 3 of 12 samples within the 2010 data window. Exceedances range from 300 to greater than 2000 cfu/100 ml. The 2004 IR reports fecal coliform (FC) exceeds the former instantaneous criterion of 400 cfu/100 ml in 13 of 37 samples. Exceeding values range from 500 cfu/100 ml to greater than 8000. There are no additional data reported in 2008 where no FC excursions are found from 5 samples.

4ASDA007.24- (Rt. 40 Bridge) There are no additional data beyond the 2010 IR where 10 of 18 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2010 data window ranging from 250 cfu/100 ml to greater than 2000. The 2008 assessment finds 2 of 6 E.coli samples exceed the instantaneous criterion at 250 cfu/100 ml and 1000. This station added in support of the Bacteria TMDL Study.

4ASDA004.19- (Pleasant Hill Rd. (Rt. 619) Bridge) There are no new data beyond the 2016 data window where E.coli exceeding values range from 250 to greater than 2000 cfu/100 ml in 5 of 12 samples.

4ASDA000.67- (Davis Mill Bridge - Rt. 754) 8 of 19 and 5 of 12 E.coli samples exceed the instantaneous criterion within the 2018 and 2016 data windows, respectively. Values in excess of the criterion range from 256 to 2,613 cfu/100 ml. There were no additional data within the 2010, 2012 or 2014 IRs. The 2008 IR reports 7 of 12 E.coli samples exceed the instantaneous criterion. Excessive values range from 255 to 1000 cfu/100 ml. Four of 6 E.coli samples exceed the criterion ranging from 310 to 1000 cfu/100 ml in 2006. This station added in support of the Bacteria TMDL Study.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_SDA01A00 / Story Creek / Story Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).	4A	Escherichia coli (E. coli)	2006	L	9.82
VAW-L14R_SDA02A00 / Story Creek / Story Creek mainstem perennial headwaters downstream to the Ferrum Water and Sewerage Authority POTW (RU29).	4A	Escherichia coli (E. coli)	2006	L	2.04

Storey Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.86**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L14R-02-BEN** **Storey Creek**

Cause Location: Storey Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

These waters (9.82 miles) are initially 2016 listed for impairment of the Aquatic Life Use. Impairment is based on Virginia Stream Condition Index (VSCI) surveys conducted at station 4ASDA004.94.

4ASDA004.94 (Between Bridges on Waidsboro Rd. (607) & Pleasant Hill Rd. (619)) Bio 'IM' There are no new VSCI scores beyond the 2016 data window where 2 2013 VSCI surveys with an average score of 51.7 indicating a benthic community lacking in diversity and pollution-sensitive organisms. Some instream habitat scores are good; however, those related to sediment deposition were low. Bank erosion and bank vegetative cover were impacted by highly eroded stream banks in this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L14R_SDA01A00 / Story Creek / Story Creek mainstem from the Ferrum Water and Sewerage Authority POTW downstream to the Storey Creek mouth on the Pigg River (RU29).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	9.82

Storey Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**9.82**

Sources:

Crop Production (Crop Land or Dry Land)	Dairies	Livestock (Grazing or Feeding Operations)	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L15R-01-BAC** **Big Chestnut Creek**

Cause Location: Big Chestnut Creek from the confluence of Muddy Fork downstream to its confluence with the Pigg River.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Big Chestnut Creek is a 2004 bacteria 303(d) Listing and is nested within the TMDL Watershed.

The Big Chestnut Creek 12.87 mile bacteria impairment is not specifically addressed by the TMDL due to the 303(d) Listing occurring after initial study contractual design. However allocation scenario development is for the entire Pigg River drainage and provides pollutant reductions for all watersheds contributing to the bacteria impairment including Big Chestnut Creek. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

The original 12.43 waters were de-listed with the 2014 Integrated Report (IR) where bacteria (escherichia coli (E.coli)) excursions of the 235 cfu/100 ml instantaneous criterion are 1 of 12 observations with an exceedance rate of 8.3% at station 4ACNT001.32 (Route 715 Bridge, Franklin County). These waters return and an additional 6.77 miles added as impaired with the 2016 IR (station 4ACNT017.37).

4ACNT001.32- (Chestnut Mtn. Road (Rt. 715) Bridge) There is no additional data beyond the 2016 IR where 3 of 24 E.coli observations in excess of the WQS instantaneous criterion. Excessive values range from 700 to 1575 cfu/100 ml. The 2014 assessment finds 1 of 12 samples exceeding and resulted in a de-listing of this station. There were no additional data within the 2010 or 2012 data windows. The 2008 assessment reports E.coli sample results are 6 exceeding values ranging from 250 to greater than 2000 cfu/100 ml from 12 samples. All in excess of the 235 cfu/100 ml instantaneous criterion. 2006 E.coli sample results report 6 exceeding values with the same range of exceedance as 2008. The original 2004 Listing is a result of fecal coliform samples exceeding the former WQS 400 cfu/100 ml instantaneous criterion in 2 of 17 observations. The exceedances are 600 and 2300 cfu/100 ml.

4ACNT017.37- (McNeil Mill Road (Rt. 718) Bridge) No new data exist for the 2018 data window. The 2016 data window finds 4 of 11 E.coli samples exceed the WQS instantaneous criterion. Excessive values range from 350 cfu/100 ml to 950.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L15R_CNT01A00 / Big Chestnut Creek / Big Chestnut Creek mainstem from its mouth on the Pigg River upstream to the confluence of Little Chestnut Creek (RU31).	4A	Escherichia coli (E. coli)	2006	L	12.43
VAW-L15R_CNT02A14 / Big Chestnut Creek / Big Chestnut mainstem waters from the Muddy Fork mouth downstream to the confluence of Little Chestnut Creek. (RU31).	4A	Escherichia coli (E. coli)	2016	L	6.77

Big Chestnut Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**19.20**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L17R-01-BAC** **Snow Creek and Turkeycock Creek**

Cause Location: Snow Creek from the Crab Creek confluence downstream to its mouth on the Pigg River (Penhook & Sandy Level Quads).
Turkeycock Creek from its mouth on Snow Creek upstream to the confluence of Sailor Creek.

City / County: Franklin Co. Henry Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Snow Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30410] and SWCB approved 6/27/2007. The Pigg River Implementation Plan received SWCB approval on 12/13/2010. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

The 1999 Federal Consent Decree includes 4ASNW000.60 as an Attachment B station (10.95 miles). The initial 303(d) fecal coliform (FC) bacteria Listing in 2002 of Snow Creek is in response to the 1999 Consent Decree resulting in a 2010 TMDL Schedule. The 2002 assessment reports 5 of 22 samples in excess of the former (2002) 1000 cfu/100 ml instantaneous criterion. An exceedance rate of 22 percent. The 10.95 mile bacteria impairment remains- Category 4A. The 2012 Integrated Report (IR) extends the impairment 6.49 miles upstream from Ditto Branch to the confluence of Crab Creek from data collected at 4ASNW016.24. Turkeycock Creek adds an additional 6.46 miles and is Category 4A as the data collected for TMDL development includes Turkeycock Creek data and is nested within the TMDL Watershed and allocations.

4ASNW016.24 (Snow Cr. Rd Bridge at Parkers Store) There are no additional data beyond the 2012 IR where escherichia coli (E.coli) exceeds the 235 cfu/100 ml WQS instantaneous criterion in 6 of 11 samples. The range of exceeding values is from 350 to greater than 2000 cfu/10 ml. The impairment is extended upstream 8.19 miles on Snow Creek with the 2012 assessment.

4ASNW000.60- (Kirby Ford Bridge) 12 of 35 and 9 of 35 E.coli samples exceed the WQS instantaneous criterion within the 2018 and 2016 data windows, respectively. Values in excess of the criterion range from 250 to greater than 2000 cfu/100 ml. 2014 E.coli data find 8 of 35 samples in excess of the instantaneous criterion ranging from 250 to greater than 2000 cfu/100 ml. Seven of 30 E.coli samples exceed the instantaneous criterion in 2012. Exceedances range from 290 to greater than 2000 cfu/10 ml. 2010 data reveal E.coli exceed the instantaneous criterion in 10 of 30 samples ranging from 290 to 1600 cfu/100 ml. 2008 results find E.coli exceed the instantaneous criterion in 8 of 18 samples ranging from 290 to 1600 cfu/100 ml. The 2006 Integrated Report (IR) range of exceedance is from 480 to 880 cfu/100 ml from 5 of 12 samples.

4ATCC003.71-(Danville Turnpike near Sago, Rt. 969) 6 of 12 E.coli samples exceed during the 2018 IR. Excursions range from 256 to 3,255 cfu/100 ml.
There are no additional data beyond the 2012 IR where E.coli results produce 2 samples exceeding the 235 cfu/100 ml instantaneous criterion from 12 sample collections. The exceeding values are 620 and 1600 cfu/100 ml. There were no additional data beyond the 2008 assessment where 2 of 6 E.coli samples exceed the instantaneous criterion at 250 and 680 cfu/100 ml. Turkeycock Creek is a 6.35 mile 2008 addition to the original 2002 Snow Creek 303(d) Listing.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_SNW01A00 / Snow Creek / Snow Creek mainstem from the mouth of Ditto Branch downstream to the mouth of Snow Creek on the Pigg River (RU35).	4A	Escherichia coli (E. coli)	2006	L	10.95
VAW-L17R_SNW02A12 / Snow Creek / Snow Creek from the Grassy Fork confluence with Snow Creek downstream to the mouth of Ditto Branch (RU35).	4A	Escherichia coli (E. coli)	2012	L	2.54
VAW-L17R_SNW03A14 / Snow Creek / Snow Creek from the Crab Creek confluence with Snow Creek downstream to the mouth of Grassy Fork (RU33).	4A	Escherichia coli (E. coli)	2012	L	3.95
VAW-L17R_TCC01A06 / Turkeycock Creek / Turkeycock Creek from its mouth on Snow Creek upstream to the confluence of Sailor	4A	Escherichia coli (E. coli)	2008	L	6.50

Roanoke and Yadkin River Basins

Creek (RU34).

Snow Creek and Turkeycock Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**23.94**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L17R-01-BEN** **Poplar Branch**

Cause Location: Poplar Branch headwaters downstream to its confluence with Snow Creek.

City / County: Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired for 2.53 miles with the 2008 303(d) Listing of these waters from data at station 4APAA000.24.

4APAA000.71- Bio 'IM' 4 VSCI (2013-2014) surveys with an average score of 58.2. Fall samples had higher percentages of pollution sensitive taxa and less chironomidae. The habitat available for sampling at this bridge crossing is dominated by bedrock and may be better than the available habitat upstream yielding a VSCI score that is not indicative of all segments. Habitat survey scores for sediment were low in this reach due to landuse impacts to the watershed.

4APAA000.24 (Below Rt. 629)- Bio 'IM' There are no additional data beyond the 2008 assessment where 2 Virginia Stream Condition Index (VSCI) surveys score spring 54.0 and fall 55.5. The immediate land use at this station is forested with a closed canopy and excellent riparian vegetation. However, the watershed upstream from this station has pasture land with many small ponds that appear to reduce stream flow and subsequently allows fine sediment to accumulate in the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_PAA01A04 / Poplar Branch / Poplar Branch headwaters downstream to its confluence with Snow Creek (RU35).	5A	Benthic Macroinvertebrates Bioassessments	2008	M	2.56

Poplar Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.56**

Sources:

Sediment Resuspension (Clean Sediment)	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L17R-02-BAC** **Poplar Branch**

Cause Location: Poplar Branch headwaters downstream to its confluence with Snow Creek.

City / County: Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2.53 mile Recreational Use impairment is based on data collection within the 2016 data window.

4APAA000.71 (Hatchett Rd. (Rt. 629) Crossing) 2 of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/10 ml instantaneous criterion. Values in excess of the criterion are 620 and 1600 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L17R_PAA01A04 / Poplar Branch / Poplar Branch headwaters downstream to its confluence with Snow Creek (RU35).	4A	Escherichia coli (E. coli)	2016	L	2.56

Poplar Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.56**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L18R-01-BAC** **Pigg River**

Cause Location: Pigg River from the mouth of Big Chestnut Creek (RM 32.99) downstream to the backwaters of Leesville Lake (RM 3.29) (Penhook & Sandy Level Quads).

Note: These impaired waters now incorporate the former State TMDL ID of VAW-L16R-01 (15.54 miles) initially listed in 2002. The former VAW-L13L-02 (Bacteria 157.24 acres) impairment is described in the Cause Group Code L13L-02-BAC Leesville Lake Fact Sheet.

City / County: Franklin Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. This Fact Sheet addresses the lower riverine portion of the Pigg River 28.95 mile bacteria impairment. The Pigg River bacteria 2002 15.53 mile impairment extension from the original 1998 13.36 mile 303(d) Listing is the result of additional ambient and TMDL support sampling. A separate fact sheet (L14R-01-BAC) describes the Upper Pigg River 34.81 mile bacteria impairment.

4APGG030.62- (Rt. 646, Fralin Bridge) 5 of 23 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. Excursions range from 288 to 645 cfu/100 ml. The 2016 data window produces 2 of 12 escherichia coli (E.coli) exceedances of the WQS 235 cfu/100 ml instantaneous criterion. The two excessive values are 301 and 325 cfu/100 ml. There are no additional data within the 2012 or 2014 data windows. The 2010 IR finds E.coli samples exceed the instantaneous criterion in 13 of 33 samples. Values in excess of the criterion range from 250 to 930 cfu/100 ml. Nine of 21 E.coli samples exceed the instantaneous criterion in 2008. Values in excess of the criterion range from 260 to 930 cfu/100 ml. Four of 6 E.coli samples exceed the criterion in 2006 with the same range of exceedance.

4APGG016.06- (Rt. 626 Bridge) There are no additional data within the 2012, 2014 or 2016 data windows. 2010 and 2008 E.coli exceedances of the instantaneous criterion range from 300 to greater than 2000 cfu/100 ml in 9 of 21 samples as there are no additional data beyond the 2008 assessment. 2006 reports E.coli exceeds the instantaneous criterion in 5 of 9 samples ranging from 400 to greater than 2000 cfu/100 ml.

4APGG008.87- (Off Rt. 40 at USGS Gage) Escherichia coli (E.coli) exceed the 235 cfu/10 ml instantaneous criterion in 11 of 33 and 9 of 34 observations within the 2018 and 2016 data windows, respectively. Exceedances range from 262 to greater than 2000 cfu/100 ml. 2014 E.coli exceed the 235 cfu/100 ml instantaneous criterion in 7 of 24 samples. 400 to greater than 2000 cfu/100 ml is the exceedance range. The 2012 assessment finds E.coli exceeds the instantaneous criterion in 8 of 24 samples ranging from 280 to greater than 2000 cfu/100 ml. Both the 2008 and 2010 assessments find E.coli exceeds the instantaneous criterion in 9 of 21 samples ranging from 280 to 1900 cfu/100 ml. 2006 E.coli exceedances range from 500 to greater than 800 cfu/100 ml in 5 of 9 samples.

4APGG003.29- (Rt. 605 Bridge) E.coli exceedances occur in 7 of 24 observations. Excessive values range from 350 cfu/100 ml to greater than 2000 within the 2016 data window. Three of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in 2014. Values in excess of the criterion are 300, 550 and greater than 2000 cfu/100 ml. There are no additional data within the 2012 data window. 2008 data reveal E.coli exceed the instantaneous criterion in 9 of 27 samples ranging from 300 to 1200 cfu/100 ml with no additional data beyond the 2008 assessment. Five of 12 E.coli samples exceed in 2006 with an exceedance range of 300 to 860 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L16R_PGG01A00 / Pigg River / Pigg River mainstem from the mouth of Dinner Creek downstream to the mouth of Snow Creek on the Pigg River (RU32).	4A	Escherichia coli (E. coli)	2006	L	6.66
VAW-L16R_PGG02A00 / Pigg River / Pigg River mainstem from the Big Chestnut Creek mouth downstream to the mouth of Dinner Creek on the Pigg River (RU32).	4A	Escherichia coli (E. coli)	2006	L	8.93
VAW-L18R_PGG01A00 / Pigg River / Pigg River mainstem from	4A	Escherichia coli (E. coli)	2006	L	5.58

Roanoke and Yadkin River Basins

the Harpen Creek mouth downstream to backwaters of Leesville Lake (RU36).					
VAW-L18R_PGG02A00 / Pigg River / Pigg River mainstem from the mouth of Snow Creek downstream to the mouth of Harpen Creek on the Pigg River (RU36).	4A	Escherichia coli (E. coli)	2006	L	7.78

Pigg River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**28.95**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L18R-01-BEN** **Fryingpan Creek**

Cause Location: Headwaters of Fryingpan Creek downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54").

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The waters of Fryingpan Creek are impaired for the Aquatic Life Use due to contravention of the WQS General Standard (Benthic). The 2006 303(d) 2.56 mile 303(d) Listing is a result of benthic impairments found at station 4AFRY006.08 (Rt. 40 Bridge) where 2 2003 Virginia Stream Condition Index (VSCI) scores are spring 42.4 and fall 32.8. Four additional 2011 and 2013 VSCI surveys find continued impairment with an average score of 44.4. There are no additional data beyond the 2016 303(d)/305(b) Integrated Report data window.

The stream has a small watershed (5.2 mi2) which is approximately 46% agricultural land. The stream channel is impacted by deposits of fine sediment and some areas of eroded stream bank. Both sides of the stream are protected by a good riparian buffer. The benthic community has low diversity of pollution sensitive families and is dominated by those tolerant of excessive sediment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_FRY01A06 / Fryingpan Creek / Headwaters of Fryingpan Creek on downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54") (RU37).	5A	Benthic Macroinvertebrates Bioassessments	2006	M	2.56

Fryingpan Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.56**

Sources:

Livestock (Grazing or Feeding Operations)	Sediment Resuspension (Clean Sediment)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L18R-02-BAC** **Harpen Creek**

Cause Location: Harpen Creek from its mouth on the Pigg River upstream to near Climax (36°53'28" / 79°30'30").

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. Harpen Creek is a 2006 bacteria 303(d) Listing and nested within the Pigg River TMDL in 2008.

The Harpen Creek 5.35 mile bacteria impairment is not specifically addressed by the TMDL due to the 303(d) Listing occurring after initial study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Harpen Creek. Harpen Creek is nested within the Pigg River TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AHPN001.62- (Rt. 785 Bridge) 17 of 24 E.coli samples exceed the 235 cfu/100 ml E.coli water quality criterion in the 2018 data window. Excursions range from 317 to 2,613 cfu/100 ml. 2016 exceeding values range from 1100 to greater than 2000 cfu/100 ml in 7 of 12 escherichia coli (E.coli) observations. There are no additional data beyond the 2008 assessment where E.coli exceed in 13 of 21 samples in excess of the 235 cfu/100 ml instantaneous criterion both 2008 and 2010. The range of exceedance is 450 to greater than 2000 cfu/100 ml. The 2006 Integrated Report (IR) results find E.coli exceeds in 4 of 9 samples with the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_HPN01A06 / Harpen Creek / Harpen Creek from its mouth on the Pigg River upstream to near Climax (36°53'28" / 79°30'30") (RU36).	4A	Escherichia coli (E. coli)	2006	L	5.35

Harpen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.35**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L18R-03-BAC** **Tomahawk Creek**

Cause Location: Tomahawk Creek from its mouth on the Pigg River upstream to above Andersons Mill (36°52'28" / 79°32'15").

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Study encompasses the Pigg River drainage, Old Womans Creek, Snow Creek, Storey Creek and Leesville Lake. Tomahawk Creek is a 2006 bacteria 303(d) Listing.

The Tomahawk Creek bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial TMDL Study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Tomahawk Creek. Tomahawk Creek is nested within the Pigg River Bacteria TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ATMA001.46 (Rt. 644 Bridge)- 12of 24 and 4 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 and 2016 data windows, respectively. Values exceeding the criterion range from 288 to greater than 10,000 cfu/100 ml. There are no additional data beyond the 2008 assessment where escherichia coli (E.coli) exceed in 5 of 21 samples in excess of the 235 cfu/100 ml criterion in 2008 and 2010. The range of exceedance is 350 to greater than 800 cfu/100 ml. 2006 assessment data reveal E.coli exceed in 2 of 9 samples in excess of the 235 cfu/100 ml criterion. The range of exceedance is 680 to greater than 800 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_TMA01A06 / Tomahawk Creek / Tomahawk Creek from its mouth on the Pigg River upstream to above Andersons Mill (36°52'28" / 79°32'15") (RU36).	4A	Escherichia coli (E. coli)	2006	L	4.58

Tomahawk Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.58**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L18R-04-BAC** **Fryingpan Creek**

Cause Location: Headwaters of Fryingpan Creek downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54").

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Pigg River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 9/11/2006 [Fed ID 30414] and SWCB approved 6/27/2007. The Bacteria Implementation Plan received SWCB approval on 12/13/2010. The Study encompasses the Pigg River drainage, Old Womans Creek, Snow Creek, Storey Creek and Leesville Lake. Fryingpan Creek is a 2016 bacteria 303(d) Listing.

The Fryingpan Creek bacteria impairment is not specifically addressed by the TMDL due to the listing occurring after initial TMDL Study contractual design. However allocation scenario development is for the entire Pigg River drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment including Fryingpan Creek. Fryingpan Creek is nested within the Pigg River Bacteria TMDL Watershed. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AFRY006.08- (Rt. 40 Bridge) The 2016 Integrated Report (IR) finds 6 of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion. Excessive values range from 300 to 1,153 cfu/100 ml. There are no additional data collected during the 2018 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L18R_FRY01A06 / Fryingpan Creek / Headwaters of Fryingpan Creek on downstream ~0.85 miles of the Rt. 40 crossing (36°57'30" / 79°26'54") (RU37).	4A	Escherichia coli (E. coli)	2016	L	2.56

Fryingpan Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.56**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L19R-01-BAC** **Roanoke (Staunton) River**

Cause Location: Roanoke (Staunton) River from the (old) Dan River, Inc. outfall to the backwaters of Kerr Reservoir.

City / County: Campbell Co. Charlotte Co. Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station ID:
4AROA067.91 (Ambient)(Route 746 Bridge (WATKINS BRIDGE))
E. coli - 7/42 Exceedance Rate
4AROA059.12 (Ambient)(Route 360 Bridge, East of Clover) 2018 data window:
E. coli - 10/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	Escherichia coli (E. coli)	2006	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	Escherichia coli (E. coli)	2008	L	2.23
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	Escherichia coli (E. coli)	2008	L	0.92
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	Escherichia coli (E. coli)	2006	L	12.78
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	Escherichia coli (E. coli)	2006	L	12.49
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	Escherichia coli (E. coli)	2006	L	10.19
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	Escherichia coli (E. coli)	2006	L	3.82

Roanoke (Staunton) River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**46.32**

Sources:

Livestock (Grazing or Feeding Operations)
Unspecified Domestic Waste
Wastes from Pets
Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L19R-01-HG** **Roanoke (Staunton) River, Cub Creek, Kerr Reservoir**

Cause Location: Roanoke (Staunton) River from Leesville Dam to the John H. Kerr Dam including Kerr Reservoir, its tributaries Eastland Creek and Nutbush Creek (within the state of Virginia) and Cub Creek from its mouth to the crossing of Rough Creek Road near Rough Creek.

City / County: Campbell Co. Charlotte Co. Halifax Co. Mecklenburg Co. Pittsylvania Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

VDH Fish Advisory - PCBs: Issued 7/24/98 , revised 8/31/07 & Mercury: Issued 8/31/07
Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (State Route 695) near Rough Creek.
VDH recommends the following precautions to reduce any potential harmful effects from eating contaminated fish:

Eat smaller, younger fish (within the legal limits). Younger fish are less likely to contain harmful levels of contaminants than larger, older fish.
Eat fewer or smaller servings of fish.
Try to eat different species of fish from various sources (i.e., different creeks, rivers and streams).
Cleaning or cooking contaminated fish does not eliminate or reduce mercury. However, levels of PCBs in fish can be reduced by taking the following precautions:
Remove the skin, the fat from the belly and top and internal organs before cooking the fish.
Bake, broil or grill on an open rack to allow fats to drain away from the meat.
Discard the fats that cook out of the fish.
Avoid or reduce the amount of fish drippings or broth that is used to flavor the meal.
Eat less deep-fried fish, since frying seals contaminants into the fatty tissue.
For more information about fish consumption advisories, including frequently asked questions go to www.vdh.virginia.gov.

Mercury Fish Tissue Sampling Results
Near Route 29 - Altavista
4AROA129.55 (2006 FT/Sediment) - 2 species exceed Mercury VDH level of concern
Near Brookneal
4AROA097.07 (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern
Near Route 746 - Randolph
4AROA067.91 (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern
Near Route 360 - Clover
4AROA059.12 (2006 FT/Sediment) - 4 species exceed Mercury VDH level of concern
Near Clarksville
4AROA036.59 (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern
Kerr Reservoir near Ivy Hill
4AROA028.04 (2006 FT/Sediment) - 2 species exceed Mercury VDH level of concern
Lake Gaston near State Line
4AROA004.54 (2006 FT/Sediment) - 1 species exceeded Mercury VDH level of concern

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River.	5A	Mercury in Fish Tissue	2008	L	3.76
VAW-L19R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Goose Creek mouth on downstream to the Town of Altavista POTW.	5A	Mercury in Fish Tissue	2008	L	6.77
VAW-L19R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Leesville Dam downstream to the mouth of Goose Creek.	5A	Mercury in Fish Tissue	2008	L	3.46

Roanoke and Yadkin River Basins

VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	5A	Mercury in Fish Tissue	2008	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	5A	Mercury in Fish Tissue	2008	L	2.23
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	5A	Mercury in Fish Tissue	2008	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc.	5A	Mercury in Fish Tissue	2008	L	5.05
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	5A	Mercury in Fish Tissue	2008	L	17.65
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RD60).	5A	Mercury in Fish Tissue	2018	L	4.70
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	5A	Mercury in Fish Tissue	2008	L	12.78
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek.	5A	Mercury in Fish Tissue	2008	L	5.58
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River	5A	Mercury in Fish Tissue	2008	L	8.80
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	5A	Mercury in Fish Tissue	2008	L	12.49
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	5A	Mercury in Fish Tissue	2008	L	10.19
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	5A	Mercury in Fish Tissue	2008	L	3.82
VAW-L57R_DAN02A00 / Dan River / Dan River mainstem from the Schoolfield Dam upstream to the backwaters of the impoundment.	5A	Mercury in Fish Tissue	2018	L	2.51
VAW-L57R_DAN04A00 / Dan River / Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia).	5A	Mercury in Fish Tissue	2018	L	7.36
VAW-L75L_ROA05L98 / Kerr Reservoir / Kerr Reservoir from the John H. Kerr dam to its backwaters, excluding the Dan River portion, Bluestone Creek and Buffalo Creek.	5A	Mercury in Fish Tissue	2008	L	######
VAW-L76L_BMA01A06 / Buffalo Creek / Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Mercury in Fish Tissue	2008	L	358.96
VAW-L77L_BST01A06 / Bluestone Creek / Bluestone Creek and Tribs included in the boundaries of Kerr Reservoir	5A	Mercury in Fish Tissue	2008	L	860.21

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Roanoke (Staunton) River, Cub Creek, Kerr Reservoir

Fish Consumption	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**31,884.59**	**111.96**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L19R-01-PCB** **Roanoke (Staunton) River, Cub Creek**

Cause Location: Roanoke (Staunton) River from Leesville Dam to the backwaters of Kerr Reservoir, and Cub Creek from its mouth to the crossing of Rough Creek Road near Rough Creek.

City / County: Campbell Co. Charlotte Co. Halifax Co. Pittsylvania Co.

Use(s): Fish Consumption Public Water Supply

Cause(s) / VA Category: PCBs in Fish Tissue / 4A Polychlorinated Biphenyls (PCBs) / 4A

VDH Fish Advisory - PCBs: Issued 7/24/98 , revised 8/31/07 & Mercury: Issued 8/31/07
Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (State Route 695) near Rough Creek.
VDH recommends the following precautions to reduce any potential harmful effects from eating contaminated fish:

Eat smaller, younger fish (within the legal limits). Younger fish are less likely to contain harmful levels of contaminants than larger, older fish.
Eat fewer or smaller servings of fish.
Try to eat different species of fish from various sources (i.e., different creeks, rivers and streams).
Cleaning or cooking contaminated fish does not eliminate or reduce mercury. However, levels of PCBs in fish can be reduced by taking the following precautions:
Remove the skin, the fat from the belly and top and internal organs before cooking the fish.
Bake, broil or grill on an open rack to allow fats to drain away from the meat.
Discard the fats that cook out of the fish.
Avoid or reduce the amount of fish drippings or broth that is used to flavor the meal.
Eat less deep-fried fish, since frying seals contaminants into the fatty tissue.
For more information about fish consumption advisories, including frequently asked questions go to:
http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/.

The Roanoke (Staunton) River is impaired for the Public Water Supply Use due to violations of the PCB in Water human health criteria. The PWS impairment extends from the confluence of the Big Otter River to the backwaters of Kerr Reservoir. Violation information is provided below.

4AROA137.00 (upstream of Goose Creek) 2013 – one species exceeded VDH upper level of concern (500 ppb); Flathead catfish. Four species exceeded VDH lower level of concern (50 ppb); Carp, Flathead catfish, Channel catfish, and shorthead redhorse sucker.

4AROA129.95 (near Bus Route 29 Bridge near Altavista Gage) 2013 three species exceeded VDH lower level of concern (50 ppb); Flathead catfish, channel catfish, and Carp. 2006 one species exceeded VDH upper level of concern (500 ppb); carp. 2006 six species exceeded VDH lower level of concern (50 ppb); Smallmouth bass, Rock bass, Redbreast sunfish, Channel catfish, Carp, Redhorse sucker.

4AROA108.09 (near Long Island) 2013 one species exceeded VDH upper level of concern (500 ppb); Flathead catfish. Four species exceeded VDH lower level of concern (50 ppb); Channel catfish, Carp, Shorthead redhorse sucker, and gizzard shad. 2006 one species exceeded VDH upper level of concern (500 ppb); carp. Three species exceeded VDH lower level of concern (50 ppb); Smallmouth bass, Channel catfish, Carp, Redhorse sucker.

4AROA097.07 (Route 501 at Brookneal) -2013 two species exceeded VDH upper level of concern (500 ppb); Blue catfish and Flathead catfish. Four species exceeded VDH lower level of concern (50 ppb; striped bass, Blue catfish, carp, and Channel catfish. 2006 one species exceeded VDH upper level of concern (500 ppb); Striped bass. Five species exceeded VDH lower level of concern (50 ppb); Striped bass, Black crappie, Channel catfish, Carp, and Redhorse sucker.

4AROA067.91 (Route 746 Bridge) - 2006 two species exceeded VDH upper level of concern (500 ppb); Walleye, and Carp. Five species exceeded VDH lower level of concern (50 ppb); Blue catfish, Channel catfish, carp, Golden redhorse sucker, and Gizzard shad.

4AROA059.12 (Route 360 Bridge, east of Clover) - 2006 two species exceeded VDH upper level of concern (500 ppb); Striped bass and Carp. Seven species exceeded VDH lower level of concern (50 ppb); Striped bass, White bass, Largemouth bass, walleye, Channel catfish, carp, and Redhorse sucker.

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

4AROA036.59 (Station #B Buoy 18 Kerr Reservoir) - 2006 two species exceeded VDH lower level of concern (50 ppb); Carp and golden redhorse sucker.

4AROA028.04 (Station #B-9 Kerr Reservoir - Buoy 9) - 2006 two species exceeded VDH lower level of concern (50 ppb); Largemouth bass and Longnose gar.

4AROA004.54 (Lake Gaston near state line) - 2006 one species exceeded VDH lower level of concern (50 ppb); carp

4ACUB010.96 (near Route 40 Gaging Station) – 2006 one species exceeded VDH upper level of concern (500 ppb); carp. Three species exceeded VDH lower level of concern (50 ppb); channel catfish, carp, and Redhorse sucker

Station IDs:
2007-2008 PCB TMDL Monitoring
4AROA124.59
tPCB in Water Violations - 2909 pg/L & 4466 pg/L
4AROA097.76
tPCB in Water Violations - 1115 pg/L & 4304 pg/L
4AROA090.50
tPCB in Water Violations - 1192 pg/L & 1625 pg/L
4AROA067.91
tPCB in Water Violations - 1336 pg/L & 1307 pg/L
4AROA059.12
tPCB in Water Violations - 1627 pg/L & 1359 pg/L

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River.	4A	PCBs in Fish Tissue	1998	L	3.76
VAW-L19R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Goose Creek mouth on downstream to the Town of Altavista POTW.	4A	PCBs in Fish Tissue	1998	L	6.77
VAW-L19R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Leesville Dam downstream to the mouth of Goose Creek.	4A	PCBs in Fish Tissue	2002	L	3.46
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	PCBs in Fish Tissue	2002	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	PCBs in Fish Tissue	2002	L	2.23
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	PCBs in Fish Tissue	2002	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc.	4A	PCBs in Fish Tissue	2002	L	5.05
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	4A	PCBs in Fish Tissue	2002	L	17.65
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke	4A	PCBs in Fish Tissue	2002	L	4.70

Roanoke and Yadkin River Basins

(Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RD60).					
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	PCBs in Fish Tissue	2002	L	12.78
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek.	4A	PCBs in Fish Tissue	2008	L	5.58
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River	4A	PCBs in Fish Tissue	2008	L	8.80
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	PCBs in Fish Tissue	2002	L	12.49
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	PCBs in Fish Tissue	1998	L	10.19
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	PCBs in Fish Tissue	1998	L	3.82

Roanoke (Staunton) River, Cub Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			**102.09**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Falling River mouth at the Campbell/Charlotte/Halifax County line downstream to the confluence of Catawba Creek.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.89
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.89
VAW-L30R_ROA02A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Brookneal Staunton River POTW downstream to the confluence of Falling River at the Campbell/Charlotte/Halifax County Line.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	2.23
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	2.23
VAW-L30R_ROA03A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Dan River, Inc. downstream to the Brookneal Staunton River POTW.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.92
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	0.92
VAW-L30R_ROA04A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from Buffalo Creek confluence downstream to Dan River, Inc.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	5.05
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	5.05
VAW-L30R_ROA06A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the mouth of Hills Creek (37 7 9.187 N, -79 12 57.062) downstream to the confluence of Buffalo Creek.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	17.65
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	17.65
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RD60).	4A	Polychlorinated Biphenyls (PCBs)	2010	L	4.70

Roanoke and Yadkin River Basins

	4A	Polychlorinated Biphenyls (PCBs)	2010	L	4.70
VAW-L36R_ROA01A98 / Roanoke (Staunton) River / Childrey Creek to Cub Creek.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	12.78
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	12.78
VAW-L38R_ROA02A98 / Roanoke (Staunton) River / Cub Creek to Roanoke Creek.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	12.49
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	12.49
VAW-L40R_ROA03A98 / Roanoke (Staunton) River / Roanoke Creek to the pipeline crossing approximately 5.4 miles downstream of the Route 360 bridge.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	10.19
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	10.19
VAW-L40R_ROA04A98 / Roanoke (Staunton) River / The pipeline crossing about 5.4 miles downstream of the Route 360 bridge to Kerr Reservoir.	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.82
	4A	Polychlorinated Biphenyls (PCBs)	2010	L	3.82

Roanoke (Staunton) River, Cub Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Polychlorinated Biphenyls (PCBs) - Total Impaired Size by Water Type:			**147.44**

Sources:

Contaminated Sediments	Municipal Point Source Discharges	Non-Point Source	Unspecified Urban Stormwater

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L19R-02-BAC** **Lynch Creek**

Cause Location: Lynch Creek from its headwaters to the mouth on the Roanoke (Staunton) River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24386, 06/20/2006(2018)

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study received U.S. EPA approval on 6/20/2006 [Fed. ID 24386] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24386, 6/20/2006

One station is located within the 3.90 miles of impaired waters. 4ALYH000.50 (Ambient)(Lynch Cr @ Foot Bridge - City Park)

4ALYH000.50 (Ambient) (Lynch Cr @ Foot Bridge - City Park) 9 of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_LYH01A02 / Lynch Creek / Lynch Creek from its mouth on the Roanoke (Staunton) River upstream to Bus. 29	4A	Escherichia coli (E. coli)	2010	L	0.37
VAW-L19R_LYH02A02 / Lynch Creek / Lynch Creek from Bus. Rte. 29 upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	3.53

Lynch Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.90**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L19R-02-BEN** **Lynch Creek**

Cause Location: Lynch Creek from its headwaters to the mouth on the Roanoke (Staunton) River.

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ALYH000.50 (Ambient, Bio) (Lynch Cr @ Foot Bridge - City Park) The 2018 data window finds Bio 'IM' from four VSCI surveys (2012, 2015) with an average score of 31.1.
2008 Bio: IM - Located in a City Park with significant impervious surface coverage in the riparian zone.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_LYH01A02 / Lynch Creek / Lynch Creek from its mouth on the Roanoke (Staunton) River upstream to Bus. 29	5A	Benthic Macroinvertebrates Bioassessments	2010	M	0.37
VAW-L19R_LYH02A02 / Lynch Creek / Lynch Creek from Bus. Rte. 29 upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	3.53

Lynch Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.90**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L19R-03-BEN** **Reed Creek**

Cause Location: Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ARAB000.52 (Bio)(Reed Cr @ Grit Road (Rt 668))
2008 & 2012 Bio
IM - 4ARAB000.52 exhibited high seasonal variability, with one score approaching the impairment cutoff of 60. Sedimentation and elevated nutrients may be negatively affecting the stream community. Further sampling is needed to accurately assess the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_RAB01A00 / Reed Creek / Reed Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its perennial headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	8.90

Reed Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.90**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L19R-04-BEN** **Roanoke (Staunton) River, Unnamed tributary**

Cause Location: An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AXCN000.31 (2008 Bio)(UT to Staunton R @ Bus 29 & Rt 714)
IM - appears to be negatively affected by high nutrient levels and suburban storm flows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_XCN01A02 / Roanoke (Staunton) River, Unnamed Tributary / An unnamed tributary to the Roanoke (Staunton) River downstream of Frazier Creek from its mouth on the Roanoke River upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	4.10

Roanoke (Staunton) River, Unnamed tributary **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.10**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L19R-05-BAC** **Roanoke (Staunton) River and Sycamore Creek**

Cause Location: Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River. Sycamore Creek from its mouth on Roanoke (Staunton) River upstream to the confluence with Little Sycamore Creek.

City / County: Campbell Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2018: 24386, 06/20/2006 (2018)

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study received U.S. EPA approval on 6/20/2006 [Fed. ID 24386] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24386, 6/20/2006.

4AROA129.55 (Business Rt. 29 Bridge, at gage) The 2018 IR reports 7 of 35 E.coli exceedances of the 235 cfu/100 ml instantaneous water quality standard. Excursions range from 325 cfu/100 ml to greater than 2,000 cfu/100 ml.

4ASYC000.26 (Rt. 929 Bridge) The 2018 data window finds three of 11 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Excursions range from 457 cfu/100 ml to greater than 6,000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L19R_ROA01A00 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Town of Altavista POTW downstream to the Big Otter River confluence with the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2018	L	3.76
VAW-L19R_SCE01A00 / Sycamore Creek / Lower Sycamore Creek mainstem from its mouth to the confluence with Little Sycamore Creek (RU47).	4A	Escherichia coli (E. coli)	2018	L	8.28
VAW-L30R_ROA07A18 / Roanoke (Staunton) River / Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37 7 9.187 N, -79 12 57.062 W) (RD60).	4A	Escherichia coli (E. coli)	2018	L	4.70

Roanoke (Staunton) River and Sycamore Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**16.74**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L20R-01-BAC** **Goose Creek**

Cause Location: The impairment begins at the confluence of the North and South Forks of Goose Creek extending downstream to the mouth of Bore Auger Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Escherichia coli (E.coli) replaces the 2004 6.78 mile fecal coliform (FC) bacteria 2006 303(d) Listing as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AGSE037.78- (Rt. 755 Bridge) There are no additional data beyond the 2014 Integrated Report (IR). The 2014 IR results find escherichia coli (E.coli) exceedances of the 235 cfu/100 ml instantaneous criterion occur in 6 of 12 samples. Exceeding values range from 250 to 1500 cfu/100 ml. There are no additional data within the 2012 data window. Both the 2008 and 2010 assessments reveal escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in 8 of 12 samples. Exceeding values range from 280 to 930 cfu/100 ml. The 2006 Integrated Report (IR) records E.coli exceedances of the instantaneous criterion in 7 of 9 samples with the same range of exceedance as in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L20R_GSE01A00 / Goose Creek / Goose Creek mainstem from the North and South Fork confluence downstream to the Bore Auger Creek mouth (RU39).	4A	Escherichia coli (E. coli)	2006	L	6.93

Goose Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.93**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Residential Districts
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L21R-01-BAC** **Goose Creek**

Cause Location: Goose Creek from the mouth of Rocky Branch downstream to the confluence of Stony Fork Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Bore Auger Creek nested Listing extends the Recreational Use impairment for 7.24 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

The 1999 Federal Consent Decree includes station 4AGSE022.55 as an Attachment B station for fecal coliform bacteria. The station was not 2002 303(d) listed as the 2002 exceedance rate is 8 percent where 2 of 23 analyses exceed the former 1000 cfu/100 ml instantaneous criterion (2002). The 2004 fecal coliform (FC) bacteria assessment results in 303(d) Listing finding nonsupport based on the former 400 cfu/100 ml instantaneous criterion in 2004.

4AGSE025.64- There are no additional data beyond the 2008 assessment. Escherichia coli (E.coli) exceed the 235 cfu/100 ml criterion in 3 of 9 samples ranging from 250 to 700 cfu/100 ml in both 2008 and 2010.

4AGSE022.55- 7 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion during the 2018 data window. Excursions range from 249 - 7701 cfu/100 ml. There are no additional data beyond the 2004 IR. The 2004 Integrated Report (IR) records FC exceeds the 400 cfu/100 ml instantaneous criterion in 2 of 18 samples. The exceeding values are 800 and 3100 cfu/100 ml. 2008 IR finds 1 of 3 FC samples exceeding the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_GSE01A00 / Goose Creek / Goose Creek mainstem from the Rocky Branch mouth on downstream to the confluence of Stony Fork Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	7.24

Goose Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.24**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L21R-01-BEN** **Wolf Creek**

Cause Location: Wolf Creek from its headwaters downstream to the Wolf Creek confluence on Goose Creek.

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired with this 2012 303(d) Listing for contravention of the General Standard (Benthic). There are no additional data within the 2016 data window.

4AWLF001.20- (Upstream of Joppa Mill) Bio 'IM' There are no additional data beyond the 2012 Integrated Report (IR). Two 2010 VSCI surveys with an average score of 51.5. The benthic macroinvertebrate community is dominated by filter-feeding taxa indicating an environment high in organic matter. The station had relatively good habitat scores except for moderate sedimentation. Land cover upstream of this site is approximately 43% agriculture which could be a source of sediment and nutrients.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_WLF01A08 / Wolf Creek / Wolf Creek from the Fiddler Creek mouth downstream to the Wolf Creek confluence with Goose Creek (RU41).	5A	Benthic Macroinvertebrates Bioassessments	2012	M	4.16
VAW-L21R_WLF02A08 / Wolf Creek / Wolf Creek headwaters downstream to the Fiddler Creek confluence on Wolf Creek (RU41).	5A	Benthic Macroinvertebrates Bioassessments	2012	M	2.97

Wolf Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.13**

Sources:

Crop Production (Crop Land or Dry Land)

Livestock (Grazing or Feeding Operations)

Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L21R-02-BAC** **Wolf Creek**

Cause Location: Wolf Creek from its headwaters downstream to the Wolf Creek confluence on Goose Creek

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Recreation Use is impaired for 7.13 miles in this 2008 initial 303(d) Listing due to exceedances for Escherichia coli (E.coli) bacteria. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387]. SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries including Wolf Creek are nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AWLF000.09- (Rt. 691 Bridge at Joppa Mill) The 2018 data window finds 4 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 243 to 12,997 cfu/100 ml. Both 2008 and 2010 data reveal E.coli exceeds the 235 cfu/100 ml criterion in 3 of 9 samples. E.coli exceedances range from 320 to 1400 cfu/100 ml. There are no additional data beyond the 2008 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_WLF01A08 / Wolf Creek / Wolf Creek from the Fiddler Creek mouth downstream to the Wolf Creek confluence with Goose Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	4.16
VAW-L21R_WLF02A08 / Wolf Creek / Wolf Creek headwaters downstream to the Fiddler Creek confluence on Wolf Creek (RU41).	4A	Escherichia coli (E. coli)	2008	L	2.97

Wolf Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.13**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L21R-02-BEN** **Bore Auger Creek**

Cause Location: Bore Auger Creek from near it's headwaters downstream to it's confluence with Goose Creek.

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

These waters are initially listed with the 2014 Integrated Report (IR). These waters are partially delisted (3.83 miles) with the 2018 IR based on data from 4ABOE004.86. Additional data is needed to evaluate delist of the lower Aquatic Life Use impairment.

4ABOE005.27 (Rt. 806 Bridge) Bio 'IM' 2 2012 VSCI surveys scoring spring 48.7 and fall 59.6. These surveys indicate a community dominated by pollution-tolerant taxa in the spring including midges and blackflies. There are a higher percentage of mayflies in the fall but both seasons had relatively low taxa richness, low numbers of stoneflies and low numbers of organisms in the scraper feeding category which require clean rock surfaces to feed upon. The instream habitat is affected by sediment deposition (low Sed score) with more than 50% of the stream bottom covered by fine particles. The sediment load in the stream also results in the low Embeddedness score meaning that the interstitial spaces between rocks is clogged by fine material thus limiting available habitat for sensitive macroinvertebrates. The watershed has a mix of forested and agricultural land cover.

The waters are partially delisted for Aquatic Life Use based on Virginia Stream Condition (VSCI) surveys collected at station 4ABOE004.86 (Saunders Rd./Rt. 616 Bridge, Bedford Co.) which represents Probabilistic Monitoring station 4ABOE005.27 for present and future monitoring. 4ABOE004.86 VSCI scores collected in 2015 and 2016 average 67.8. Spring 2015 and 2016 VSCI scores are 66.3 and 76.2, respectively; Fall 2015 and 2016 scores are 60.6 and 68.1, respectively. The VSCI surveys collected during the 2018 data window show full support of the Aquatic Life Use.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_BOE01A08 / Bore Auger Creek / Bore Auger Creek from just upstream of the Rt. 619 crossing at an unnamed tributary downstream to its mouth on Goose Creek (RU40).	5A	Benthic Macroinvertebrates Bioassessments	2014	M	5.73

Bore Auger Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.73**

Sources:

Loss of Riparian Habitat	Non-Point Source	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L21R-03-BAC** **Bore Auger Creek**

Cause Location: Bore Auger Creek from near it's headwaters downstream to it's confluence with Goose Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Bore Auger Creek nested Listing is due to excessive escherichia coli (E.coli) bacteria. The Recreational Use impairment extends 9.56 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ABOE004.86 (Saunders Road Bridge (Rt. 616)) - The 2018 data window finds 5 of 12 E.coli samples exceed the 235 cfu/100 ml criterion. Excursions range from 389 to 556 cfu/100 ml.

4ABOE001.34 (Rt. 754 Bridge N. of Chamblissburg) The 2012 assessment initially 303(d) Lists this portion of Bore Auger Creek based on Escherichia coli (E.coli) exceedances of the 235 cfu/100 ml WQS instantaneous criterion in 4 of 12 samples. The range of exceeding values is from 350 cfu/100 ml to 2000. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_BOE01A08 / Bore Auger Creek / Bore Auger Creek from just upstream of the Rt. 619 crossing at an unnamed tributary downstream to its mouth on Goose Creek (RU40).	4A	Escherichia coli (E. coli)	2012	L	5.73
VAW-L21R_BOE02A08 / Bore Auger Creek / Bore Auger Creek from near it's headwaters downstream to an unnamed tributary just upstream of the Rt. 619 crossing (RU40).	4A	Escherichia coli (E. coli)	2012	L	3.83

Bore Auger Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.56**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L21R-04-BAC** **Stony Fork**

Cause Location: Stony Fork from it's headwaters downstream to it's confluence with Goose Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. The 2012 Stony Fork nested Listing is due to excessive Escherichia coli (E.coli) bacteria. The Recreational Use impairment extends 13.17 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ASBA004.54 (Rucker Road, Rt. 806 Bridge) 9 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml WQS instantaneous criterion within the 2018 data window. The range of exceeding values is from 452 cfu/100 ml to 5172. The 2012 assessment initially Lists this portion of Stony Fork based on escherichia coli (E.coli) exceedances of the 235 cfu/100 ml WQS instantaneous criterion in 6 of 11 samples. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L21R_SBA01A08 / Stony Fork / Stony Fork from the Shoulder Run confluence downstream to the Stony Fork mouth on Goose Creek (RU42).	4A	Escherichia coli (E. coli)	2012	L	4.75
VAW-L21R_SBA02A08 / Stony Fork / Stony Fork from its headwaters downstream to the Shoulder Run confluence on Stony Fork (RU42).	4A	Escherichia coli (E. coli)	2012	L	8.42

Stony Fork **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**13.17**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L22R-01-BAC** **Goose Creek**

Cause Location: The upstream limit is at the Stony Fork mouth on Goose Creek extending downstream to the Carter Mill Creek confluence with Goose Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The waters remain impaired for failure to support the Recreational Use. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Escherichia coli data from station 4AGSE013.78 extends the bacteria impairment upstream 8.93 miles from the original 10.03 miles. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Goose Creek from the Carter Mill Creek confluence downstream to the Goose Creek mouth on the Roanoke (Staunton) River (RU45) is de-listed for 7.89 miles from the 2002 original 10.03 miles. The waters remain impaired for 11.11 miles. There are no additional data beyond the 2014 Integrated Report where no exceeding values are observed from 23 samples at 4AGSE000.20 (Rt. 630 Bridge).

4AGSE013.78- The 2018 Integrated Reporting window finds 7 of 24 E.coli samples exceed 235 cfu/100 ml WQS instantaneous criteria at 249 to 24,196 cfu/100 ml. Four escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion from 23 observations within the 2016 data window. Excessive values range from 350 to greater than 2000 cfu/100 ml. There are no additional data beyond the 2012 Integrated Report (IR) where 2 of 11 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion at 580 and greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_GSE01A14 / Goose Creek / Goose Creek from the Crab Orchard Creek confluence downstream to the Carter Mill Creek mouth on Goose Creek (RU43).	4A	Escherichia coli (E. coli)	2012	L	2.18
VAW-L22R_GSE02A02 / Goose Creek / Goose Creek mainstem from the Stony Fork mouth on Goose Creek (watershed boundary) on downstream to the Crab Orchard Creek mouth on Goose Creek.	4A	Escherichia coli (E. coli)	2012	L	8.93

Goose Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.11**

Sources:

Livestock (Grazing or Feeding Operations)	Non-Point Source	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Sewage Discharges in Unsewered Areas
Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L22R-02-BAC** **Mill Creek**

Cause Location: Mill Creek upstream to the mouth of Hunting Creek

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2010 assessment finds the Recreational Use impaired for this initial 303(d) Listing. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Mill Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMWW004.53 (Rt. 654 Bridge - Felspar Rd.) The 2016 Integrated Report (IR) finds 4 of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Values in excess of the criterion range from 300 to 600 cfu/100 ml. There are no additional data beyond the 2010 IR where 3 of 12 E.coli samples exceed the instantaneous criterion within the 2010 and 2012 data windows. Exceeding values range from 280 cfu/100 ml to 1900.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_MWW01A10 / Mill Creek / Mill Creek from its confluence with Goose Creek upstream to the mouth of Hunting Creek.	4A	Escherichia coli (E. coli)	2010	L	5.26

Mill Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.26**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L22R-03-BAC** **Hunting Creek**

Cause Location: Hunting Creek from its confluence with Mill Creek upstream to its headwaters.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This initial 2010 303(d) Listing is based on escherichia coli (E.coli) exceedances of the WQS 235 cfu/100 ml instantaneous criterion. Hunting Creek is tributary to Mill Creek and thence to Goose Creek. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Hunting Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AHNT001.29 (Rt. 608 Bridge - White House Rd.) - There are no additional data beyond the 2010 Integrated Report. 2012 and 2010 escherichia coli (E.coli) data exceed the 235 cfu/100 ml instantaneous criterion in 11 of 12 samples. Values in excess of the criterion range from 300 cfu/100 ml to greater than 2000. There are 6 samples greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_HNT01A10 / Hunting Creek / Hunting Creek from its confluence with Mill Creek upstream to its headwaters.	4A	Escherichia coli (E. coli)	2010	L	2.63

Hunting Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.63**

Sources:

Landfills	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)
Wildlife Other than Waterfowl			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L22R-04-BAC** **Carter Mill Creek**

Cause Location: Carter Mill Creek from the mouth of Fitzpatrick Branch downstream to the confluence of Carter Mill Creek with Goose Creek

City / County: Bedford Co. Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386/23315/23316/24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Therefore Carter Mill Creek is nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

This initial 2012 bacteria Listing is due to escherichia coli (E.coli) exceedances causing non-support of the Recreational Use.

4ACMC001.58- Escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion in 4 of 12 samples at 256 cfu/100 ml to greater than 2000 within the 2018 data window. 2012 Escherichia coli (E.coli) data finds exceedances of the 235 cfu/100 ml WQS instantaneous criterion in 2 of 12 samples at 550 cfu/100 ml and greater than 2000. There are no additional data within the 2014 or 2016 Integrated Reports (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L22R_CMC01A12 / Carter Mill Creek / Carter Mill Creek from the mouth of Fitzpatrick Branch downstream to the confluence of Carter Mill Creek with Goose Creek (RU44).	4A	Escherichia coli (E. coli)	2012	L	7.26

Carter Mill Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.26**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L23R-01-BAC** **Big Otter River and Sheeps Creek**

Cause Location: The impairment begins on Sheeps Creek form just north of Reba, VA on Campbells Mountain off Rt. 614 (Montvale Quad) downstream to the confluence of Stony Creek forming the Big Otter River (Peaks of Otter Quad 37°23'25" /79°33'21"). The impairment continues downstream on the Big Otter River from the mouth of Sheeps Creek to the confluence of North Otter Creek.

Note: The original downstream end was ~0.25 miles west of the Rt. 43 Bridge where Sheeps Creek and Stoney Creek join to form the Big Otter River, 1996 (Peaks of Otter Quad 37°23'25" /79°33'21"). The 2004 ending of the impairment is at the mouth of North Otter Creek on the Big Otter River.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Big Otter River/Sheeps Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed ID 1650/7798/23400]. The SWCB approved the TMDL 6/17/2004 (formerly VAW-L23R-01) and the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are therefore Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26) including Machine Creek (L26), Big Otter drainage (L23, L24, L27, L28- delisted 2008 13.98 mi.) including Sheeps (L23), North Otter (L24) and Elk (L25) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

The original Sheeps Creek 303(d) Listing for fecal coliform (FC) bacteria in 1996 and again in 1998 (8.13 miles) is based on ambient data collections showing contravention of the former 1000 cfu/100 ml fecal coliform bacteria standard in greater than 25 percent of the samples collected. The waters remain impaired for the recreational use and is expanded to include the Big Otter River. The 2004 expansion adds an additional 9.62 miles to the impaired waters listing to include the Big Otter River from river mile 41.48 downstream to 32.01. Escherichia coli (E.coli) replaces fecal coliform bacteria 303(d) Listing as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

Sheeps Creek (8.13 miles)
4ASEE003.16- (Rt. 680 Bridge) During the 2018 data window, 11 of 30 samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions ranged from 300 to 5,172 cfu/100 ml. The 2016 data window reveals escherichia coli (E.coli) exceeds the 235 WQS cfu/100 ml instantaneous criterion in 10 of 36 samples. The range of exceeding values is from 250 cfu/100 ml to greater than 2000. E.coli exceeds the instantaneous criterion in 5 of 35 samples in 2014 with excessive values ranging from 250 cfu/100 ml to 1300. The 2012 assessment reports 5 of 23 E.coli samples exceeding the 235 cfu/100 ml instantaneous criterion. The exceeding values also range from 250 cfu/10 ml to 1300. 2010 E.coli data find 2 of 11 samples exceeding the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 250 and 380 cfu/100 ml. The 2008 assessment found 4 of 14 fecal coliform (FC) samples exceeding the former 400 cfu/100 ml instantaneous criterion as there were no E.coli data to assess. The range of exceeding values is from 500 to 900 cfu/100 ml. FC exceeds the instantaneous criterion in 8 of 24 samples within the 2006 data window with the range of exceedance from 450 cfu/100 ml to 1500. The 2004 Integrated Report (IR) finds 10 of 27 observations exceed the instantaneous criterion. The 2004 exceedance range is from 500 cfu/100 ml to greater than 8000.

Big Otter River (9.62 miles)
4ABOR034.32- (Rt. 644 Bridge) There are no additional data beyond the 2010 Integrated Report (IR) where 4 of 23 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceedance is from 280 cfu/100 ml to 1000. E.coli exceed the 235 cfu/100 ml criterion in 4 of 11 samples ranging from 280 to 1000 cfu/100 ml in 2008. E.coli exceed the criterion in 4 of 8 samples in 2006 with the same range of exceedance as 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L23R_BOR01A02 / Big Otter River / Big Otter River mainstem from the mouth of North Otter Creek (Watershed Boundary) upstream to an unnamed tributary located at 37°23'24" / 79°30'19" (RU49).	4A	Escherichia coli (E. coli)	2006	L	6.00
VAW-L23R_BOR02A02 / Big Otter River / Big Otter River	4A	Escherichia coli (E. coli)	2006	L	3.58

mainstem from an unnamed tributary located at 37°23'24" / 79°30'19" upstream to the Bedford City raw water intake on the Big Otter River (RU49).					
VAW-L23R_BOR03A02 / Big Otter River / Big Otter River mainstem from the Bedford City raw water intake upstream to the confluence of Sheeps Creek and Stony Creek forming the Big Otter River (RU49).	4A	Escherichia coli (E. coli)	2006	L	0.04
VAW-L23R_SEE01A00 / Sheeps Creek / Sheeps Creek mainstem from the upstream end of WQS public water supply (PWS) section just downstream of Reba Creek on downstream to Sheeps Creek's confluence with Stony Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	4.89
VAW-L23R_SEE02A00 / Sheeps Creek / Headwaters north of Reba, VA on Campbells Mountain downstream to an unnamed tributary just downstream of Reba Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	3.24

Big Otter River and Sheeps Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**17.75**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L23R-02-BAC** **Stony Creek**

Cause Location: Stony Creek from its confluence with Sheeps Creek upstream to the mouth of Little Stony Creek

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This 2010 303(d) Listing is based on data within the 2010 data window showing a Recreational Use impairment. The Big Otter River/Sheeps Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed ID 1650/7798/23400]. The SWCB approved the TMDL 6/17/2004 (formerly VAW-L23R-01) and the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26) including Machine Creek (L26), Big Otter drainage (L23, L24, L27, L28- delisted 2008 13.98 mi.) including Sheeps (L23), North Otter (L24) and Elk (L25) Creeks. Stony Creek is nested within the TMDL Watershed and not specifically addressed by the Bacteria TMDL. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ASCB000.16 (Rt. 43 Bridge at intersection of 43 & 682)- There are no additional data beyond the 2010 assessment. 2014, 2012 and 2010 assessments results find 2 of 11 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Values in excess of the criterion are 250 and 320 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L23R_SCB01A00 / Stony Creek / Stony Creek mainstem within the WQS designated public water supply (PWS) section from the Bedford Reservoir downstream to its confluence with Sheep Creek (RU49).	4A	Escherichia coli (E. coli)	2010	L	4.37

Stony Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.37**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L24R-01-BAC** **Oslin Creek, U.T. (XOJ)**

Cause Location: Unnamed tributary (XOJ) from its confluence with Oslin Creek upstream to its headwaters.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The initial 303(d) listing of U.T. Oslin Creek (XOJ) extends the entire 7.13 mile length and occurs in the 2018 data window. The Big Otter River / Elk Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed. ID 1498/9595/18708/23401/36497] and SWCB approved on 6/17/2004 (formerly VAW-L25R-01). The Bacteria Implementation Plan (IP) received SWCB approval on 3/27/2007. The waters are NESTED and therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. Ultimately escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AXOJ000.60 (Oslin Cr. Rd. [Rt. 637] Bridge) - The 2018 data window finds all twelve E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion. Exceedances range from 256 - 12,997 cfu/100 ml.

4AXOJ001.34 (Off Charlemont Rd. [Rt. 638] Bridge) - This 2015 Probabilistic station reports one E.coli sample in exceedance of the 235 cfu/100 ml instantaneous criterion at 4,352 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_XOJ01A18 / Oslin Creek, U.T. (XOJ) / Unnamed tributary (XOJ) from its confluence with Oslin Creek upstream to its confluence with unnamed tributary (37°27'39" / 79°24'08") (RU50).	4A	Escherichia coli (E. coli)	2018	L	1.36
VAW-L24R_XOJ02A18 / Oslin Creek, U.T. (XOJ) / Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).	4A	Escherichia coli (E. coli)	2018	L	5.76

Oslin Creek, U.T. (XOJ) **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.12**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L24R-02-BEN** **Oslin Creek, U.T. (XOJ)**

Cause Location: Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2018 303(d) list represents the initial impairment of this 5.77 mile segment for the Aquatic Life Use (benthic macroinvertebrate community).

4AXOJ001.34 - The 2018 data window finds Bio 'IM' from two 2015 VSCI scores: Spring 46.4 and Fall 33.4. This station was surveyed as part of the Probabilistic monitoring program in 2015. The average Stream Condition Index (SCI) score was 39.91 indicating a benthic community which has low diversity and is dominated by pollution-tolerant taxa.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_XOJ02A18 / Oslin Creek, U.T. (XOJ) / Unnamed tributary (XOJ) to Oslin Creek from its confluence with unnamed tributary (37°27'39" / 79°24'08") to its headwaters (RU50).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	5.76

Oslin Creek, U.T. (XOJ)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.76**

Sources:

Agriculture Loss of Riparian Habitat Non-Point Source

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L25R-01-BAC** **Big Otter River, Elk Creek and North Otter Creek**

Cause Location: Big Otter River from the mouth of North Otter Creek downstream to the confluence of the Little Otter River. Elk Creek from the Rt. 644 crossing at Perrowville downstream to the Elk Creek confluence on the Big Otter River. North Otter Creek from near the Rt. 122 crossing downstream to the its mouth on the Big Otter River.

Note: The original 1998 bacteria 7.28 mile impairment on Elk Creek is extended with the 2004 IR to include the lower portion of North Otter Creek and the Big Otter River.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A Fecal Coliform / 4A

The Big Otter River/Elk Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 2/02/2001 [Fed. ID 1498/9595/18708/23401/36497] and SWCB approved on 6/17/2004 (formerly VAW-L25R-01). The Bacteria Implementation Plan (IP) received SWCB approval on 3/27/2007. The waters are therefore Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R-mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov. Ultimately escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

The 2004 extension is the result of additional data collections made while conducting the TMDL Study. The bacteria impairment encompasses the original Elk Creek 7.52 miles and the total 2004 extension of 32.17 miles. The original 1998 and 2004 extensions totaling 38.97 miles are described below:

The 1998 Elk Creek (L25R) original 7.52 mile bacteria upper limit is at Rt. 622 west of Forest (Forest Quad 37°20'25"/79°21'33") and ending at its mouth on the Big Otter River (Goode Quad 37°18'37"/79°23'38"). The 2004 extension runs from near Perrowville (37°24'58"/79°21'07") downstream to the Rt. 622 crossing adding 12.83 miles. The original 1998 and 2002 303(d) Listing basis is for fecal coliform bacteria (FC) exceedances at 4AECR003.02. These data show contravention of the former WQS 1000 cfu/100 ml fecal coliform criterion in greater than 25 percent of the samples collected.

Elk Creek (20.35 miles)
4AECR016.66- (Below Rt. 664 near Norwood) There are no additional data beyond the 2008 IR where 6 of 9 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in both 2008 and 2010 assessments. The exceedance range is from 320 to 1600 cfu/100 ml.

4AECR007.42- (intersection of Routes 643 and 705) There are no additional data beyond the 2008 IR where E.coli exceedances are found in 6 of 9 samples with a range of exceedance from 320 cfu/100 ml to greater than 2000 in both 2008 and 2010 assessments. Each in excess of the instantaneous criterion.

4AECR003.02- (Rt. 668 Bridge) The 2016 data window finds 14 of 23 E.coli samples in excess of the WQS 235 cfu/100 ml instantaneous criterion. Excessive values range from 250 cfu/100 ml to greater than 2000. There are no additional data within the 2014 data window. Seventeen of 32 E.coli samples exceed the instantaneous criterion within the 2012 data window. The exceeding values range from 300 to greater than 2000 cfu/100 ml. The 2010 assessment results find 11 of 21 E.coli samples exceed the instantaneous criterion ranging from 300 to 1500 cfu/100 ml. The 2008 assessment found 6 of 9 E.coli samples exceed the instantaneous criterion. The exceeding values range from 300 to greater than 2000 cfu/100 ml.

The 2004 North Otter Creek (L24R) extension is 6.80 miles. The extension includes the lower portion of North Otter Creek on the Sedalia Quad (37°27'12"/79°27'55") from near the Route 122 crossing extending downstream to its mouth on the Big Otter River (Sedalia Quad (37°23'04"/79°26'40").

4ANOT001.06- (Rt. 644 Bridge - Langford Mill Rd.) The 2016 and 2018 Integrated Reports (IRs) find escherichia coli (E.coli) exceeds the instantaneous criterion in 16 of 35 and 16 of 30 observations, respectively. Excessive values range from 250 cfu/100 ml to greater than 2000. E.coli exceed the WQS 235 cfu/100 ml instantaneous criterion in 11 of 35 observations. Values in excess of the criterion range from 275 cfu/100 ml to greater than 2000 in 2014. E.coli data within the 2012 data window find 7 of 23 observations exceeding the 235 cfu/10 ml instantaneous criterion. Values in excess of the criterion range from 300 cfu/100 ml to greater than 2000. 2010 data find E.coli) exceed the instantaneous criterion in 2 of 12 observations.

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Values in excess of the criterion are 300 cfu/100 ml each. There were no additional data beyond the 2006 Integrated Report (IR). Exceedances within the 2008 data window are 4 of 13 FC samples with the same range of exceedance as in 2006. The 2006 IR reports 7 of 20 FC samples exceed the 400 cfu/100 ml instantaneous criterion. The range of exceedance is from 700 cfu/100 ml to greater than 8000. The 2004 IR reports 10 of 28 samples in excess of the instantaneous criterion for fecal coliform bacteria ranging from 500 cfu/100 ml to greater than 8000.

Big Otter River (L25R; 2004 extension of 11.82 miles.)
The Big Otter River (L25R) from the confluence of North Otter Creek (Sedalia Quad 37°27'12"/79°27'55") river mile 32.01 downstream to the confluence of Little Otter River on the Big Otter River (Goode Quad 37°16'28"/79°24'19") river mile 20.27.

4ABOR029.74- (Rt. 221 Bridge intersection Rt.'s 221 & 670) There are no additional data beyond the 2004 assessment. The 2004 assessment found 2 of 2 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Exceeding values are 2100 and 4900 cfu/100 ml.

4ABOR024.46- (Rt. 460 Bridge near intersection Rt.'s 460 & 706) 2014, 2016 and 2018 data reveal 2 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Both exceeding values are 275 cfu/100 ml. Three of 9 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion in 2008 and 2010. Exceeding values range from 420 to greater than 2000 cfu/100 ml. The 2006 and 2004 assessments find 2 of 2 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Exceeding values are 7000 cfu/100 ml and greater than 160,000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L24R_NOT01A02 / North Otter Creek / North Otter Creek from the Rt. 122 crossing at Coltons Mill downstream to the North Otter Creek mouth on the Big Otter River (RU50).	4A	Escherichia coli (E. coli)	2010	L	6.80
VAW-L25R_BOR01A02 / Big Otter River / Big Otter River mainstem from the mouth of the Little Otter River upstream to the Elk Creek confluence on the Big Otter River (RU52).	4A	Escherichia coli (E. coli)	2008	L	4.49
VAW-L25R_ECR01A00 / Elk Creek / Elk Creek mainstem from its mouth on the Big Otter River upstream to the Rt. 622 crossing west of Forest, VA (RU51).	4A	Escherichia coli (E. coli)	2008	L	7.52
VAW-L25R_ECR02A02 / Elk Creek / Elk Creek mainstem from and unnamed tributary near Norwood (37°20'25" / 79°21'32") Rt. 622 crossing, upstream to near Perrowville (37°24'58" / 79°21'07") at another unnamed tributary (RU51).	4A	Escherichia coli (E. coli)	2008	L	12.83

Big Otter River, Elk Creek and North Otter Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**31.64**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L25R_BOR02A02 / Big Otter River / Big Otter River mainstem from the confluence of Elk Creek upstream to the mouth of Roaring Run (RU52).	4A	Fecal Coliform	2004	L	5.98
VAW-L25R_BOR03A04 / Big Otter River / Confluence of North Otter Creek downstream to the mouth of Roaring Run (RU52).	4A	Fecal Coliform	2004	L	1.35

Big Otter River, Elk Creek and North Otter Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**7.33**

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

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Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L26R-01-BAC** **Little Otter River and Machine Creek**

Cause Location: Little Otter River from its perennial headwaters west of Rt. 680 at Cobbs Mountain on the Peaks of Otter Quad on downstream to the mouth of the Little Otter River on the Big Otter River. Machine Creek from its perennial headwaters downstream to its confluence with the Little Otter River.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 02/02/2001 [Fed ID 1547/9486/19639/24557] (VAW-L26R-01) and Machine Creek [Fed ID 1547/9467/20210] (VAW-L26R-02). SWCB approval achieved on 6/17/2004. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at http://www.deq.virginia.gov. Ultimately escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

The 1996/1998/2002 303(d) Listing basis for fecal coliform (FC) bacteria are ambient collections showing contravention of the former 1000 cfu/100 ml fecal coliform criterion in greater than 10 and 25 percent of the samples collected as well as the former 400 cfu/100 ml instantaneous criterion. The Little Otter River waters remain impaired for the recreational use for 27.63 miles.

Little Otter River [Fed ID 1547/9486/19639/24557] 27.63 miles:

4ALOR021.92- (Rt. 838 Bridge) There are no additional data beyond the 2010 Integrated Report (IR) where escherichia coli (E.coli) exceed the instantaneous criterion in 10 of 12 samples with excessive values ranging from 250 cfu/100 ml to greater than 2000. The 2002 Integrated Report (IR) finds fecal coliform (FC) bacteria exceeds the former 400 cfu/100 ml instantaneous criterion in 2 of 2 samples. Exceedances range from 3300 cfu/100 ml to greater than 160,000.

4ALOR018.96- (Rt. 122 Bridge north of the intersection of Rt.'s 122 and 211) There are no additional data beyond the 2002 IR where 2 FC exceedances from 2 samples are in excess of the former instantaneous criterion. Each exceedance is 4900 cfu/100 ml and greater than 160,000.

4ALOR014.75- (Rt. 718 Bridge above Bedford STP) The 2018 and 2016 assessments find E.coli exceeds the WQS instantaneous criterion in 20 of 36 and 16 of 36 observations, respectively. Exceedances range from 250 cfu/100 ml to greater than 2000. Ten of 36 E.coli samples ranging from 250 to greater than 2000 cfu/100 ml exceed the instantaneous criterion in 2014. The 2012 assessment finds E.coli exceedances range from 300 to greater than 2000 cfu/100 ml in 11 of 36 samples in excess of the 235 cfu/100 ml instantaneous criterion. Ten of 33 E.coli samples exceed the WQS instantaneous criterion in 2010. Exceedances range from 270 cfu/100 ml to 1200. 2008 E.coli exceedances range from 270 to 1200 cfu/100 ml in 8 of 21 samples in excess of the instantaneous criterion. The 2006 assessment reports the E.coli exceedance range from 270 to 920 cfu/100 ml in 4 of 9 samples. And the 2006 assessment also reports 16 of 52 FC samples exceeding the former FC 400 cfu/100 ml instantaneous criterion with an excursion range from 450 cfu/100 ml to greater than 8000.

4ALOR014.33- 2 of 3 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion at 475 and 600 cfu/100 m in the 2014 data window. There are no additional data within the 2016 or 2018 data windows.

4ALOR010.78- (Rt. 460 Bridge) There are no additional data beyond the 2002 IR. Two of 2 FC samples exceed the former instantaneous criterion at 1700 cfu/100 ml and greater than 160,000.

4ALOR008.64- (Rt. 784 Bridge) 4 of 18 E.coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2016 and 2018 data windows. Excessive values range from 275 cfu/100 ml to 550. The 2014 Integrated Report (IR) finds 7 of 24 E.coli samples exceed the WQS instantaneous criterion. Values in excess of the criterion range from 250 cfu/100 ml to 720. No new data are within the 2012 data window. The 2010 assessment results find 5 of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion. Values in excess of the criterion range from 250 cfu/100 ml to 720. There were no E.coli data to assess in 2008. 2008 FC exceedances of the former 400 cfu/100 ml instantaneous criterion are found in 3 of 17 samples. Exceedances range from 500 to 2400 cfu/100 ml. FC exceedances of the former 400 cfu/100 ml instantaneous criterion in 2006 are 13 of 31 samples. Excessive values range from 500 to 28,000 cfu/100 ml.

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Machine Creek [Fed ID 1547/9467/20210/24780] 11.59 miles:

4AMCR004.60- (Rt. 804 Bridge) 20of 36 E.coli samples exceed the 235 cfu/100 ml criterion during the 2018 data window (exceedance range is 250 - 24,196 cfu/100 ml). The 2016 data window reports 17 of 36 E.coli samples exceed the instantaneous criterion with a range from 275 to 1600 cfu/100 ml. Thirteen of 36 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2014 data window. Exceedances range from 275 to 1600 cfu/100 ml. The 2012 assessment finds 10 of 24 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 300 to 1600 cfu/100 ml. 2010 data reveal 3 of 12 E.coli samples exceed the instantaneous criterion. Exceedances range from 300 to 550 cfu/100 ml. Three of 14 FC samples exceed the former 400 cfu/100 ml instantaneous criterion within the 2008 data window. Exceedances range from 500 to 1100 cfu/100 ml. The 2006 IR reports 7 of 18 FC samples exceed the former instantaneous criterion and the same range of exceedance.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	4A	Escherichia coli (E. coli)	2010	L	4.47
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	Escherichia coli (E. coli)	2010	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	Escherichia coli (E. coli)	2010	L	5.90
VAW-L26R_LOR04A00 / Little Otter River / Little Otter River mainstem from the Bedford City boundary at the Rt. 43 crossing downstream to Bedford City POTW (RU54).	4A	Escherichia coli (E. coli)	2008	L	7.44
VAW-L26R_LOR05A00 / Little Otter River / Little Otter River mainstem from its perennial headwaters downstream to the Bedford City boundary at the Rt. 43 crossing (RU54).	4A	Escherichia coli (E. coli)	2010	L	5.58
VAW-L26R_MCR01A00 / Machine Creek / Machine Creek mainstem from it perennial headwaters downstream to its mouth on the Little Otter River (RU53).	4A	Escherichia coli (E. coli)	2010	L	11.59

Little Otter River and Machine Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**39.22**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L26R-01-BEN** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to mouth to its confluence with the Big Otter River.

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

TMDLs for Benthic Impairments in Little Otter R. (Sediment and Total Phosphorus), Johns Cr, Wells Cr, and Buffalo Cr (Sediment) were EPA approved on 2/3/15 [Fed IDs 65480/63924]. The original 2002 303(d) Listed 5.90 mile General Standard (Benthic) impairment is extended upstream in 2008 with an additional 7.44 miles showing benthic impairment at station 4ALOR014.75 for an additional impaired length of 13.34 miles. The 2010 assessment extends the impairment downstream 8.71 miles based on impaired benthic conditions at stations 4ALOR012.20, 4ALOR008.64 and 4ALOR007.20. Total impaired miles are 22.05 miles.

4ALOR014.75- (Rt. 718 Bridge - above Bedford STP) Bio 'IM' 4 Virginia Stream Condition Index (VSCI) surveys (2011-2012) report an average score of 57.9 within the 2016 and 2018 data windows. The 2014 IR reports 6 VSCI surveys (2008, 2011-2012) with an average score of 59.9. The 2010 and 2012 assessments record 3 Virginia Stream Condition Index (VSCI) surveys (2006 and 2008) scoring fall 2006 58.7; and spring 56.7 and fall 67.8 in 2008. The 2008 IR reports the fall 2006 VSCI survey as noted previously. Habitat impacts include stream substrates that are embedded by fine sediment, eroded stream banks and riparian zone vegetation removal. Application of the VSCI to previous RBP II surveys (1994-2006 outside the 2008 data window) reveals an average VSCI score of 54.0. As a result the benthic community is assessed as impaired and is a 2008 7.30 mile extension upstream from the 2002 303(d) Benthic Listing.

4ALOR014.33- (Below Bedford STP) Bio 'IM'. The 2014, 2016 and 2018 Integrated Reports (IR) find 4 (2011-2012) VSCI surveys with an average score of 49.2. The preliminary stressor identification determined sediment and nutrients to be the cause of the impairment.
There are no additional data between the 2004 and 2014 IRs where 3 2004 RBP II surveys Fall 1999 score 45; Spring '99 and '00 average score 53.95. This station is located below the City of Bedford's STP discharge at 4ALOR014.36 (excluding the mixing zone). Best Professional Judgment was used in spring 1999 because the sample had a high number of pollution tolerant organisms. The aquatic life use General Standard (Benthic) impairment is a 2002 original 303(d) Listing.

4ALOR012.20 (Passed the end of Dowdy Rock Rd.) Bio 'IM' 2 2008 VSCI surveys with an average score of 58.2. Habitat impacts include stream substrates that are embedded by fine sediment and eroded stream banks. This site replaces the historical downstream impact station (4ALOR014.33) that has become inaccessible.

4ALOR008.93 (Off Nicopolis Dr., Rt. 784)- Bio 'IM' The 2014, 2016, and 2018 IRs report 2 2012 VSCI surveys scoring spring 48.9 and fall 27.2. Habitat surveys indicated a stream section with marginal bank stability, sediment impacts and lack of instream habitat. Preliminary stressor identification determined sediment and nutrients to be the cause of the impairment.

4ALOR008.64 (Nicopolis Dr., Rt. 784 Bridge) Bio 'IM No new data since the 2010 data window where 1 2008 VSCI survey scored 56.5. This station was sampled as part of the Nutrient Criteria Special Study in 2008. Stations were selected based on historical nutrient levels and data on benthic macroinvertebrates, algae, periphyton and habitat were collected to be compared with nutrients. The VSCI score indicates a stressed community with low taxonomic diversity and low abundance of pollution-sensitive organisms. Habitat surveys indicated a stream section with substrates that were impacted by excessive fine sediments. Chemical analyses indicate high phosphorus levels.

4ALOR007.20 (Downstream of Nicopolis Dr. - Rt. 784) Bio 'IM'- A 2007 probabilistic site. Two 2007 VSCI surveys with an average score of 52.7. Both spring and fall samples had relatively low taxonomic diversity and low abundance of pollution-sensitive organisms. Habitat surveys indicated a stream section with substrates that were impacted by excessive fine sediments.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little	4A	Benthic Macroinvertebrates Bioassessments	2010	L	4.47

Roanoke and Yadkin River Basins

Otter River confluence with the Big Otter River (RU54).

VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2010	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	5.90
VAW-L26R_LOR04A00 / Little Otter River / Little Otter River mainstem from the Bedford City boundary at the Rt. 43 crossing downstream to Bedford City POTW (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	7.44

Little Otter River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**22.05**

Sources:

Crop Production (Crop Land or Dry Land)	Loss of Riparian Habitat	Municipal (Urbanized High Density Area)	Municipal Point Source Discharges
Sediment Resuspension (Clean Sediment)	Streambank Modifications/Destabilization	Wet Weather Discharges (Non-Point Source)	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L26R-01-HG** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to the Little Otter River confluence with the Big Otter River.

City / County: Bedford Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and Water Quality Standards (WQS) effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov for more information about mercury contamination and http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/ for VDH Advisories or Bans.

4ALOR007.94 (Below Bedford)- There are no additional data beyond the 2008 data window. Mercury (Hg) is found in 2006 fish tissue results for 1 smallmouth bass (0.489 ppm) and 1 rock bass (0.450 ppm) each greater than the water quality based mercury tissue value (TV) of 0.3 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	5A	Mercury in Fish Tissue	2010	L	4.47
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	5A	Mercury in Fish Tissue	2010	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	5A	Mercury in Fish Tissue	2010	L	5.90

Little Otter River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**14.61**

Sources:

Urban Runoff/Storm Sewers

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L26R-01-PCB** **Little Otter River**

Cause Location: Little Otter River mainstem from the Bedford City POTW downstream to the Little Otter River confluence with the Big Otter River.

City / County: Bedford Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCBs in Fish Tissue / 4A

The Roanoke R. PCB TMDL Study is US EPA approved 4/9/2010. Fed ID: 38522 and received SWCB approval on 12/9/2010. The Little Otter River is incorporated within the Roanoke River PCB TMDL with Fed IDs: 38461/38638/38639.

1999 Fish tissue collections at 4ALOR007.94 (below Bedford) find polychlorinated biphenyls (PCBs) in excess of the current 20 parts per billion (ppb) tissue value (TV) and former human health-risk carcinogenic WQS TV of 54 ppb from 3 species; Carp at 68.30; Smallmouth Bass at 54.8; and 1999 addition Redhorse Sucker at 28.50 ppb. Application of the new PCB WQS TV of 20 ppb to 2002 collections adds an additional species, Bluehead Chub at 21.28 ppb. The 14.33 mile fish consumption impairment is a 2002 addition to the initial Listing and the impairment remains in the 2014, 2016, and 2018 assessments with no additional data. A Virginia Department of Health fish consumption advisory has not been issued for these waters. The 2008 assessment found 2006 and 2002 fish tissue collections had no exceedances of the former WQS PCB TV of 54 ppb from species collected. However neither of these collections contained tissue results for carp or smallmouth bass, the original Listing basis.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_LOR01A00 / Little Otter River / Little Otter River mainstem from the mouth of Machine Creek downstream to the Little Otter River confluence with the Big Otter River (RU54).	4A	PCBs in Fish Tissue	2002	L	4.47
VAW-L26R_LOR02A00 / Little Otter River / Little Otter River mainstem from the mouth of Poorhouse Creek downstream to the mouth of Machine Creek (RU54).	4A	PCBs in Fish Tissue	2002	L	4.24
VAW-L26R_LOR03A00 / Little Otter River / Little Otter River mainstem from the Bedford City POTW downstream to mouth of Poorhouse Creek (RU54).	4A	PCBs in Fish Tissue	2002	L	5.90

Little Otter River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:			**14.61**

Sources:

Urban Runoff/Storm Sewers — Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L26R-02-BAC** **Johns Creek**

Cause Location: Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (Bedford & Goode Quads).

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 02/02/2001 [Fed ID 1547/9486/19639/24557] (VAW-L26R-01) and Machine Creek [Fed ID 1547/9467/20210] (VAW-L26R-02). SWCB approval achieved on 6/17/2004. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Johns Creek (L26R Nested 2014 IR), Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at http://www.deq.virginia.gov. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator organism as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AJHN000.01- (near the Johns Creek confluence with the Little Otter River) There are no additional data beyond the 2014 IR. The 2014 assessment finds the Recreational Use impaired from 2 of 3 escherichia coli samples. Values in excess of the 235 cfu/100 ml instantaneous criterion are 350 and 900 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_JHN01A00 / Johns Creek / Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (RU54).	4A	Escherichia coli (E. coli)	2014	L	2.24

Johns Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.24**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L26R-02-BEN** **Johns Creek**

Cause Location: Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (Bedford & Goode Quads).

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The TMDLs for Benthic Impairments in Little Otter River, Johns Creek, Wells Creek, and Buffalo Creek was EPA approved [Fed IDs 65480/63924] on 2/3/2015 and SWCB approved on ____. Historical surveys of Johns Creek from the 1990s and 2000 also indicate an impaired benthic community. The original 2002 Benthic results show moderate impact to the benthic community from a total of 3 Rapid Bioassessment Protocol II (RBP II) surveys. BPJ used in spring 1999 because the number of total taxa and total individuals were low, and pollution tolerant taxa were dominant.

4AJHN000.01- (near the Johns Creek confluence with the Little Otter River) Bio 'IM' 4 Virginia Stream Condition Index (VSCI) surveys (2011-2012) with an average score of 49.4 show an impaired condition within the 2016 data window. The 2014 data window contains 6 VSCI (2008-2012). The 2014 average score is 48.5 indicating continued impairment of the biota. The benthic community was dominated by midges (Chironomidae) and net-spinning caddisflies (Hydropsychidae). These organisms typically dominate streams that have high amounts of organic matter. Two surveys had low taxa richness and diversity and all had low numbers of pollution-sensitive taxa such as mayflies and stoneflies. There were no additional data within the 2012 data window. The 2010 assessment finds the benthic community impaired from 3 VSCI surveys (2006-2008) with an average score of 44.20. This stream is affected by urban and agricultural NPS pollution. Flashy flows appear to cause severe erosion of stream banks. The original 2002 2.13 mile General Standard (Benthic) 303(d) Listing remains. The 2008 assessment reports 1 2006 fall Virginia Stream Condition Index (VSCI) survey scoring 40.7.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_JHN01A00 / Johns Creek / Johns Creek mainstem from near its perennial headwaters in Bedford City downstream to the Johns Creek mouth on the Little Otter River (RU54).	4A	Benthic Macroinvertebrates Bioassessments	2002	L	2.24

Johns Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.24**

Sources:

Municipal (Urbanized High Density Area)	Sediment Resuspension (Clean Sediment)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L26R-03-BAC** **Wells Creek**

Cause Location: Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Little Otter River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 02/02/2001 [Fed ID 1547/9486/19639/24557] (VAW-L26R-01) and Machine Creek [Fed ID 1547/9467/20210] (VAW-L26R-02). SWCB approval achieved on 6/17/2004. The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria Study encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- mainstem delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at http://www.deq.virginia.gov.

The 2014 initial 303(d) Listing finds the Recreational Use impaired for 3.93 miles based on escherichia coli (E.coli) results at station 4AWEL001.14. The bacteria impairment is nested within the Little Otter River Bacteria TMDL.

4AWEL001.14- (Rt. 722 Bridge, Old Country Rd.) The 2014, 2016, and 2018 assessments find 11 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. The range of exceeding values is from 300 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_WEL01A02 / Wells Creek / Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters (RU53).	4A	Escherichia coli (E. coli)	2014	L	3.93

Wells Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.93**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L26R-03-BEN** **Wells Creek**

Cause Location: Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters.

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The 2008 initial 303(d) Listing finds the Aquatic Life Use impaired for 3.93 miles based on results from benthic surveys at station 4AWEL000.59.

4AWEL001.14- (Rt. 722 Bridge, Old Country Rd.) Bio 'IM' 4 Virginia Stream Condition Index (VSCI) surveys (2011-2012) with an average score of 50.2. The habitat at this station is moderately impacted by hay fields and pastures. The riparian zone buffers are narrow and there is obvious stream bank erosion. The instream habitat is affected by deposition of fine sediment. The benthic community is dominated by organisms tolerant of nutrient and organic matter impacts.

4AWEL000.59- (Downstream of Rt. 747 Crossing) Bio 'IM' Both the 2010 and 2008 assessments find 2 2005 VSCI surveys scoring spring 45.6 and fall 59.6. There are no additional data within the 2012, 2014, 2016, or 2018 data windows. The habitat is moderately impacted by hay fields and pastures. The riparian zone buffers are narrow and there is substantial stream bank erosion. The in stream habitat is affected by deposition of fine sediment. The benthic community is dominated by organisms tolerant of nutrient and organic matter impacts.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L26R_WEL01A02 / Wells Creek / Wells Creek mainstem from its mouth on Machine Creek upstream to its headwaters (RU53).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	3.93

Wells Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.93**

Sources:

Loss of Riparian Habitat	Sediment Resuspension (Clean Sediment)	Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L27R-01-BAC** **Big Otter River and Falling Creek**

Cause Location: Big Otter River from the mouth of the Little Otter River on the Big Otter River extending downstream to the confluence of Buffalo Creek with the Big Otter River (Goode, Forest& Lynch Station Quads).

Falling Creek from its headwaters downstream to the Falling Creek mouth on the Big Otter River.

City / County: Bedford Co. Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A Fecal Coliform / 4A

The Big Otter River Bacteria Total Maximum Daily Load (TMDL) received U.S. EPA approval on 02/02/2001 [FED ID 1547/9486/36497] and SWCB approval on 6/17/2004 (former VAW-L27R-01). The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Falling Creek is nested within the TMDL Watershed and not specifically addressed by the Bacteria TMDL. However allocation scenario development is for the entire TMDL Watershed to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved study and allocations can be viewed at http://www.deq.virginia.gov. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

No recreational use impairments are noted in the 1998 303(d) List for the Big Otter River in watershed L27R. The 2002 5.37 mile fecal coliform portion is added to the original former downstream (L28R- 2008 delisted 13.98 miles) 1998 303(d) Listing. Big Otter bacteria impaired waters span from the mouth of Little Otter River on the Big Otter on downstream to the Buffalo Creek confluence. A 2004 IR Falling Creek addition with 5.92 miles brings the total bacteria impaired length to 11.29 miles. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Big Otter River (5.37 miles):
4ABOR016.26- (Rt. 24 Bridge) The 2018 data window finds 12 of 23 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion with a range of 275 cfu/100 ml to greater than 11,000 cfu/100 ml. Eight of 23 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml within the 2016 data window. Excessive values range from 275 cfu/100 ml to greater than 2000. There are no additional data beyond the 2012 Integrated Report (IR) where escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion in 4 of 23 samples ranging from 280 cfu/100 ml to greater than 2000. The 2010 assessment finds E.coli exceed in 1 of 12 samples with the single exceedance at 280 cfu/100 ml.

The 2004 IR reports FC exceeds the former 400 cfu/100 ml instantaneous criterion in 3 of 17 samples. The range of excursions is from 500 cfu/100 ml to greater than 160,000. Three FC samples within the 2008 data window find no exceedances of the instantaneous criterion. 2006 IR finds 1 of 8 FC samples exceeds at 160,000 cfu/100 ml.

Falling Creek (5.92 miles):
4AFNG001.06- There are no additional data beyond the 2004 IR where 2 of 2 FC samples exceed the 400 cfu/100 ml instantaneous criterion at 2,400 and greater than 160,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BOR01A00 / Big Otter River / Big Otter River mainstem from the upstream WQS designated public water supply (PWS) Sec. 5j end downstream to the Buffalo Creek mouth on the Big Otter River (RU55).	4A	Escherichia coli (E. coli)	2010	L	2.66
VAW-L27R_BOR02A00 / Big Otter River / Big Otter River mainstem from the mouth of Little Otter R. on Big Otter R. downstream to the upstream end of the WQS designated public water supply (PWS) section 5j (RU55).	4A	Escherichia coli (E. coli)	2010	L	2.71

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Big Otter River and Falling Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.37**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_FNG01A02 / Falling Creek / Falling Creek mainstem from its mouth on the Big Otter River upstream to it headwaters (RU55).	4A	Fecal Coliform	2004	L	2.82
VAW-L27R_FNG02A18 / Falling Creek / Falling Creek mainstem from its confluence with Bold Branch upstream to its headwaters (RU55).	4A	Fecal Coliform	2004	L	3.09

Big Otter River and Falling Creek

Recreation

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**5.91**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L27R-01-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at the Route 811 crossing in Campbell County to its mouth on the Big Otter River.

City / County: Bedford Co. Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Little Otter River (Sediment and Total Phosphorus), Johns Creek, Wells Creek, and Buffalo Creek (Sediment) TMDL Benthic Impairments received U.S. EPA approval on 2/3/2015. [Fed. ID 64056] and SWCB approval on 12/11/2014.

Station ID:
4ABWA008.53 (2003 Probmon/2009/2012 Bio)(Along Rt. 623 near New London)
IM - Flow regime and nutrients seem to negatively affect the stream community. Abundant periphyton and the presence of filamentous algae indicate elevated nutrients are the probable cause of the impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BWA01A18 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Big Otter River upstream to the end of the WQS designated public water supply (PWS) Sec. 5j end (RU56).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	2.10
VAW-L27R_BWA02A18 / Buffalo Creek / Buffalo Creek from the end of the WQS designated public water supply (PWS) section 5j upstream to an unnamed tributary at the Rt. 811 crossing in Campbell County (37° 14' 56"/79° 18' 20") (RU56).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	6.43

Buffalo Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.53**

Sources:

Clean Sediments

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L27R-02-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at the Route 811 crossing in Campbell County to its mouth on the Big Otter River.

City / County: Bedford Co. Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 36497, 2/2/2001
Station ID:
4ABWA002.00 (Ambient)(2018)(Below Rt. 24 Bridge)
E. coli - 8/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_BWA01A18 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Big Otter River upstream to the end of the WQS designated public water supply (PWS) Sec. 5j end (RU56).	4A	Escherichia coli (E. coli)	2006	L	2.10
VAW-L27R_BWA02A18 / Buffalo Creek / Buffalo Creek from the end of the WQS designated public water supply (PWS) section 5j upstream to an unnamed tributary at the Rt. 811 crossing in Campbell County (37° 14' 56"/79° 18' 20") (RU56).	4A	Escherichia coli (E. coli)	2006	L	6.43

Buffalo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.53**

Sources:

Livestock (Grazing or Feeding Operations)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L27R-03-BEN** **Falling Creek**

Cause Location: Falling Creek mainstem from its mouth on the Big Otter River upstream to it headwaters (RU55).

City / County: Bedford Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2018 data window finds the initial Aquatic Life Use impairment for Falling Creek.

4AFNG003.54 (Rt. 707 Bridge) - The 2018 data window finds impairment from one 2016 VSCI score of 37.1. This station was surveyed as part of the Probabilistic Monitoring Program. Midges (Chironomidae) dominated the benthic community; however, the diversity and specific mayfly (Ephemeroptera) taxa collected at this station indicate potential for improvement.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L27R_FNG02A18 / Falling Creek / Falling Creek mainstem from its confluence with Bold Branch upstream to its headwaters (RU55).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	3.09

Falling Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.09**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L28R-01-BAC** **Big Otter River**

Cause Location: Big Otter River mainstem from the mouth of Flat Creek downstream to Big Otter River confluence with the Roanoke (Staunton) River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station IDs:
4ABOR000.62 (Ambient, TMDL)(Bernards Creek 30 m above mouth)
E. coli - 10/35 Exceedance Rate
4ABOR012.18 (Ambient)(Station #8, Route 644 Bridge)
E. coli - 2/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L28R_BOR01A00 / Big Otter River / Big Otter River mainstem from the mouth of Flat Creek downstream to Big Otter River confluence with the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2010	L	9.45
VAW-L28R_BOR02A00 / Big Otter River / Big Otter River mainstem from the Campbell County USA Otter River WTP downstream to mouth of Flat Creek.	4A	Escherichia coli (E. coli)	2016	L	2.22
VAW-L28R_BOR03A00 / Big Otter River / Big Otter River mainstem from the Buffalo Creek mouth on Big Otter River downstream to the Campbell County USA Otter River WTP.	4A	Escherichia coli (E. coli)	2016	L	2.34

Big Otter River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**14.01**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L29R-01-BEN** **Flat Creek**

Cause Location: Flat Creek from the confluence of Yellow Branch to its headwaters.

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
2007/2012/2014 Bio
IM - 4AFCA010.95 (Flat Cr @ RT 622 bridge) was listed as impaired in the 2008 IR. Sediment and scour are listed as probable stressors. It exhibits slight seasonal variability and moderate variability near the assessment threshold of 60. Recent sampling has indicated an improvement is VSCI scores, although sediment and scour are still affecting the community. Additional monitoring is required to accurately assess the waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L29R_FCA02A10 / Flat Creek / Flat Creek from the confluence of Yellow Branch to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	8.21

Flat Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.21**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L29R-02-BAC** **Flat Creek**

Cause Location: Flat Creek mainstem from Yellow Branch's mouth downstream to the Flat Creek mouth on the Big Otter River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This 2018 initial bacteria listing for Flat Creek is nested within the Big Otter River Bacteria Total Maximum Daily Load (TMDL) which received U.S. EPA approval on 02/02/2001 [FED ID 1547/9486/36497] and SWCB approval on 6/17/2004 (former VAW-L27R-01). The SWCB approved the Bacteria Implementation Plan (IP) on 3/27/2007. The waters are Category 4A for bacteria. The Bacteria TMDL encompasses the Little Otter drainage (L26R) including Machine Creek (L26R), Big Otter drainage (L23R, L24R, L27R, L28R- delisted 2008 13.98 mi.) including Sheeps (L23R), North Otter (L24R) and Elk (L25R) Creeks. Flat Creek is included within this area.

4AFCA001.40 (Rt. 696 Bridge) - 2 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Excursions are 291 and 565 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L29R_FCA01A00 / Flat Creek / Flat Creek mainstem from Yellow Branch's mouth downstream to the Flat Creek mouth on the Big Otter River.	4A	Escherichia coli (E. coli)	2018	L	7.66

Flat Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.66**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L30R-01-BAC** **Roanoke (Staunton) River**

Cause Location: Roanoke (Staunton) River mainstem from the Big Otter River mouth downstream to the confluence of Hills Creek (37° 7' 9.187" N, -79° 12' 57.062" W).

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The initial 2018 data window Recreational Use listing is nested within the Bacteria TMDLs for the Cub Cr., Turnip Cr., Buffalo Cr., Buffalo Cr. (UT), and Staunton R. Watersheds. EPA approved 6/22/06, SWCB approved 6/27/07 [FED ID: 24387].

4AROA124.59 (Rt. 640 Bridge, Pitts. Line Old Mansion) - 3 of 12 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 281 to 4884 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_BHA01A02 / Buffalo Creek / Buffalo Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	10.23

Roanoke (Staunton) River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.23**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L30R-02-BAC** **Childrey Creek**

Cause Location: Childrey Creek mainstem from its headwaters downstream to the Childrey Creek mouth on the Roanoke (Staunton) River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

Two stations are located within the 14.54 miles of impaired waters. 4ACRE002.52 (Ambient)(2018)(Childrey Creek at Route 632 Bridge) and 4ACRE008.75 (Ambient)(Childrey Cr @ State Shed Rd (Rt 645)

4ACRE002.52 (Ambient)(2018)(Childrey Creek at Route 632 Bridge) 0/0 samples in excess of the instantaneous criterion.

4ACRE008.75 (Ambient)(Childrey Cr @ State Shed Rd (Rt 645)) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_CRE01A00 / Childrey Creek / Childrey Creek mainstem from its headwaters downstream to the Childrey Creek mouth on the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2006	L	14.53

Childrey Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**14.53**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L30R-03-BAC** **Straightstone Creek**

Cause Location: Straightstone Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to Little Straightstone Creek

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 8.75 miles of impaired waters. 4ASSC002.98 (TMDL Monitoring)(2018)(Route 761 (Straightstone Rd))

4ASSC002.98 (TMDL Monitoring)(2018)(Route 761 (Straightstone Rd)) 7 of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_SSC01A02 / Straightstone Creek / Straightstone Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to Little Straightstone Creek	4A	Escherichia coli (E. coli)	2006	L	8.75

Straightstone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.75**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L30R-04-BAC** **Whipping Creek**

Cause Location: Whipping Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 13.9 miles of impaired waters. 4AWPP002.53 (TMDL, Ambient)(Whipping Creek at Route 633)

4AWPP002.53 (TMDL, Ambient) (Whipping Creek at Route 633) Three of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_WPP01A02 / Whipping Creek / Whipping Creek mainstem from its mouth on the Roanoke (Staunton) River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	13.90

Whipping Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**13.90**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L30R-05-BAC** **Little Straightstone Creek**

Cause Location: Little Straightstone Creek from its headwaters to the mouth

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 7.55 miles of impaired waters. 4ALHT000.70 (TMDL Monitoring) (Route 668 (Level Run Road))

4ALHT000.70 (TMDL Monitoring) (Route 668 (Level Run Road)) Five of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L30R_LHT01A06 / Little Straightstone Creek / Little Straightstone Creek from its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	7.57

Little Straightstone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.57**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L31R-01-BEN** **East Little Seneca Creek, Unnamed Tributary**

Cause Location: East Little Seneca Creek, Unnamed Tributary from the headwaters to the mouth

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AXUP000.06 (2004 FPM) (Upstream of route 698) No additional data beyond the 2016 data window:
IM - seems to be negatively affected by flow regime and sedimentation.
2011/2013 Bio - IM - Sediment and nutrients are primary stressors to this reach. VSCI scores exhibit seasonal variability over several years.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L31R_XUP01A06 / East Little Seneca Creek, Unnamed Tributary / From the headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.50

East Little Seneca Creek, Unnamed Tributary **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.50**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L32R-01-BAC** **Falling River**

Cause Location: Falling River from its headwaters to its confluence with South Fork Falling River

City / County: Appomattox Co. Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Two stations are located within the 18.16 miles of impaired waters. 4AFRV025.34 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 650 bridge) and 4AFRV029.24 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 647 bridge)

4AFRV025.34 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 650 bridge) Four of 12 samples in excess of the instantaneous criterion.

4AFRV029.24 (2004 Falling River Bacteria TMDL)(2018)(Falling River at Rt. 647 bridge) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L32R_FRV01A06 / Falling River / Falling River from its headwaters to its confluence with South Fork Falling River	4A	Escherichia coli (E. coli)	2006	L	18.17

Falling River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**18.17**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L33R-01-BAC** **Button Creek**

Cause Location: Button Creek from the headwaters to the mouth.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 7.86 miles of impaired waters. 4ABTF002.16 (TMDL Monitoring)(Button Creek at Rt. 651)

4ABTF002.16 (TMDL Monitoring)(Button Creek at Rt. 651) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L33R_BTF01A06 / Button Creek / From the headwaters to its mouth	4A	Escherichia coli (E. coli)	2006	L	7.86

Button Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.86**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L33R-02-BAC** **South Fork Falling River**

Cause Location: South Fork Falling River from its headwaters to the mouth.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Three stations are located within the 16.79 miles of impaired waters. 4AFSF000.66 (TMDL Monitoring)(2018)(South Fork Falling River, Rt. 648 bridge), 4AFSF004.56 (Ambient)(Route 604), and 4AFSF011.11 (TMDL Monitoring)(South Fork Falling River, Rt. 663 bridge)

4AFSF000.66 (TMDL Monitoring)(2018) (South Fork Falling River, Rt. 648 bridge) Six of Six samples in excess of the instantaneous criterion.

4AFSF004.56 (Ambient)(Route 604) Four of 12 samples in excess of the instantaneous criterion.

4AFSF011.11 (TMDL Monitoring)(South Fork Falling River, Rt. 663 bridge) Five of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L33R_FSF01A06 / South Fork Falling River / From its headwaters to the mouth (RU67).	4A	Escherichia coli (E. coli)	2006	L	16.78

South Fork Falling River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**16.78**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L34R-01-BAC** **Falling River**

Cause Location: Falling River mainstem from the Falling River North and South Fork confluence to its mouth on the Roanoke (Staunton) River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 17.88 miles of impaired waters. 4AFRV002.78 (Ambient, TMDL)(Off Rt. 600 Below Brookneal STP) , 4AFRV003.07 (TMDL IP Monitoring)(2018) (Falling River @ Rt 40) , 4AFRV010.99 (Ambient, TMDL Monitoring)(2018) (Naruna Gage Route 643)
, and 4AFRV017.71 (Ambient & 2004 Falling River TMDL)(2018)(Route 615 Bridge)

4AFRV002.78 (Ambient, TMDL) (Off Rt. 600 Below Brookneal STP) Six of 10 samples in excess of the instantaneous criterion.

4AFRV003.07 (TMDL IP Monitoring)(2018)(Falling River @ Rt 40) Two of 12 samples in excess of the instantaneous criterion.

4AFRV010.99 (Ambient, TMDL Monitoring)(2018) (Naruna Gage Route 643) 17 of 36 samples in excess of the instantaneous criterion.

4AFRV017.71 (Ambient & 2004 Falling River TMDL)(2018)(Route 615 Bridge) 9 of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_FRV01A00 / Falling River / Falling River mainstem from the Brookneal Lagoon outfall downstream to the Falling River mouth on the Roanoke (Staunton) River.	4A	Escherichia coli (E. coli)	2006	L	2.95
VAW-L34R_FRV02A00 / Falling River / Dan River Inc. water intake on Falling River downstream to the Brookneal Lagoon outfall.	4A	Escherichia coli (E. coli)	2006	L	0.32
VAW-L34R_FRV03A00 / Falling River / Little Falling River mouth downstream to Dan River, Inc. intake on Falling River.	4A	Escherichia coli (E. coli)	2006	L	4.37
VAW-L34R_FRV04A00 / Falling River / WQS public water supply (PWS) section 5c end downstream to mouth of Little Falling River.	4A	Escherichia coli (E. coli)	2006	L	0.86
VAW-L34R_FRV05A02 / Falling River / Falling River from the Mollys Creek mouth downstream to the WQS section 5c public water supply (PWS) end.	4A	Escherichia coli (E. coli)	2006	L	6.50
VAW-L34R_FRV06A02 / Falling River / Falling River mainstem from the Falling River North and South Fork confluence downstream to the mouth of Mollys Creek.	4A	Escherichia coli (E. coli)	2006	L	2.85

Falling River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**17.85**

Sources:

Livestock (Grazing or Feeding Operations)

Wastes from Pets

Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L34R-02-BAC** **Little Falling River**

Cause Location: Little Falling River from its headwaters at the confluence of to its mouth on Falling River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 15.94 miles of impaired waters. 4ALRV005.17 (TMDL Monitoring),4ALRV007.84 (Ambient), 4ALRV009.74 (Ambient)(2018), and 4ALRV013.53 (Ambient)(2018)

4ALRV005.17 (TMDL Monitoring)(Little Falling River at Rt. 618 bridge) Five of 11 samples in excess of the instantaneous criterion.

4ALRV007.84 (Ambient) (L. Falling River @ Rt. 646) Three of 12 samples in excess of the instantaneous criterion.

4ALRV009.74 (Ambient)(2018) (Little Falling River at Route 615) Three of 12 samples in excess of the instantaneous criterion.

4ALRV013.53 (Ambient)(2018)(L. Falling River @ Rt 649) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_LRV01A00 / Little Falling River / Little Falling River mainstem from the WQS designated public water supply (PWS) upstream end downstream to its mouth on Falling River.	4A	Escherichia coli (E. coli)	2006	L	0.81
VAW-L34R_LRV02A06 / Little Falling River / From the PWS WQS Section 5c to its confluence with Jacobs Creek	4A	Escherichia coli (E. coli)	2006	L	8.90
VAW-L34R_LRV03A06 / Little Falling River / From its confluence with Jacobs Creek to the Campbell/Appomattox Co line	4A	Escherichia coli (E. coli)	2012	L	4.41
VAW-L34R_LRV04A12 / Little Falling River / From the Campbell/Appomattox Co line to its headwaters at the confluence of Jonnican Branch, Steele Fork, and Marrowbone Creek	4A	Escherichia coli (E. coli)	2014	L	1.81

Little Falling River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**15.93**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L34R-03-BAC** **Suck Creek**

Cause Location: Suck Creek from its headwaters to the mouth.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 8.49 miles of impaired waters. 4ASUC001.31 (Ambient)

4ASUC001.31 (Ambient)(Suck Creek at Route 648) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_SUC01A06 / Suck Creek / From its headwaters to the mouth	4A	Escherichia coli (E. coli)	2006	L	8.49

Suck Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.49**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L34R-04-BAC** **Entry Creek**

Cause Location: Entry Creek from its headwaters to its mouth on Little Falling River

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 4.74 miles of impaired waters. 4AENT001.64 (Ambient)(2018)

4AENT001.64 (Ambient)(2018)(Entry Cr @ Rt 601) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_ENT01A08 / Entry Creek / Entry Creek from its headwaters to its mouth on Little Falling River (RU70)	4A	Escherichia coli (E. coli)	2008	L	4.73

Entry Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.73**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L34R-05-BAC** **Hickory Creek**

Cause Location: Hickory Creek from its headwaters to the mouth.

City / County: Appomattox Co. Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 2.77 miles of impaired waters. 4AHCK000.51 (Ambient)(2018)

4AHCK000.51 (Ambient)(2018) (Hickory Creek @ Rt. 641) Zero of 2 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_HCK01A10 / Hickory Creek / Hickory Creek from its headwaters to the mouth.	4A	Escherichia coli (E. coli)	2010	L	2.76

Hickory Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.76**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L34R-06-BAC** **Dog Creek**

Cause Location: Dog Creek from its headwaters to its mouth

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

One station is located within the 2.55 miles of impaired waters. 4ADOG000.80 (Ambient)

4ADOG000.80 (Ambient)(Route 600) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_DOG01A10 / Dog Creek / Dog Creek from its headwaters to its mouth	4A	Escherichia coli (E. coli)	2010	L	2.66

Dog Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.66**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L34R-07-BEN** **Entry Creek, Unnamed Tributary**

Cause Location: From its headwaters to the mouth on Entry Creek

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AXVK001.44 (2009-2010 FPM)(UT Entry Cr w of Route 600 s of Route 639)
IM - very small intermittent stream within the PROBMON program. Sampling in the fall of 2010 was halted due to lack of flow. The site is within an agricultural watershed and cattle do have direct access to the stream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L34R_XVK01A12 / Entry Creek, Unnamed Tributary / From its headwaters to the mouth on Entry Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	L	1.69

Entry Creek, Unnamed Tributary **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.69**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L35R-01-BAC** **Mollys Creek**

Cause Location: Mollys Creek from its headwaters to its mouth on Falling River.

City / County: Campbell Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24388

The Falling River Bacteria TMDL Study received U.S. EPA approval on 7/09/2004 [Fed. ID 24388] and SWCB approval on 12/2/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24388, 7/9/2004

Four stations are located within the 17.59 miles of impaired waters. 4AMEY016.00 (Ambient, TMDL Monitoring)(2018)(Private Road off Route 655, below Rustburg), 4AMEY010.46 (Ambient, TMDL)(2018)(Mollys Creek at Rt. 654 bridge), 4AMEY007.76 (Prob Ambient)(2018)(Route 650),and 4AMEY000.40 (TMDL Monitoring)(Mollys Creek at Rt. 648)

4AMEY016.00 (Ambient, TMDL Monitoring)(2018)(Private Road off Route 655, below Rustburg) Three of 6 samples in excess of the instantaneous criterion.

4AMEY010.46 (Ambient, TMDL)(2018)(Mollys Creek at Rt. 654 bridge) three of 6 samples in excess of the instantaneous criterion.

4AMEY007.76 (Prob Ambient)(2018)(Route 650) Five of 12 samples in excess of the instantaneous criterion.

4AMEY000.40 (TMDL Monitoring)(Mollys Creek at Rt. 648) 8 of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L35R_MEY01A00 / Mollys Creek / Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters	4A	Escherichia coli (E. coli)	2006	L	1.99
VAW-L35R_MEY02A06 / Mollys Creek / From the reservoir dam to the mouth at Falling River	4A	Escherichia coli (E. coli)	2006	L	15.59

Mollys Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**17.58**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L35R-01-BEN** **Mollys Creek**

Cause Location: Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters.

City / County: Campbell Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AMEY016.00 (2007-2008 Bio) (Private Road off Route 655, below Rustburg) The 2018 data window finds Aquatic Life Use impairment from three Virginia Stream Condition Index (VSCI) surveys with an average score of 41.5. Initial listing was based on benthic macroinvertebrate community data from 2007-2008. Agriculture watershed influences in addition to a small POTW several miles upstream.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L35R_MEY01A00 / Mollys Creek / Mollys Creek mainstem from its perennial headwaters downstream to the reservoir backwaters	5A	Benthic Macroinvertebrates Bioassessments	2010	L	1.99

Mollys Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.99**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L36R-01-BAC** **Turnip Creek**

Cause Location: Turnip Creek from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station IDs:
4ATIP002.55 (Ambient, TMDL)(2018)(Turnip Creek, Route 619 Bridge)
E. coli - 4/12 Exceedance Rate
4ATIP008.76 (TMDL Monitoring)(Route 40)
E. coli - 6/12 Exceedance Rate
4ATIP013.21 (TMDL Monitoring)(Route 756)
E. coli - 4/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_TIP01A00 / Turnip Creek / Buck Branch to Roanoke River	4A	Escherichia coli (E. coli)	2006	L	2.61
VAW-L36R_TIP02A06 / Turnip Creek / From its headwaters to the confluence with Buck Branch	4A	Escherichia coli (E. coli)	2006	L	17.13

Turnip Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**19.74**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L36R-03-BAC** **Buckskin Creek**

Cause Location: Buckskin Creek from its headwaters to its mouth on the Roanoke (Staunton) River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 7.64 miles of impaired waters. 4ABCD001.70 (Ambient)(2018)(Buckskin Cr @ Rt. 624)

4ABCD001.70 (Ambient)(2018)(Buckskin Cr @ Rt. 624) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_BCD01A08 / Buckskin Creek / Buckskin Creek from its headwaters to its mouth on the Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2008	L	7.65

Buckskin Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.65**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L36R-04-BAC** **Armistead Branch**

Cause Location: Armistead Branch from its headwaters to its mouth on Catawba Creek.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24387, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24387] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24387, 6/20/2006

One station is located within the 5.12 miles of impaired waters. 4AATD002.66 (Ambient)(2018)(Armistead Br @ Rt. 627)

4AATD002.66 (Ambient)(2018)(Armistead Br @ Rt. 627) 0/0 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_ATD01A08 / Armistead Branch / Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek	4A	Escherichia coli (E. coli)	2010	L	3.20
VAW-L36R_ATD02A14 / Armistead Branch / Armistead Branch from its headwaters to the second unnamed tributary upstream of Route 627.	4A	Escherichia coli (E. coli)	2014	L	1.92

Armistead Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.12**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L36R-04-BEN** **Armistead Branch**

Cause Location: Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AATD002.66 (Ambient/2012 Bio)(Armistead Br @ Rt. 627)
IM - Lack of riparian vegetation and poor bank condition may be limiting the ability of 4AATD002.66 to support a diverse community. This station was sampled in an effort to follow up on seasonal variability of the upstream Probmon station (4AATD003.36). The probmon station is not accessible. Satellite imagery shows changes in land use upstream of 4AATD002.66 and this portion of the watershed should not be excluded in any future TMDL study.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L36R_ATD01A08 / Armistead Branch / Armistead Branch from the second unnamed tributary upstream of Route 627 to its mouth on Catawba Creek	5A	Benthic Macroinvertebrates Bioassessments	2014	L	3.20

Armistead Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.20**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L37R-01-BAC** **Cub Creek**

Cause Location: From the Rough Creek Road crossing to the mouth at the Roanoke (Staunton) River

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Cub Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID 24391] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24391, 6/20/2006

Three stations are located within the 14.4 miles of impaired waters. 4ACUB002.21 (2006 Roanoke Bacteria TMDL)(2018)(Rt 649 (Coles Ferry Road)), 4ACUB005.46 (2006 Roanoke Bacteria TMDL)(Rt 619 (Cub Creek Church Rd)), and 4ACUB010.96 (Trend)(2018)(Route 40 Bridge)

4ACUB002.21 (2006 Roanoke Bacteria TMDL)(2018)(Rt 649 (Coles Ferry Road)) Three of 11 samples in excess of the instantaneous criterion.

4ACUB005.46 (2006 Roanoke Bacteria TMDL)(Rt 619 (Cub Creek Church Rd)) Three of 12 samples in excess of the instantaneous criterion.

4ACUB010.96 (Trend)(2018)(Route 40 Bridge) 7 of 35 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_CUB01B08 / Cub Creek / The Rough Creek Road Crossing near Rough Creek to the confluence with Terrys Creek.	4A	Escherichia coli (E. coli)	2008	L	5.58
VAW-L37R_CUB02A06 / Cub Creek / From Terrys Creek to the mouth at the Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2006	L	8.80

Cub Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**14.38**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L37R-02-BAC** **Louse Creek**

Cause Location: Louse Creek from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 8.7 miles of impaired waters. 4ALOU001.16 (TMDL Monitoring)(Route 619)

4ALOU001.16 (TMDL Monitoring)(Route 619) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_LOU01A06 / Louse Creek / From its headwaters to the mouth on Cub Creek	4A	Escherichia coli (E. coli)	2006	L	8.70

Louse Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.70**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L37R-03-BAC** **Big Cub Creek**

Cause Location: Big Cub Creek from the confluence with Cub Creek upstream to its headwaters to include Left Hand Fork and tribs.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 24391, 6/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Cub Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID 24391] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24391, 6/20/2006

Two stations are located within the 33.66 miles of impaired waters. 4ABUB000.06 (Ambient, TMDL)(2018)(Route 701) and 4ABUB006.50 (TMDL Monitoring)

4ABUB000.06 (Ambient, TMDL)(2018)(Route 701) Six of 12 samples in excess of the instantaneous criterion.

4ABUB006.50 (TMDL Monitoring) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_BUB01A06 / Big Cub Creek / From the confluence with Cub Creek upstream to its headwaters to include Left Hand Fork and tribs (RU76).	4A	Escherichia coli (E. coli)	2006	L	33.68

Big Cub Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**33.68**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L37R-05-BAC** **Terrys Creek**

Cause Location: Terrys Creek from its headwaters to its mouth on Cub Creek.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23315,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 7.14 miles of impaired waters. 4ATYS001.25 (Ambient)(2018)(Terrys Creek at Stockdale Road)

4ATYS001.25 (Ambient)(2018)(Terry Creek at Stockdale Road) 8 of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L37R_TYS01A08 / Terrys Creek / Terrys Creek from its headwaters to its mouth on Cub Creek	4A	Escherichia coli (E. coli)	2008	L	7.14

Terrys Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.14**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L38L-01-DO** **Conner Lake**

Cause Location: Conner Lake

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4AHTA003.26 ((2013-2014 Lake Station)(Station 1 - Conner Lake)
Dissolved Oxygen - 7/39 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38L_HTA01L00 / Conner Lake / On Hunting Creek.	5A	Dissolved Oxygen	2018	L	101.92

Conner Lake **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		**101.92**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L38L-01-HG** **Conner Lake**

Cause Location: Conner Lake

City / County: Halifax Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Station ID:
4AHTA003.26 (2006 FT/Sediment)(Station 1 - Conner Lake)
Hg 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38L_HTA01L00 / Conner Lake / On Hunting Creek.	5A	Mercury in Fish Tissue	2010	L	101.92

Conner Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**101.92**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L38R-02-BAC** **Black Walnut Creek**

Cause Location: Black Walnut Creek from its headwaters to the mouth.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

One station is located within the 6.39 miles of impaired waters. 4ABWC001.00 (Ambient)(Route 600)

4ABWC001.00 (Ambient) (Route 600) Four of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38R_BWC01A06 / Black Walnut Creek / From the headwaters to the mouth	4A	Escherichia coli (E. coli)	2014	L	6.39

Black Walnut Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.39**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L38R-03-BAC** **Hunting Creek**

Cause Location: Hunting Creek from the mouth of Conner Lake downstream to the Roanoke River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23315, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23315] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23315, 6/20/2006

One station is located within the 3.24 miles of impaired waters. 4AHTA000.77 (Ambient)(Route 617)

4AHTA000.77 (Ambient)(Route 617) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L38R_HTA01A06 / Hunting Creek / From the mouth of Conner Lake downstream to the Roanoke River	4A	Escherichia coli (E. coli)	2014	L	3.24

Hunting Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.24**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-01-BAC** **Ash Camp Creek**

Cause Location: Ash Camp Creek from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 4A

NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 8.17 miles of impaired waters. 4AACC002.60 (TMDL Monitoring)(Station 1 -Route 654 Bridge) and 4AACC004.87 (TMDL Monitoring)(Ash Camp Cr @Private Rd 0.6 mi from Rt 40)

4AACC002.60 (TMDL Monitoring)(Station 1 - Route 654 Bridge) Four of 7 samples in excess of the instantaneous criterion.

4AACC004.87 (TMDL Monitoring)(Ash Camp Cr @Private Rd 0.6 mi from Rt 40) Two of 6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ACC01A98 / Ash Camp Creek / Headwaters to Roanoke Creek.	4A	Fecal Coliform	2004	L	8.18

Ash Camp Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**8.18**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-01-BEN** **Ash Camp Creek**

Cause Location: Ash Camp Creek from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Ash Camp Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 4/26/2004. [Fed. ID 24393] and SWCB approval on 8/31/2004 for this 2004 303(d) Listed impairment to the benthic community.

Station IDs:
4AACC001.75 (2002 Probabilistic Monitoring)(0.85 mi downstream of Rt 654 bridge)
IM - Heavy rains occurred within a week of the fall 2002 sampling event.
The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.
4AACC002.60 (Benthic, Ash Camp Creek Source Assessment SS)
IM - A slight improvement has been noted at this site during recent sampling. Sediment continues to affect the stream community negatively.
4AACC004.87 (Benthic, Ash Camp Creek Source Assessment SS)
IM - A slight improvement has been noted at this site during recent sampling. Sediment and nutrients continue to affect the stream community negatively.
4AACC007.62 (Benthic)
J - 50 yds below Keysville STP discharge, may not be appropriate for benthic assessment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ACC01A98 / Ash Camp Creek / Headwaters to Roanoke Creek.	4A	Benthic Macroinvertebrates Bioassessments	1998	L	8.18

Ash Camp Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.18**

Sources:

Crop Production (Crop Land or Dry Land)	Erosion from Derelict Land (Barren Land)	Managed Pasture Grazing	Municipal Point Source Discharges

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-02-BAC** **Twittys Creek**

Cause Location: Twittys Creek from its headwaters to the mouth on Roanoke Creek.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 14.79 miles of impaired waters. 4ATWT000.32 (Ambient)(Twittys Creek @ Sylvan Hill Rd.)

4ATWT000.32 (Ambient)(Twittys Creek @ Sylvan Hill Rd.) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_TWT01A98 / Twittys Creek / Headwaters to Roanoke Creek	4A	Escherichia coli (E. coli)	2012	L	14.79

Twittys Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**14.79**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-02-BEN** **Twittys Creek**

Cause Location: Twittys Creek from its headwaters to the mouth on Roanoke Creek.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Twittys Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 9/30/2004. [Fed. ID 24392] and SWCB approval on 3/15/2005 for this 2004 303(d) Listed impairment to the benthic community.

Station IDs:
4ATWT003.36 (Station 2 - Route 642 Bridge) - The 2018 data window finds Aquatic Life Use impairment from four Virginia Stream Condition Index (VSCI) surveys (2011, 2016) averaging 48.7. The Implementation Plan is in progress. A modest improvement in VSCI scores was observed over previous sampling events.

4ATWT006.40 (2008 Bio)(Station 1 - Route 47 Bridge) No additional data since the 2014 data window.
IM - The Implementation Plan is in progress. An improvement in VSCI scores was observed over previous sampling events. A major VPDES discharger ceased operation in early 2005 and may be the cause of the improvement.

4ATWT008.59 (new REF dwnstrm of Town Lk @ power lines)
IM - Reference Station - 2004 Twittys Creek TMDL

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_TWT01A98 / Twittys Creek / Headwaters to Roanoke Creek	4A	Benthic Macroinvertebrates Bioassessments	1998	L	14.79

Twittys Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**14.79**

Sources:

Clean Sediments	Non-Point Source	Unspecified Urban Stormwater

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-03-BAC** **Horsepen Creek**

Cause Location: Horsepen Creek from Little Horsepen Creek to Reynolds Creek.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 1.87 miles of impaired waters. 4AHEN002.16 (Ambient)(Route 637 Bridge)

4AHEN002.16 (Ambient)(Route 637 Bridge) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_HEN01A00 / Horsepen Creek / Little Horsepen Creek to Reynolds Creek.	4A	Escherichia coli (E. coli)	2012	L	1.86

Horsepen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.86**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-03-BEN** **Horsepen Creek**

Cause Location: Horsepen Creek from Route 47 downstream to Little Horsepen Creek

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station IDs:
4AHEN004.74 (2001 FPM)(above Route 612 in Charlotte County)
IM - Potential sediment impacts and lack of instream habitat.

4AHEN004.27 (2009/2012/2015 Bio)(Above Route 612 in Charlotte County) The 2018 data window finds Aquatic Life Use impairment from four Virginia Stream Condition Index (VSCI) surveys (2012, 2015) with an average score of 59.6. Stream reach exhibits significant seasonal variation. Additional data were collected in 2012 and 2015 and characterize the stream community as unbalanced. Sediment and bank scour seem to be likely stressors within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_HEN02A04 / Horsepen Creek / Horsepen Creek from Route 47 downstream to Little Horsepen Creek	5A	Benthic Macroinvertebrates Bioassessments	2008	M	5.32

Horsepen Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.32**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-04-BAC** **Wards Fork Creek**

Cause Location: Wards Fork Creek from an unnamed tributary at Rivermile 5.73 to its mouth on Roanoke Creek.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316,06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 5.31 miles of impaired waters. 4AWFC002.12 (Ambient)(2018)(Route 645 Bridge)

4AWFC002.12 (Ambient)(2018)(Route 645 Bridge) 12 of 36 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_WFC01A00 / Wards Fork Creek / Unnamed tributary at river mile 5.73 to Roanoke Creek.	4A	Escherichia coli (E. coli)	2008	L	5.30

Wards Fork Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.30**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-05-BAC** **Roanoke Creek**

Cause Location: Roanoke Creek from Wards Fork Creek to its mouth on the Roanoke (Staunton) River.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 10.51 miles of impaired waters. 4AROC001.00 (TMDL Monitoring)(Roanoke Cr. @ Roanoke Station Rd.) and 4AROC005.35 (Ambient)(Roanoke Creek at the confluence with TWI)

4AROC001.00 (TMDL Monitoring)(Roanoke Cr. @ Roanoke Station Rd.) Three of 12 samples in excess of the instantaneous criterion.

4AROC005.35 (Ambient) (Roanoke Creek at the confluence with TWI) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ROC01A98 / Roanoke Creek / Wards Fork Creek to Horsepen Creek.	4A	Escherichia coli (E. coli)	2010	L	7.85
VAW-L39R_ROC02A06 / Roanoke Creek / From Horsepen Creek to the mouth at the Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2006	L	2.65

Roanoke Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.50**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-05-HG** **Roanoke Creek**

Cause Location: Roanoke Creek from Wards Fork Creek to its mouth on the Roanoke (Staunton) River.

City / County: Charlotte Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Station ID:
4AROC005.35 (2006 FT/Sed)[Roanoke Creek at the confluence with TWI]
Hg 2 Species
largemouth bass 0.313
spotted bass 0.345

This initial 2010 303(d) Listing is based on 2006 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov/ for more information about mercury contamination and http://www.vdh.virginia.gov for VDH Advisories or Bans.

4AROC005.35 (2006 FT/Sed)[Roanoke Creek at the confluence with TWI] - The initial 2010 303(d) Listing is based on 2006 fish tissue analysis where mercury (Hg) is found in two species; largemouth bass at 0.313ppm and spotted bass at 0.345ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_ROC01A98 / Roanoke Creek / Wards Fork Creek to Horsepen Creek.	5A	Mercury in Fish Tissue	2010	L	7.85
VAW-L39R_ROC02A06 / Roanoke Creek / From Horsepen Creek to the mouth at the Roanoke (Staunton) River	5A	Mercury in Fish Tissue	2010	L	2.65

Roanoke Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**10.50**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-06-BAC** **Middle Branch Wards Fork Creek**

Cause Location: Middle Branch Wards Fork Creek from its headwaters to its mouth on Wards Fork Creek

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 7.4 miles of impaired waters. 4AWMB001.07 (Ambient)(2018)(Middle Br. Wards Fork @ Virginian)

4AWMB001.07 (Ambient)(2018)(Middle Br. Wards Fork @ Virginian) 7 of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_WMB01A08 / Middle Branch Wards Fork Creek / Middle Branch Wards Fork Creek from its headwaters to its mouth on Wards Fork Creek	4A	Escherichia coli (E. coli)	2008	L	7.39

Middle Branch Wards Fork Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.39**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-07-BAC** **Little Roanoke Creek**

Cause Location: Roanoke Creek from the confluence with Wards Fork Cr. upstream to its confluence with Ash Camp Creek (RU82).

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 4.46 miles of impaired waters. 4ALRO003.34 (Rt. 47 Bridge)(Route 47 Bridge)

4ALRO003.34 (Rt. 47 Bridge)(Route 47 Bridge) The 2018 data window finds the initial Recreational listing based on data from this station. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml criterion in three of 24 samples. Excursions range from 399 to greater than 24,000 cfu/100 ml. Three of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_LRO01A00 / Little Roanoke Creek / Roanoke Creek from the confluence with Wards Fork Cr. upstream to its confluence with Ash Camp Creek (RU82).	4A	Escherichia coli (E. coli)	2018	L	4.46

Little Roanoke Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.46**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-07-BEN** **Little Roanoke Creek**

Cause Location: Little Roanoke Creek from its headwaters to its confluence with Dunnavant Creek.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ALRO010.68 (2007 FPM)(L. Roanoke Cr upst of 604 dwnstr of dam)
IM - exhibited high seasonal variation. The spring sample half the taxa of the fall sample and both samples were dominated by tolerant taxa (Hydropsychidae in the spring and Chironomidae in the fall).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_LRO02A10 / Little Roanoke Creek / Little Roanoke Creek from its headwaters to its confluence with Dunnavant Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	10.15

Little Roanoke Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**10.15**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L39R-08-BEN** **Bush Ford Branch**

Cause Location: Bush Ford Branch from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABWB000.32 (2008 FPM)(Bush Ford Br - SW of Rt 47)
IM Benthic Assessment

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_BWB01A10 / Bush Ford Branch / Bush Ford Branch from its headwaters to the mouth.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	3.09

Bush Ford Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.09**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L39R-09-BEN** **UT, Spencer Creek**

Cause Location: An unnamed tributary to Spencer Creek from its headwaters to its mouth

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AXVO000.50 (2012 FPM)(UT Spencer just west of Rt 653) There is no additional data beyond the 2014 data window. The Aquatic Life Use is impaired based on two 2012 Virginia Stream Condition Index (VSCI) surveys: Spring 40.8 and Fall 36.1. This stream was incised and had a sedimentation problem. The habitat was marginal and the banks were unstable.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L39R_XVO01A14 / UT, Spencer Creek / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2014	M	2.90

UT, Spencer Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.90**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L40R-01-BAC** **Berles Creek**

Cause Location: Berles Creek from its headwaters to Sandy Creek.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 2.28 miles of impaired waters. 4ABLE001.21 (2018)(Berles Cr. @ Rt. 631, DSS Vaughan Farm)

4ABLE001.21 (2018)(Berles Cr. @ Rt. 631, DSS Vaughan Farm) 0/0 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BLE01A06 / Berles Creek / Headwaters to Sandy Creek	4A	Escherichia coli (E. coli)	2006	L	2.28

Berles Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.28**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-01-BEN** **Berles Creek**

Cause Location: Berles Creek from its headwaters to Sandy Creek.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

NESTED 2014: 23316, 06/20/2006
Station ID:
4ABLE001.21 (Ambient, 2010/2014 Bio)(Berles Cr. @ Rt. 631, DSS Vaughan Farm)
E. coli - 3/6 Violation Rate
IM - Heavy to moderate embeddedness observed in 2014 samples. Sedimentation is a likely stressor

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BLE01A06 / Berles Creek / Headwaters to Sandy Creek	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.28

Berles Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.28**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L40R-04-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its headwaters to mouth on Roanoke (Staunton) River

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 5.4 miles of impaired waters. 4ASLA001.52 (Ambient)(Route 608)

4ASLA001.52 (Ambient)(Route 608) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_SLA01A06 / Sandy Creek / Headwaters to mouth on Roanoke (Staunton) River	4A	Escherichia coli (E. coli)	2012	L	5.41

Sandy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.41**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L40R-05-BAC** **Unnamed Tributary to Buffalo Creek**

Cause Location: Unnamed Tributary to Buffalo Creek from its headwaters to the mouth.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 24394 and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24394, 6/20/2006

One station is located within the 1.5 miles of impaired waters.
4AXMC000.54(Route 605)

4AXMC000.54(Route 605) Two of 5 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_XMC01A06 / Buffalo Creek, Unnamed Tributary / From its headwaters to the mouth	4A	Escherichia coli (E. coli)	2002	L	1.49

Unnamed Tributary to Buffalo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.49**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-06-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at river mile 2.3 to the Roanoke (Staunton) River.

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Buffalo Creek) received U.S. EPA approval on 6/20/2006 [Fed. ID 24395] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 24395, 6/20/2006

One station is located within the 2.34 miles of impaired waters. 4ABNN001.85 (Route 608)

4ABNN001.85(Route 608) 13 of 24 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BNN01A06 / Buffalo Creek / Unnamed tributary at river mile 2.3 to the Roanoke River.	4A	Escherichia coli (E. coli)	2006	L	2.35

Buffalo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.35**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L40R-06-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from an unnamed tributary at river mile 2.3 to the Roanoke (Staunton) River.

City / County: Charlotte Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABNN002.17 (2012 Bio)(Upstream of Route 608) sonal variability below the impairment threshold. Habitat scores and Taxa lists indicate bank scour and sedimentation to be likely stressors within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_BNN01A06 / Buffalo Creek / Unnamed tributary at river mile 2.3 to the Roanoke River.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	2.35

Buffalo Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.35**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L40R-07-BAC** **Cargills Creek**

Cause Location: Cargills Creek from its headwaters to its mouth on Kerr Reservoir

City / County: Charlotte Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014:23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

One station is located within the 4.27 miles of impaired waters. 4ACAR001.70 (Ambient)(2018)(Cargills at Cargills Creek Road)

4ACAR001.70 (Ambient)(2018)((Cargills at Cargills Creek Road)) Three of 10 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L40R_CAR01A08 / Cargills Creek / Cargills Creek from its headwaters to its mouth on Kerr Reservoir	4A	Escherichia coli (E. coli)	2008	L	4.27

Cargills Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.27**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L41R-01-BAC** **Difficult Creek**

Cause Location: Difficult Creek from East Prong to Ashcake Creek.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23316, 06/20/2006

The Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watersheds Bacteria TMDL Study (Staunton River) received U.S. EPA approval on 6/20/2006 [Fed. ID 23316] and SWCB approval on 6/27/2007 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23316, 6/20/2006

Two stations are located within the 6.99 miles of impaired waters. 4ADFF004.90 (2018)(Difficult Cr. @ Rt. 720, DSS Brian Farm)
and 4ADFF009.01 (2018)(Difficult Cr. @ Rt. 360, USS Brian Farm)

4ADFF004.90 (2018)(Difficult Cr. @ Rt. 720, DSS Brian Farm)
Three of 12 samples in excess of the instantaneous criterion.

4ADFF009.01 (2018) (Difficult Cr. @ Rt. 360, USS Brian Farm) One of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L41R_DFF01A02 / Difficult Creek / East Prong to Ashcake Creek	4A	Escherichia coli (E. coli)	2008	L	7.00

Difficult Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.00**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42L-01-HG** **Talbott Reservoir**

Cause Location: Talbott Reservoir

City / County: Patrick Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/ for VDH Advisories or Bans.

4ADAN196.09- (Talbott Res. Arm of Reservoir) 2007 fish tissue collection finds 2 species in excess of the WQS TV based 0.3 ppm criterion; largemouth bass (4-fish composite at 0.394 ppm) and yellow bullhead catfish (2 fish composite at 0.429 ppm).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN01A02 / Talbott Reservoir / Talbott Reservoir from its impounding structure upstream to its backwaters (RD01).	5A	Mercury in Fish Tissue	2010	L	140.51

Talbott Reservoir **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**140.51**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42L-06-BAC** **Townes Reservoir**

Cause Location: Townes Reservoir from its impounding structure upstream to its backwaters (RD01).

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008 (Fed ID 35748) and State Water Control Board approved 4/28/2009. Townes Creek Reservoir located in Patrick County is initially listed for the Recreation Use during the 2018 303(d)/305(b) Integrated Report data window. This impairment is nested in the Dan River Bacteria TMDL Study.

4ADAN187.94 (Townes Reservoir at Dam) The reservoir 2018 data window reports 2 of 14 Escherichia coli (E.coli) measurements exceed the 235 cfu/100 ml instantaneous criterion. The excursions are 301 cfu/100 ml and 487 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN02A02 / Townes Reservoir / Townes Reservoir from its impounding structure upstream to its backwaters (RD01).	4A	Escherichia coli (E. coli)	2018	L	28.12

Townes Reservoir **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**28.12**	

Sources:

- Livestock (Grazing or Feeding Operations)
- Non-Point Source
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42L-06-PH** **Townes Reservoir**

Cause Location: Townes Reservoir from its impounding structure upstream to its backwaters (RD01).

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5A

Townes Creek Reservoir located in Patrick County is listed for Aquatic Life Use during the 2018 303(d)/305(b) Integrated Report data window.

4ADAN187.94 (Townes Reservoir at Dam) The reservoir 2018 data window reports 2 of 17 pH measurements in excess of the Class IV pH acidity criterion of 9.0. The two values in excess of the criterion are at 9.1 (6/30/2015) and 1 at 9.7 (7/28/15)

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42L_DAN02A02 / Townes Reservoir / Townes Reservoir from its impounding structure upstream to its backwaters (RD01).	5A	pH	2018	L	28.12

Townes Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		**28.12**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42R-01-BAC** **Little Dan River**

Cause Location: Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Escherichia coli (E.coli) bacteria results render the Recreational Use impaired for 7.26 miles in 2008. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35748] and SWCB approved 4/28/2009. The Dan River Bactria TMDL did not specifically address the Little Dan River but is encompassed by the TMDL Watershed. These waters are nested within the Dan River Bacteria TMDL Watershed and allocations via the Study. These waters are Category 4A.

4ALDR004.50- (Rt. 645 Bridge) There are no additional data beyond the 2008 Integrated Report (IR) where 2 of 9 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values are 250 and 500 cfu/100 ml.

4ALDR002.61- (Rt. 649 Bridge (Gammons Rd.)) No additional data beyond the 2016 data window where 2 of 12 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. The excessive values are 250 and 383 cfu/100 ml. Within the 2008 IR, E.coli observations showed 3 of 9 are in excess of the instantaneous criterion. Values exceeding the criterion range from 400 to 700 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_LDR01A02 / Little Dan River / Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek Class V (RD03).	4A	Escherichia coli (E. coli)	2008	L	7.26

Little Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.26**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L42R-01-TEMP** **Dan River**

Cause Location: The Dan River from the Pinnacles Power House downstream to the VA-NC State Line in Patrick County.

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The Dan River 2002 temperature impairment of 9.66 miles is extended 5.81 miles upstream with additional data obtained at 4ADAN181.10 within the 2008 data window. The Aquatic Life Use remains impaired for temperature (Category 5C).

4ADAN181.10- (Rt. 648 Bridge near Kibler (Kibler Valley Rd.)) There are no additional data beyond the 2014 Integrated Report (IR). Temperature exceedances of the 21°C Class V criterion are found in 3 of 12 measurements in 2014. The 3 excursions occur on 6/29/2011 (21.2°C), 8/25/2011 (21.4°C and 7/31/2012 (21.7°C). There are no additional temperature data within the 2010 and 2012 data windows. The 2008 assessment records 2 of 9 temperature measurements exceed the 21°C Class V stockable trout water criterion. These exceedances occur on 8/24/2005 at 21.8°C and 22.3°C on 8/30/2006 within both the 2008 and 2010 data windows.

4ADAN169.57- (Rt. 645 Bridge, VA-NC Stateline) There are no additional temperature data beyond the 2008 assessment where exceedances of the 21°C Class V criterion are found in 2 of 9 measurements within the 2008 and 2010 data windows. The two excursions occur on the same days as at 4ADAN181.10; 8/24/2005 at 21.6°C and 8/30/2006 at 22.5°C. Previous assessment cycles have found temperature exceeds the criterion in 1 of 11 measurements taken within the 2004 assessment window (1998 - 2002- Station last sampled in May 2000). There were no additional data within the 2006 data window. The 2002 assessment and the original 303(d) Listing Cycle found 3 of 19 excursions of the criterion. The exceedances are 21.5 °C (1996), 21.2 °C (1997) and 23.6 °C (1998), all occurring in the month of July.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN01A00 / Dan River / Dan River mainstem from the VA/NC State Line upstream to the Squirrel Creek mouth on the Dan River Class V (RD02).	5C	Temperature	2002	L	9.66
VAW-L42R_DAN02A02 / Dan River / Dan River mainstem from the Squirrel Creek mouth upstream to the Pinnacles Power House Class V (RD02).	5C	Temperature	2008	L	5.81

Dan River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**15.47**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42R-02-BAC** **Dan River**

Cause Location: The Dan River mainstem from the backwaters of Talbott Reservoir upstream to the Cockram Mill Pond Dam.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This initial 2012 impairment is nested within the approved Dan River Bacteria TMDL. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008. Fed ID 35748 and received SWCB approval on 4/28/2009.

4ADAN205.79 (Dan River Road- Rt. 632 Bridge) There is no additional data beyond the 2016 data window where 11 of 24 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is from 272 cfu/100 ml to greater than 2000. There are no additional data beyond the 2012 IR where 5 of 12 escherichia coli (E.coli) samples exceed the instantaneous criterion ranging from 320 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN05A02 / Dan River / Dan River mainstem from the backwaters of Talbott Reservoir upstream to the mouth of Tuggle Creek Class IV (RD01).	4A	Escherichia coli (E. coli)	2012	L	2.73
VAW-L42R_DAN06A02 / Dan River / Dan River mainstem from the mouth of Tuggle Creek upstream to the Cockram Mill Pond Dam Class IV (RD01).	4A	Escherichia coli (E. coli)	2012	L	5.72

Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.45**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42R-03-BAC** **Elk Creek**

Cause Location: Elk Creek from the state line upstream to it's headwaters.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This initial 2012 Elk Creek impairment is nested within the approved Dan River Bacteria TMDL. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008. Fed ID 35748 and received SWCB approval on 4/28/2009.

4AELK005.44- The 2018 IR finds 5 of 12 escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion. Excursions range from 400 to greater than 1,300 cfu/100 ml. There are no additional data beyond the 2012 IR where escherichia coli (E.coli) exceed the 235 cfu/100 ml WQS instantaneous criterion in 4 of 12 samples. The range of exceeding values is from 300 to 1200 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_ELK01A12 / Elk Creek / Elk Creek from the state line upstream to it's headwaters (RD04).	4A	Escherichia coli (E. coli)	2012	L	7.78

Elk Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.78**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L42R-04-BAC** **Peters Creek**

Cause Location: Peters Creek mainstem from the VA/NC State Line upstream to the confluence of Ditch Creek.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Recreational Use impairment on Peters Creek is an initial 2012 Listing. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 Fed ID 35748 and SWCB approval on 4/28/2009. These waters are nested within the Dan River Bacteria TMDL.

4APRS008.76 (Five Forks Rd. near State Line- Rt. 660) Within the 2018 data window, 4 of 12 E.coli samples exceeded the 235 cfu/100 ml instantaneous criterion. The range of excursions was 262 to 1,935 cru/100 ml. The 2012 IR found 4 of 12 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion. The range of exceeding values is from 250 cfu/100 ml to 1700.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_PRS01A02 / Peters Creek / Peters Creek mainstem from the VA/NC State Line upstream to the confluence of Ditch Creek Class IV (RD05).	4A	Escherichia coli (E. coli)	2012	L	5.96

Peters Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.96**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L42R-05-BAC** **Dan River**

Cause Location: The Dan River from the Pinnacles Power House downstream to the VA-NC State Line in Patrick County.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008 (Fed ID 35748) and State Water Control Board approved 4/28/2009. The 2014 initially 303(d) Listed bacteria impairment is nested within the Dan River Bacteria TMDL Watershed and allocations via the Study. A portion of these relisted Dan River waters from the mouth of Squirrel Creek downstream to the VA/NC State Line was 303(d) Listed for fecal coliform in 1998 and delisted in 2002 (10.41 miles). The waters are relisted with the 2014 Integrated Report (IR) for escherichia coli (E.coli). These waters are Category 4A. The 2014 relisted bacteria impairment extends 15.47 miles.

4ADAN181.10- (Rt. 648 Bridge near Kibler (Kibler Valley Rd.)) Two of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion at 1150 and greater than 2000 cfu/100 ml within the 2014 data window. There are no additional data beyond the 2014 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_DAN01A00 / Dan River / Dan River mainstem from the VA/NC State Line upstream to the Squirrel Creek mouth on the Dan River Class V (RD02).	4A	Escherichia coli (E. coli)	2014	L	9.66
VAW-L42R_DAN02A02 / Dan River / Dan River mainstem from the Squirrel Creek mouth upstream to the Pinnacles Power House Class V (RD02).	4A	Escherichia coli (E. coli)	2014	L	5.81

Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**15.47**

Sources:

Livestock (Grazing or Feeding Operations)	Non-Point Source	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Wet Weather Discharges (Non-Point Source)
Wildlife Other than Waterfowl			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L42R-06-TEMP** **Little Dan River**

Cause Location: Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek Class V (RD03).

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

This initial 2018 303(d) Aquatic Life Use listing of the Little Dan River is for a 7.26 mile temperature impairment (Category 5C).

4ALDR002.61 (Gammons Rd.) - 2 temperature measurements exceed the Class V 21°C temperature criterion within the 2018 and 2016 data windows. Excursions occur during late summer: 21.3 °C (8/4/14) and 22.6°C (9/3/14).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L42R_LDR01A02 / Little Dan River / Little Dan River mainstem from the VA/NC State Line upstream to just above the mouth of Pigg Creek Class V (RD03).	5C	Temperature	2018	L	7.26

Little Dan River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**7.26**

Sources:

Natural Sources

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L43R-01-BAC** **South Mayo River**

Cause Location: The upper limit is 0.3 miles upstream of the Wilson Creek mouth (near Dobyns) on the South Mayo River and extends downstream to the Virginia / North Carolina State Line.

City / County: Henry Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The South Mayo River Bacteria TMDL Load Duration Study is U.S. EPA approved on 02/27/2004 and SWCB approved on 6/17/2004 for the original 1998 303(d) Listed 5.78 mile impairment. Extensions described below were not specifically addressed by the Load Duration TMDL. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the extensions described below and are nested within the Bacteria TMDL. The TMDL can be viewed at http://www.deq.virginia.gov. Additional data collection causes the original 1998 bacteria impairment (from Russell Creek mouth downstream to the mouth of Spoon Creek) to be extended 20.67 miles upstream with the 2004 Integrated Report (IR). The 2004 IR also extends the original listed bacteria impairment 10.97 miles downstream for a total impaired mileage of 37.47.

The original bacteria impairment (5.83 miles) is based on fecal coliform (FC) bacteria data producing a greater than 10 percent exceedance rate of the former 1998 1000 cfu/100 ml instantaneous criterion at station 4ASMR016.09 (Rt. 700 Bridge at the USGS gaging station). Additional data collection and application of the former FC 400 cfu/100 ml instantaneous criterion results in the 2004 IR extension upstream from 2 stations 4ASMR033.98 (Rt. 787 Bridge West of Stuart) and 4ASMR027.44 (Rt. 681 Bridge South of Stuart). The 2004 10.97 mile downstream extension in watershed L45 results from additional FC data collection at station 4ASMR004.14 (Rt. 695 Bridge).

Station 4ASMR033.98 (Rt. 787 Bridge West of Stuart) There are no additional data beyond the 2010 Integrated Report (IR). 2010 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion in 2 of 12 samples. Exceeding values are 420 and 450 cfu/100 ml. Fecal coliform (FC) exceeds the former 400 cfu/100 ml instantaneous criterion in 2 of 12 samples within the 2008 data window. 2008 exceeding values are 900 and 1200 cfu/100 ml. The 2006 IR data window produces FC exceedances in 2 of 15 samples with the same exceedance range as 2008. The 2004 IR initial 303(d) Listing Cycle found 5 of 20 fecal coliform samples exceed the former 400 cfu/100 ml instantaneous criterion. Exceeding values range from 500 to 1200 cfu/100 ml. (Note: 4ASMR033.98 is a 1999 Federal Consent Decree Attachment B station for fecal coliform bacteria. The station was not 2002 303(d) Listed as there are no exceedances of the former 1000 cfu/100 ml criterion from 19 samples within the 2002 data window.)

4ASMR027.44- (Rt. 681 Bridge South of Stuart) The 2016 Integrated Report (IR) finds 1 of 11 escherichia coli (E.coli) in excess of the WQS instantaneous criterion of 235 cfu/100 ml. The single exceeding value is 300 cfu/100 ml. Delisting of this station is not proposed at this time as data from station 4ASMR016.09 shows impairment. And upstream station 4ASMR033.98 has no additional data to indicate improved conditions upstream. There are no additional data beyond the 2010 Integrated Report (IR) where 4 of 12 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion ranging from 320 to greater than 2000 cfu/100 ml within the 2010 data window. Both the 2008 and 2006 Irs find 2 of 12 FC samples exceed the former 400 cfu/100 ml instantaneous criterion at 1400 and 1700 cfu/100 ml. The 2004 IR initial 303(d) Listing Cycle found 2 excursions from 9 observations and the same range of exceedance.

4ASMR016.09- (Rt. 700 Bridge at the USGS gaging station) Additional data collected within the 2018 data window shows 8 of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 275 to greater than 4,000 cfu/. Six of 36 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2016 data window. Values in excess of the criterion range from 300 cfu/100 ml to greater than 2000. Escherichia coli exceeds the instantaneous criterion in 11 of 36 samples in both the 2012 and 2014 data windows with additional data. The range of exceedance is from 300 to greater than 2000 cfu/100 ml for both cycles. 2010 assessment finds E.coli exceed the instantaneous criterion in 15 of 41 samples. The range of exceedance is from 250 to greater than 2000 cfu/100 ml. The 2008 IR reports E.coli exceeds the instantaneous criterion in 11 of 33 samples. The range of exceedance is from 250 to greater than 2000 cfu/100 ml. Eight of 20 E.coli samples exceed the instantaneous criterion within the 2006 data window with the same range of exceedance as 2008. One of 3 E.coli observations exceed the instantaneous criterion in 2004.

4ASMR004.14- (Rt. 695 Bridge) There are no additional data beyond the 2008 IR where E.coli exceedances occur in 4 of 17 samples ranging from 350 to 700 cfu/100 ml within both the 2008 and 2010 data windows. Each excursion is in excess of the 235 cfu/100 ml WQS instantaneous criterion.

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_SMR02A02 / South Mayo River / South Mayo River mainstem from the Anglin Branch confluence downstream to the Russell Creek confluence on the South Mayo River.	4A	Escherichia coli (E. coli)	2010	L	8.15
VAW-L43R_SMR03A02 / South Mayo River / South Mayo River mainstem from the Town of Stuart POTW downstream to the confluence of Anglin Branch.	4A	Escherichia coli (E. coli)	2010	L	4.61
VAW-L43R_SMR03B02 / South Mayo River / South Fork Mayo River mainstem from the confluence of the North Fork South Mayo River downstream to the Town of Stuart POTW.	4A	Escherichia coli (E. coli)	2010	L	2.32
VAW-L43R_SMR04A00 / South Mayo River / South Mayo River mainstem from the Town of Stuart water intake downstream to the North Fork South Mayo River confluence.	4A	Escherichia coli (E. coli)	2010	L	0.43
VAW-L43R_SMR05A00 / South Mayo River / South Mayo River mainstem from the WQS natural trout section just upstream of the Stuart water intake downstream to the Town of Stuart intake.	4A	Escherichia coli (E. coli)	2010	L	0.43
VAW-L43R_SMR06A00 / South Mayo River / South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.	4A	Escherichia coli (E. coli)	2010	L	4.73
VAW-L45R_SMR01A00 / South Mayo River / South Mayo River mainstem from the upstream ending of the WQS designated public water supply (PWS) section 3f (36°33'25" / 80°02'15") located downstream of unnamed tributary on downstream to VA/NC State Line (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.01
VAW-L45R_SMR02A00 / South Mayo River / South Mayo River mainstem from the mouth of an unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f upstream ending (36°33'25" / 80°02'15") (RD09).	4A	Escherichia coli (E. coli)	2008	L	0.72
VAW-L45R_SMR03A00 / South Mayo River / South Mayo River mainstem from the Spoon Creek mouth downstream to an unnamed tributary above the WQS designated public water supply (PWS) section (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.24
VAW-L45R_SMR04A14 / South Mayo River / South Mayo River mainstem from the Russell Creek mouth downstream to the Spoon Creek confluence (RD09).	4A	Escherichia coli (E. coli)	2008	L	5.83

South Mayo River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**37.47**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L43R-01-TEMP** **South Mayo River**

Cause Location: South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

These waters were previously 303(d) Listed in 2004 and delisted in 2006. The temperature impairment returns with the 2010 assessment.

4ASMR033.98 (Rt. 787 Bridge west of Stuart)- There are no additional data beyond the 2010 Integrated Report (IR). 2010 data find the Aquatic Life Use is impaired where temperature measurements exceed the Class VI 20°C criterion in 3 of 15 samples. Excursions range from 20.6 to 20.8°C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_SMR06A00 / South Mayo River / South Mayo River mainstem from upstream of the Wilson Creek mouth downstream to the end of the WQS natural trout section located just upstream of the Town of Stuart water intake.	5C	Temperature	2010	L	4.73

South Mayo River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**4.73**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L43R-02-BAC** **Russell Creek**

Cause Location: Russell Creek from it's mouth on the South Mayo River upstream to Gilbert Mill (Rt. 631).

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 Fed ID 35757; and SWCB approval on 4/28/2009. Previous to the Dan River TMDL a Flow Duration Bacteria TMDL Study on the South Mayo River received U.S. EPA approval on 02/27/2004 Fed ID 23412/24558; and SWCB approval on 6/17/2004. Russell Creek is nested within the Dan River TMDL watershed.

4ARSL003.20- (Palmetto School Rd. - Rt. 825 Bridge) The 2018 data window finds E.coli exceed the 235 cfu/100 ml instantaneous criterion in 8 of 12 samples. Excursions range from 373 to greater than 10,000 cfu/100 ml. 2012, 2014 and 2016 assessments reveal escherichia coli (E.coli) exceed the WQS 235 cfu/100 ml instantaneous criterion in 7 of 12 samples. Values in excess of the criterion range from 250 cfu/100 ml to greater than 2000. There are no additional data within the 2016 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L43R_RSL01A12 / Russell Creek / Russell Creek from it's mouth on the South Mayo River upstream to Gilbert Mill (Rt. 631) (RD07).	4A	Escherichia coli (E. coli)	2012	L	8.53

Russell Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.53**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L44R-01-BAC** **Spoon Creek**

Cause Location: Spoon Creek mainstem from an unnamed tributary to Spoon Creek (southeast of Patrick Springs (36° 37' 02" / 80° 09' 45") downstream to its confluence with the South Mayo River.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

These 2004 fecal coliform (FC) bacteria 303(d) Listed waters remain impaired for 8.17 miles as non-support for the Recreational Use continues. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL Watershed incorporates Spoon Creek. Spoon Creek is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ASOO003.12 (Route 832 Bridge) The 2018 data window finds 9 of 23 E.coli samples in exceedance of the instantaneous criterion. Excursions range from 300 to greater than 12,000 cfu/100 ml. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 3 of 12 observations within the 2014 and 2016 data windows. Exceeding values range from 300 to 650 cfu/100 ml. There are no additional data within the 2012 data window. The 2008 Integrated Report (IR) finds escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 8 of 21 observations within both the 2008 and 2010 assessments. Exceeding values range from 320 to 1600 cfu/100 ml. The 2006 IR finds E.coli exceeds the instantaneous criterion in 3 of 9 observations. Exceeding values range from 320 to 1100 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L44R_SOO01A00 / Spoon Creek / Spoon Creek mainstem from an unnamed tributary to Spoon Creek (southeast of Patrick Springs @ 36° 37' 02" / 80° 09' 45") downstream to its confluence with the South Mayo River.	4A	Escherichia coli (E. coli)	2006	L	8.17

Spoon Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.17**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L45R-01-HG** **South Mayo River**

Cause Location: South Mayo River mainstem from the confluence of Spoon Creek downstream to the Virginia / North Carolina State Line.

City / County: Henry Co. Patrick Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2008 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov/ for more information about mercury contamination and http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/ for VDH Advisories or Bans.

4ASMR004.17 (George Taylor Rd, Rt. 695 Bridge)- There are no additional data beyond the 2010 Integrated Report (IR). 2007 fish tissue records exceedance of the mercury (Hg) WQS tissue value (TV) of 0.30 ppm in smallmouth bass (1 fish 27.3 cm) at 0.442 ppm and (4 fish composite 38.0-43.1 cm) redhorse sucker at 0.419 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L45R_SMR01A00 / South Mayo River / South Mayo River mainstem from the upstream ending of the WQS designated public water supply (PWS) section 3f (36°33'25" / 80°02'15") located downstream of unnamed tributary on downstream to VA/NC State Line (RD09).	5A	Mercury in Fish Tissue	2010	L	5.01
VAW-L45R_SMR02A00 / South Mayo River / South Mayo River mainstem from the mouth of an unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f upstream ending (36°33'25" / 80°02'15") (RD09).	5A	Mercury in Fish Tissue	2010	L	0.72
VAW-L45R_SMR03A00 / South Mayo River / South Mayo River mainstem from the Spoon Creek mouth downstream to an unnamed tributary above the WQS designated public water supply (PWS) section (RD09).	5A	Mercury in Fish Tissue	2010	L	5.24

South Mayo River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**10.97**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L46R-01-BAC** **North Mayo River**

Cause Location: The bacteria impairment begins at the confluence of Laurel Branch and Polebridge Creek extending downstream to the Virginia / North Carolina State Line.

City / County: Henry Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A Fecal Coliform / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the North Mayo River within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Station 4ANMR002.60 is a 1999 Federal Consent Decree Attachment B station for fecal coliform bacteria (FC). The station is not 303(d) Listed in 2002 as only 1 exceedance of the former 1000 cfu/100 ml instantaneous criterion is found from 21 samples. Two stations 4ANMR020.13 (Rt. 626 Bridge) and 4ANMR002.60 (Rt. 629 Bridge at Gage) both found excursions of the former 400 cfu/100 ml Water Quality Standards (WQS) instantaneous criterion for fecal coliform (FC) bacteria in 2004. The Recreational Use remains impaired for 22.92 miles for bacteria exceedances.

4ANMR020.13- ((Rt. 626 Bridge) There are no additional data beyond the 2006 Integrated Report (IR) where 4 of 12 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Values in excess of the criterion range from 500 to 1000 cfu/100 ml.

4ANMR002.60- (Rt. 629 Bridge at Gage) Escherichia coli (E.coli) exceeds the WQS 235 cfu/100 ml instantaneous criterion in 20 of 36 and 14 of 36 observations within the 2018 and 2016 data windows, respectively. The range of exceedance is from 250 cfu/100 ml to greater than 2000. Twelve of 36 E.coli samples exceed the instantaneous criterion in 2014. Excessive values range from 250 to greater than 2000 cfu/100 ml. The 2012 assessment finds 10 of 35 E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion. Exceedances range from 280 to 1400 cfu/100 ml. Seven of 23 E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion within the 2010 data window. 2010 exceeding values range from 280 to 1100 cfu/100 ml. The 2008 assessment finds 3 of 11 E.coli samples exceed the instantaneous criterion with exceeding values ranging from 280 to 1100 cfu/100 ml. 2006 IR finds 1 (600 cfu/100 ml) of 21 FC samples in excess of the instantaneous criterion. 2004 IR reports FC exceeds the former instantaneous criterion 400 cfu/100 ml in 3 of 25 samples. Exceedances are 500, 600 and 1100 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L46R_NMR01A00 / North Mayo River / North Mayo River mainstem from the Horse Pasture Creek mouth downstream to VA/NC State Line.	4A	Escherichia coli (E. coli)	2008	L	4.37
VAW-L46R_NMR02A00 / North Mayo River / North Mayo River mainstem from the upper end of the WQS designated public water supply (PWS) section 3f (36° 34' 25" / 79° 59' 34") downstream to the Horse Pasture Creek mouth.	4A	Escherichia coli (E. coli)	2008	L	0.72
VAW-L46R_NMR03A00 / North Mayo River / North Mayo River mainstem from the first upstream (RF3) unnamed tributary downstream to the WQS designated public water supply (PWS) section 3f (36° 34' 25" / 79° 59' 34").	4A	Escherichia coli (E. coli)	2008	L	5.25

North Mayo River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.34**

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size

Roanoke and Yadkin River Basins

VAW-L46R_NMR04A00 / North Mayo River / North Mayo River mainstem from the Kroger Creek mouth downstream to the first upstream (RF3) unnamed tributary (36°35'43" / 80°01'44").	4A	Fecal Coliform	2004	L	2.76
VAW-L46R_NMR05A02 / North Mayo River / North Mayo River mainstem from the RD10/RD12 boundary downstream to the mouth of Kroger Creek (RD12).	4A	Fecal Coliform	2004	L	7.75
VAW-L46R_NMR06A14 / North Mayo River / North Mayo River mainstem from the confluence of Laurel Branch and Polebridge Creek downstream to the RD10/RD12 boundary (RD10).	4A	Fecal Coliform	2004	L	2.07

North Mayo River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**12.58**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L47R-01-BAC** **Horse Pasture Creek**

Cause Location: The upper limit of the bacteria impairment is at the confluence of an unnamed tributary East of Route 696 (36°39'38" / 80°00'55") downstream to the mouth of Horse Pasture Creek on the North Mayo River (Spencer and Price Quads).

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The waters remain impaired for 7.44 miles for non-support of the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35754] and SWCB approved 4/28/2009. Horse Pasture Creek is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov. The 2004 original 303(d) Listing for fecal coliform (FC) bacteria continues where escherichia coli (E.coli) replaces fecal coliform as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4AHRN004.93- (Route 695 Bridge) No new data beyond the 2016 data window. Nine of 24 escherichia coli (E.coli) samples exceed the WQS 235 cfu/100 ml instantaneous criterion within the 2016 data window. Excursions range from 269 to 1300 cfu/100 ml. The 2014 data window reveals 5 of 12 E.coli observations in excess of the instantaneous criterion. Excessive values range from 400 to 1300 cfu/10 ml. There are no additional data within the 2010 or 2012 data windows. The 2008 assessment reports E.coli bacteria exceed the 235 instantaneous criterion in 6 of 21 samples. Exceeding values range from 280 cfu/100 ml to 1050. Three excursions each of the former FC 400 and current E.coli 235 cfu/100 ml instantaneous criteria are found from 9 observations within the 2006 data window. The FC range of exceedance is from 600 to 2000 cfu/100 ml while E.coli exceeds in the range of 280 to 1050. The 2004 IR finds FC exceeds the former 400 cfu/100 ml instantaneous criterion in 5 of 17 samples with a range of exceedance as in 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L47R_HRN01A00 / Horse Pasture Creek / Horse Pasture mainstem from the ending of the WQS designated public water supply (PWS) section 3f (36°34'59" / 79°59'40") downstream to the Horse Pasture Creek mouth on the North Mayo River.	4A	Escherichia coli (E. coli)	2006	L	0.47
VAW-L47R_HRN02A00 / Horse Pasture Creek / Horse Pasture Creek mainstem from an unnamed tributary mouth East of Route 696 (36°39'38" / 80°00'55") downstream to the upstream ending of WQS PWS section 3f (36°34'59" / 79°59'40").	4A	Escherichia coli (E. coli)	2006	L	6.97

Horse Pasture Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.44**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L47R-01-BEN** **Horse Pasture Creek**

Cause Location: The upper limit of the bacteria impairment is at the confluence of an unnamed tributary East of Route 696 (36°39'38" / 80°00'55") downstream to the mouth of Horse Pasture Creek on the North Mayo River (Spencer and Price Quads).

City / County: Henry Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired from data collected at 2 sites within the 2010 data window causing this 2010 initial 303(d) Listing.

4AHRN007.65 (Off Rt. 695 north of Rt. 58) Bio 'IM' A 2003 Probabilistic site. The 2008 assessment reserved judgment on 303(d) listing of these waters for Aquatic Life Use impairment until more data could be collected to determine use support. Two 2003 VSCI surveys scoring 67.5 spring and 41.5 fall resulted in an average score of 54.5. The spring collection indicates full support while the fall indicates impairment. The impaired Use is confirmed based on additional data collection at 4AHRN004.93. The land use at this station consists of forest and pasture land. There is a beef cattle farm upstream that includes a large pond that may affect flow and the ability of the stream to transport sediment. Stream banks are eroded.

4AHRN004.93 (Route 695 Bridge) 5 Virginia Stream Condition Index (VSCI) surveys (Fall 2009 and Fall 2010; Spring/Fall 2013-2014) find continued benthic impairment with an average score of 53.3. Three fall VSCI surveys (2008, 2009 & 2010) results in an average score of 49.3 indicating impairment. Data collection at this station validates biological community impairment at the upstream Probabilistic Monitoring station surveyed in 2003 (4AHRN007.93). This site is also collocated at an ambient chemical monitoring station. The stream substrate is impacted by fine sediments also with eroded stream banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L47R_HRN01A00 / Horse Pasture Creek / Horse Pasture mainstem from the ending of the WQS designated public water supply (PWS) section 3f (36°34'59" / 79°59'40") downstream to the Horse Pasture Creek mouth on the North Mayo River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.47
VAW-L47R_HRN02A00 / Horse Pasture Creek / Horse Pasture Creek mainstem from an unnamed tributary mouth East of Route 696 (36°39'38" / 80°00'55") downstream to the upstream ending of WQS PWS section 3f (36°34'59" / 79°59'40").	5A	Benthic Macroinvertebrates Bioassessments	2010	L	6.97

Horse Pasture Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.44**

Sources:

Sediment Resuspension (Clean Sediment)	Streambank Modifications/Destabilization	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L48R-01-BAC** **Mayo River**

Cause Location: Fall Creek and its tributaries downstream to the VA/NC State Line.

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2016 initial 303(d) Listing is a result of escherichia coli (E.coli) bacteria excursions of the WQS instantaneous criterion of 235 cfu/100 ml criterion. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the Mayo River within the TMDL Watershed. The Mayo River is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMAY018.17 (Rt. 691 Bridge at Gage) No data beyond the 2016 data window where 4 of 12E.coli samples exceed the instantaneous criterion. Values in excess of the criterion range from 275 to 1450 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L48R_FCR01A16 / Mayo River (Fall Creek) / Fall Creek mainstem downstream to the VA/NC State Line (RD13).	4A	Escherichia coli (E. coli)	2016	L	4.02

Mayo River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.02**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L50R-01-BAC** **Smith River and Sycamore Creek**

Cause Location: Smith River from the mouth of Rich Run on the Smith River downstream to the mouth of Shooting Creek on the Smith River spanning the Woolwine and Charity Quads. And Sycamore Creek from it's mouth on the Smith River upstream to the Pole Branch confluence.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Recreational Use is impaired based on escherichia coli (E.coli) data showing excessive counts recoded at 4ASRE075.69 and 4ASYC002.02. The Dan River Bacteria TMDL Study received U.S. EPA approval on 12/08/2008 [Fed ID 35748/35756]; and SWCB approval on 4/28/2009. The Recreational Use impairment is extended during the 2018 Integrated Reporting window

4ASRE075.69 (Rt. 708 Bridge) Escherichia coli (E.coli) exceed the 235 cfu/100 ml criterion in 8 of 36 samples within the 2014, 2016 and 2018 data windows. 2018 excursions range from 275 to 1,850 cfu/. 2016 excessive values range from 300 to 1200 cfu/100 ml and 2014 excursions range from 250 to 1200 cfu/100 ml. 2012 E.coli data exceed the instantaneous criterion in 6 of 36 samples. Excursions also range from 250 to 1200 cfu/100 ml.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) The 2018 Integrated Reporting window finds 5 of 24 E.coli samples exceed the 235 cfu/100 ml criterion. Excursions range from 313 - >9,000 cfu/100 ml.

4ASYC002.02 (Elamsville Road Bridge) 4 of 12E.coli samples exceed the 235 cfu/100 ml instantaneous criterion within the 2018 data window. Prior to 2018, there were no additional data beyond the 2012 IR. E.coli exceed the 235 WQS instantaneous criterion in 2 of 12 samples. The exceeding values are 380 and 1000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L50R_SRE01A00 / Smith River / Smith River mainstem from the Liberty Fabrics outfall downstream to Sycamore Creek at the RD15/16/17 watershed boundaries (RD15).	4A	Escherichia coli (E. coli)	2012	L	3.88
VAW-L50R_SRE02A00 / Smith River / Smith River mainstem from the Jacks Creek mouth downstream to Liberty Fabrics outfall.	4A	Escherichia coli (E. coli)	2012	L	0.25
VAW-L50R_SRE03A00 / Smith River / Smith River mainstem WQS Class VI end of section, as described in WQS, downstream to mouth of Jacks Creek.	4A	Escherichia coli (E. coli)	2012	L	0.58
VAW-L50R_SRE04A00 / Smith River / Smith River mainstem from the Rich Run mouth downstream to WQS Natural Trout section, as described in WQS.	4A	Escherichia coli (E. coli)	2012	L	2.86
VAW-L50R_SYC01A12 / Sycamore Creek / Sycamore Creek from it's mouth on the Smith River upstream to the Pole Branch confluence (RD16).	4A	Escherichia coli (E. coli)	2012	L	6.15
VAW-L51R_SRE07A00 / Smith River / Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).	4A	Escherichia coli (E. coli)	2018	L	6.43
VAW-L51R_SRE08A00 / Smith River / Smith River mainstem (WQS Class VI waters) from Rt. 704 upstream to the mouth of Widgeon Creek.	4A	Escherichia coli (E. coli)	2018	L	1.45
VAW-L51R_SRE08B14 / Smith River / Smith River mainstem from the RD15/16/17 watershed boundaries downstream to the mouth of Widgeon Creek (RD17).	4A	Escherichia coli (E. coli)	2012	L	1.91

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Smith River and Sycamore Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**23.51**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L50R-01-TEMP** **Smith River**

Cause Location: The temperature impaired waters begin at the mouth of Rich Run on the Smith River and extend downstream to the mouth of Shooting Creek on the Smith River spanning the Woolwine and Charity Quads.

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

Exceedance of the WQS Class VI 20°C temperature criterion for this natural trout water caused the original 2002 303(d) Listing of these waters. The 9.48 mile Aquatic Life Use impairment remains and is extended during the 2018 data window by 1.45 miles.

4ASRE075.69- (Rt. 708 Bridge) The 2018 data window finds 9 of 36 temperature measurements exceed the 20°C Class VI natural trout water criterion with exceedances ranging from 20.8°C to 23.6°C. 2014 and 2016 temperature data records 9 of 36 measurements in excess of the 20°C natural trout water criterion. Both the 2014 and 2016 range of exceedance is from 20.3 to 25.2°C all occurring in the summer months. Temperature exceeds the natural trout criterion in 10 of 35 measurements within the 2012 data window. The range of exceedance is from 20.5 to 25.2°C all occurring in the summer months. 2010 data find 9 of 37 temperature measurements exceeding the 20°C criterion in the summer months. Excursions range from 20.4° to 22.7°C. Temperature exceeds the 20°C natural trout criterion in 12 of 41 measurements with the 2008 assessment. The range of exceedance is from 20.4 to 24.3°C all occurring in the summer months. 2006 records 9 of 33 measurements exceeding the criterion and ranging from 21 to 24°C. Excursions are found primarily during the 1999-2002 drought. The temperature impairment, originally listed in 2002, is based on 4ASRE075.69 data where 3 of 20 measurements exceed the criterion.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) - From 24 temperature measurements during the 2018 data window, 4 exceed the Class VI 20°C criterion. Exceedances range from 21.6°C to 22.0°C and occur during July, August, and September. These data were incorrectly assigned to 4ASRE063.69 during the 2016 IR.

Supplemental information: (Outside 2008 Assessment data window 2000 - 2004): Two of 8 exceedances of the 20°C criterion are recorded by the US Geological Survey (USGS) station 02071510. The excursions are from July 18 (23°C) and August 15 (24°C) 1995. The USGS station is located 1.19 miles upstream of any known potential anthropogenic source of heat at the Rt. 615 crossing.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L50R_SRE01A00 / Smith River / Smith River mainstem from the Liberty Fabrics outfall downstream to Sycamore Creek at the RD15/16/17 watershed boundaries (RD15).	5C	Temperature	2002	L	3.88
VAW-L50R_SRE02A00 / Smith River / Smith River mainstem from the Jacks Creek mouth downstream to Liberty Fabrics outfall.	5C	Temperature	2002	L	0.25
VAW-L50R_SRE03A00 / Smith River / Smith River mainstem WQS Class VI end of section, as described in WQS, downstream to mouth of Jacks Creek.	5C	Temperature	2002	L	0.58
VAW-L50R_SRE04A00 / Smith River / Smith River mainstem from the Rich Run mouth downstream to WQS Natural Trout section, as described in WQS.	5C	Temperature	2002	L	2.86
VAW-L51R_SRE08A00 / Smith River / Smith River mainstem (WQS Class VI waters) from Rt. 704 upstream to the mouth of Widgeon Creek.	5C	Temperature	2018	L	1.45
VAW-L51R_SRE08B14 / Smith River / Smith River mainstem from the RD15/16/17 watershed boundaries downstream to the mouth of Widgeon Creek (RD17).	5C	Temperature	2002	L	1.91

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Smith River

Aquatic Life

	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**10.93**

Sources:

Natural Sources	Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51L-01-HG** **Philpott Reservoir**

Cause Location: Philpott Reservoir

City / County: Franklin Co. Henry Co. Patrick Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov for more information about mercury contamination and http://www.vdh.virginia.gov/Epidemiology/dee/PublicHealthToxicology/Advisories/ for VDH Advisories or Bans.

4ASRE046.90 (Above Philpott Dam)- 2007 fish tissue analysis finds exceedances of the WQS based tissue value (TV) for mercury (Hg) of 0.3 ppm in 3 individual largemouth bass (size 41.8 cm) at 0.59 ppm, (size 40.9 cm) at 0.563 ppm and (size 33.2 cm) at 0.374 ppm. There are no additional data within the 2016 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51L_GOB01A02 / Philpott Reservoir (Goblin Town Creek) / Philpott Reservoir - Goblin Town Creek arm from its confluence with the Smith River upstream to the Fairystone Dam.	5A	Mercury in Fish Tissue	2010	L	532.38
VAW-L51L_SRE01A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from its impounding structure upstream to just above the confluence of Goblin Town Creek.	5A	Mercury in Fish Tissue	2010	L	######
VAW-L51L_SRE02A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Goblin Town Creek confluence upstream to just above the Beards Creek mouth.	5A	Mercury in Fish Tissue	2010	L	671.08
VAW-L51L_SRE03A02 / Philpott Reservoir (Smith River) / Philpott Reservoir from just downstream of the Beards Creek confluence upstream to its backwaters.	5A	Mercury in Fish Tissue	2010	L	388.70

Philpott Reservoir **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**2,813.52**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-01-BAC** **Goblintown Creek**

Cause Location: Goblintown Creek from the backwaters of Fairystone Lake upstream to the headwaters of Goblintown Creek.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Escherichia coli (E.coli) exceedances cause this initial 2014 303(d) Listing for the Recreational Use impairment. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748/35756. SWCB approved 4/28/2009. Goblintown Creek is nested within the overall Bacteria TMDL Watershed.

4AGOB005.18 (Rt. 623 Bridge near Fairystone State Park) 2 escherichia coli (E.coli) of 12 samples exceed the 235 cfu/100 ml instantaneous criterion at 375 and 950 cfu/100 ml. There are no additional data beyond the 2014 Integrated Report (IR).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_GOB01A08 / Goblintown Creek / Goblintown Creek from the backwaters of Fairystone Lake upstream to the confluence of Little Goblintown Creek (RD20).	4A	Escherichia coli (E. coli)	2014	L	1.20
VAW-L51R_GOB02A08 / Goblintown Creek / Goblintown Creek from the mouth of Little Goblintown Creek upstream to its headwaters (RD20).	4A	Escherichia coli (E. coli)	2014	L	5.60

Goblintown Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.80**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-01-HG** **Goblintown Creek**

Cause Location: Goblintown Creek from its headwaters downstream to the backwaters of Fairystone Lake

City / County: Patrick Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.vdh.virginia.gov/environmental-epidemiology/ for VDH Advisories or Bans.

4AGOB005.18 (Rt. 623 Bridge)- 2007 fish tissue analysis finds exceedances of the WQS based tissue value (TV) for mercury (Hg) of 0.3 ppm in 5 individual largemouth bass 33.5 cm at 0.306; 37.1 at 0.472; 39.2 cm at 0.420; 47.1 cm at 0.926 and 48.9 cm at 0.734 ppm. There are no additional data beyond the 2010 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_GOB01A08 / Goblintown Creek / Goblintown Creek from the backwaters of Fairystone Lake upstream to the confluence of Little Goblintown Creek (RD20).	5A	Mercury in Fish Tissue	2010	L	1.20
VAW-L51R_GOB02A08 / Goblintown Creek / Goblintown Creek from the mouth of Little Goblintown Creek upstream to its headwaters (RD20).	5A	Mercury in Fish Tissue	2010	L	5.60

Goblintown Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**6.80**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-01-TEMP** **Rennet Bag Creek**

Cause Location: Rennet Bag Creek from its headwaters downstream to its inundation at Philpott Reservoir. The impairment spans the Endicott, Charity and Philpott Reservoir Quads.

City / County: Floyd Co. Franklin Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

Station 4ARBC005.44 is utilized to assess both the natural trout and stockable trout waters for this stream. Station 4ARBC005.44 is located on Rt. 43 west of Endicott near the downstream end of the WQS 9.41 mile natural trout water section. And is just upstream of the Class V stockable trout waters that are 2.13 miles in length. Both WQS Classes are assessed by this station. The 2002 temperature impairment remains from the initial 303(d) Listing.

4ARBC005.44- (Rt. 43 west of Endicott) No additional data beyond the 2016 assessment where 3 of 12 temperature measurements exceed the Class VI Natural Trout criterion of 20°C. Excessive values occur in July, August, and September with a range of 20.2°C to 21.9°C. Only 1 excursion of the Class V Stockable Trout waters occurs. There are no additional data beyond the 2008 Integrated Report (IR). The natural trout water (Class VI) criterion of 20°C is exceeded in 3 of 8 measurements taken within the 2010 and 2008 data windows. These excursions are 20.6 (8/25/05), 21.9 (6/22/06) and 21.6°C (8/29/06). Based on these results 2 of 8 temperature measurements exceed the downstream stockable trout water (Class V) criterion of 21°C in both the 2010 and 2008. In the 2002 and 2004 assessments 2 temperature exceedances from 6 measurements are found. Temperature excursions of the WQS Class V (stockable trout) 21°C and Class VI (natural trout) 20°C criteria occurred in the summer months of August 1999 at 26.4 °C and June 2000 at 23.3 °C. Both excursions occur during the 1999-2002 drought years.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_RBC01A00 / Rennet Bag Creek / Rennet Bag Creek mainstem from its inundation at Philpott Reservoir upstream to the confluence of Long Branch Class V (RD18).	5C	Temperature	2002	L	2.13
VAW-L51R_RBC02A02 / Rennet Bag Creek / Rennet Bag Creek mainstem from the confluence of Long Branch upstream to its headwaters Class VI.	5C	Temperature	2002	L	9.41

Rennet Bag Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**11.54**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-02-BAC** **Shooting Creek**

Cause Location: Shooting Creek from its mouth on the Smith River upstream to its headwaters.

City / County: Floyd Co. Franklin Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Escherichia coli (E.coli) exceedances cause this initial 2014 303(d) Listing for the Recreational Use impairment. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748/35756. SWCB approved 4/28/2009. Shooting Creek is nested within the overall Bacteria TMDL Watershed.

4ASOT000.99- (Rt. 622 Bridge, Deer Run Rd.) The 2016 and 2018 data windows find 3 of 24 escherichia coli (E.coli) samples in excess of the WQS instantaneous criterion of 235 cfu/100 ml. Excessive values range from 375 to 950 cfu/100 ml. E.coli exceeds the instantaneous criterion in 3 of 12 observations within the 2014 data window. Values in excess of the criterion are the same as in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SOT01A08 / Shooting Creek / Shooting Creek from its mouth on the Smith River upstream to its headwaters (RD17).	4A	Escherichia coli (E. coli)	2014	L	7.32

Shooting Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.32**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-02-TEMP** **Shooting Creek**

Cause Location: Shooting Creek from its mouth on the Smith River upstream to its headwaters.

City / County: Floyd Co. Franklin Co. Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

4ASOT000.99- (Rt. 622 Bridge) 5 of 24 temperature measurements exceed the Class VI 20°C within the 2018 and 2016 data windows. Values in excess range from 20.4°C to 22.2°C. Each excursion occurs within the summer months. 2014 temperature excursions are found in 3 of 12 measurements. The 3 excursions are 21.8°C (6/29/2011), 21.5°C (8/25/2011) and 22.2°C (7/31/2012). There are no additional data within the 2012 data window. Three of 8 temperature measurements exceed the 20°C Class VI natural trout water criterion within both 2008 and 2010 data windows. Temperature excursions are 20.6 (8/25/05 & 6/22/06) and 21.2°C (8/29/06). These waters were assessed based on a stream Class IV designation in the 2008 IR resulting in full support. The stream Class is VI, natural trout waters, and should have been initially 303(d) Listed in 2008.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SOT01A08 / Shooting Creek / Shooting Creek from its mouth on the Smith River upstream to its headwaters (RD17).	5C	Temperature	2008	L	7.32

Shooting Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**7.32**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-03-BAC** **Nicholas Creek**

Cause Location: Nicholas Creek from the inundated waters of Philpott Reservoir upstream to a point south of Franklin St. at 36°54'13" / 80°03'48".

City / County: Franklin Co. Henry Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This initial 2016 303(d) Listing is the result of excursions of the escherichia coli WQS instantaneous criterion of 235 cfu/100 ml. The Recreational Use is impaired. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748/35756. SWCB approved 4/28/2009. Nicholas Creek is nested within the overall Bacteria TMDL Watershed.

4ANCH001.23 (Rt. 780 (Jamison Rd.) Entrance to Jamison Mill Park- 4 of 12 E.coli samples exceed the instantaneous criterion within the 2016 data window. Excursions range from 250 to 528 cfu/100 ml. No additional data was collected since the 2016 Integrated Report data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_NCH01A12 / Nicholas Creek / Nicholas Creek from the inundated waters of Philpott Reservoir upstream to a point south of Franklin St. at 36°54'13" / 80°03'48" (RD19).	4A	Escherichia coli (E. coli)	2016	L	5.40

Nicholas Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.40**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-03-TEMP** **Smith River**

Cause Location: Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).

City / County: Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

The 2016 Integrated Report (IR) produced the initial 303(d) Listing for temperature excursions of the Class V Stockable Trout water criterion resulting in impairment of the Aquatic Life Use. Part of the 2016 IR listing was made in error as the data discussed below were actually collected at 4ASRE069.46. Of the 2016 IR 8.99 mile listed segment, 2.55 miles are delisted and 6.43 miles remain listed in the 2018 IR.

4ASRE069.46 (Downstream of Iron Bridge Rd. bridge) - The 2018 IR finds 4 of 24 excursions of the Class V 21°C criterion. Exceedances are: 21.6°C (7/7/14), 22.0°C (9/3/14), 21.6°C (8/18/16), and 21.7°C (9/19/16). The 7/7/14 and 9/3/14 excursions were incorrectly assigned to 4ASRE063.69 during the 2016 IR and resulted in the original temperature impairment.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_SRE07A00 / Smith River / Smith River mainstem from the mouth of Shooting Creek upstream (WQS Class V waters) to Rt. 704 (RD17).	5C	Temperature	2016	L	6.43

Smith River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**6.43**

Sources:

Natural Sources Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L51R-04-BAC** **Rennet Bag Creek**

Cause Location: Rennet Bag Creek from its headwaters downstream to its inundation at Philpott Reservoir. The impairment spans the Endicott, Charity and Philpott Reservoir Quads.

City / County: Floyd Co. Franklin Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2016 Integrated Report (IR) is the initial listing of E.coli for Rennet Bag Creek. The Dan River Bacteria TMDL Study is U.S. EPA approved on 12/08/2008. Fed ID 35748/35756. SWCB approved 4/28/2009. Rennet Bag Creek is nested within the overall Bacteria TMDL Watershed.

4ARBC005.44 - (Rt. 43 west of Endicott) No additional data beyond the 2016 data window. The 2016 assessment finds 3 Escherichia Coli (E.coli) bacteria exceedances of the 235 cfu/100 mL instantaneous criterion. Exceedances range from 575 to greater than 2000 cfu/100 mL.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L51R_RBC01A00 / Rennet Bag Creek / Rennet Bag Creek mainstem from its inundation at Philpott Reservoir upstream to the confluence of Long Branch Class V (RD18).	4A	Escherichia coli (E. coli)	2016	L	2.13
VAW-L51R_RBC02A02 / Rennet Bag Creek / Rennet Bag Creek mainstem from the confluence of Long Branch upstream to its headwaters Class VI.	4A	Escherichia coli (E. coli)	2016	L	9.41

Rennet Bag Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.54**

Sources:

Livestock (Grazing or Feeding Operations)	Loss of Riparian Habitat	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L52R-01-BAC** **Smith River**

Cause Location: The bacteria impairment begins at the Blackberry Creek mouth on Smith River VAW-L52R (Bassett Quad) and extends downstream to the backwaters of the Martinsville power pool (Martinsville West Quad).

City / County: Henry Co. Martinsville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The original 2002 Assessment basis for 303(d) Listing the waters is exceedance of the former fecal coliform (FC) bacteria instantaneous criterion of 1000 cfu/100 ml and the former geometric mean (WQS frequency of 2 samples/calendar month of 200 cfu/100 ml causing the waters to not support the Recreational Use. Special monitoring on Blackberry Creek (L52R) and the Smith River (L53R) reported and 303(d) Listed these exceedances in 2002.

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/8/2008 [Fed ID 35748/35756] and SWCB approved 4/28/2009. The Smith River is encompassed by the overall Dan River Bacteria TMDL Watershed and allocations. Portions of the Smith River are nested within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

A portion of the bacteria impaired waters were delisted in 2004 for the area between the Blackberry Creek mouth on the Smith River (L52R Bassett Quad) extending downstream to the Reed Creek confluence on the Smith River L53R- Martinsville West Quad), 3.31 miles. The delisting of these waters was based on an exceedance rate of less than 10.5%. This portion returned to 303(d) Listing status with the 2006 Integrated Report (IR) based on stations 2000W0034A and 4ASRE036.55. The total bacteria impairment size is 10.30 miles.

4ASRE036.55- There are no additional data beyond the 2008 assessment where escherichia coli (E.coli) are found to exceed the 235 cfu/100 ml instantaneous criterion in 3 of 21 samples. Exceeding values range from 250 to 720 cfu/100 ml. 2006 exceedances are 250 and 350 cfu/100 ml from 2 of 9 samples.

4ASRE033.19- During the 2018 data window, 18 of 41 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion; exceedances range from 262 to greater than 2,000 cfu/100 ml. 2014 E.coli samples exceed the 235 cfu/100 ml criterion in 8 of 36 samples. Exceeding values range from 250 to greater than 2000 cfu/100 ml. Ten of 46 E.coli samples exceed the WQS instantaneous criterion within the 2012 data window. The range of exceedance is from 250 cfu/100 ml to greater than 2000. The 2010 assessment finds E.coli exceed the instantaneous criterion in 9 of 43 observations with the same range of exceedance as 2012. E.coli exceed the instantaneous criterion in 4 of 31 samples in 2008. Exceeding values range from 280 to 1000 cfu/100 ml.

Special Study Stations:
2008 E. coli exceedances/total observations; range 2008/2006 & 2004 exceedances/total observations; range 2004.
2000W0034B- (downstream of Blackberry Creek confluence)- SS data ends 6/06/02- 1 of 10 at 270/2006 & 2004- 2 of 20; 270 to >800.
2000W0034A- (located downstream in VAW-L53R)- SS data ends 6/06/02- 1 of 11 exceeds at >800/2006 & 2004- 2 of 21; at >800.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_SRE01A00 / Smith River / The Smith River mainstem from the Blackberry Creek mouth downstream to Rock Run mouth (Watershed Boundary RD22).	4A	Escherichia coli (E. coli)	2006	L	0.96
VAW-L53R_SRE01B06 / Smith River / Smith River mainstem from the former E. I. duPont outfall upstream to the E. I. duPont water intake on the Smith River (RD24).	4A	Escherichia coli (E. coli)	2008	L	0.49
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	4A	Escherichia coli (E. coli)	2008	L	4.25
VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from	4A	Escherichia coli (E. coli)	2008	L	2.25

the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).					
VAW-L53R_SRE04A00 / Smith River / Smith River mainstem from the mouth of Reed Creek upstream to an unnamed tributary. The unnamed tributary is approximately 0.70 miles downstream of the Alt. 57 Bridge (RD22).	4A	Escherichia coli (E. coli)	2006	L	0.81
VAW-L53R_SRE05A00 / Smith River / Smith River mainstem from an unnamed tributary located approximately 0.70 miles downstream of the Alt. 57 Bridge, upstream to the watershed boundary at the mouth of Rock Run (RD22).	4A	Escherichia coli (E. coli)	2006	L	1.54

Smith River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.30**

Sources:

Municipal (Urbanized High Density Area)	Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)
Wildlife Other than Waterfowl			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L52R-02-BAC** **Blackberry Creek and Blackberry, UTs**

Cause Location: The impairment begins at the headwaters of Blackberry Creek (~RM 13.63) and extends downstream to Blackberry Creek's mouth on the Smith River. The impaired waters include an unnamed tributary from the north (XMI). The mouth of the unnamed tributary is at 36° 44' 38" / 80° 03' 07". The bacteria impairment spans the Charity, Sanville, Martinsville West and Bassett Quads.

City / County: Henry Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Blackberry Creek as it lies within the TMDL Watershed. An unnamed tributary (XMI) is nested within the Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Exceedance of the former fecal coliform (FC) instantaneous criterion of 1000 cfu/100 ml and the geometric mean of 200 cfu/100 ml caused the waters to not support the recreational use in 2002. Ambient station 4ABRY000.05, a 1999 Federal Consent Decree Attachment B station is 2002 303(d) Listed with a 2010 TMDL schedule date. The 2002 fecal coliform exceedance rate of 15 percent from 3 of 20 samples at 4ABRY000.05 resulted in the original 303(d) Listing. Exceedance of the Escherichia coli 235 cfu/100 ml instantaneous criterion and the former (2 samples/calendar month) geometric mean in 2004 continue to show nonsupport with the 2010 Integrated Report (IR).

The Recreational Use is impaired for a total of 15.49 miles in the Blackberry Creek drainage. An unnamed tributary comprises 1.15 miles of the overall impairment.

Special monitoring of Blackberry Creek began in the fall of 1999 after complaints from local residents regarding sewer service in the Blackberry Creek drainage. Listed below are stream coded sites having data within the 2008 data window and 2000 Special Study (SS) sites and instantaneous results from the 2004 IR. All values are in cfu/100 ml.

4ABRY011.44 formerly 2000W0034L- (at Microfilm Road) There are no additional data beyond the 2008 assessment where escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 10 of 22 samples. The E.coli range of exceedance is 250 to 20,000 cfu/100 ml. The former geometric mean (WQS frequency of 2 samples/calendar month) exceeds in 3 of 6 calculations in excess of the 126 cfu/100 ml criterion. E.coli data within the 2010 data window exceed the instantaneous criterion in 6 of 12 samples.

4ABRY010.27 formerly 2000W0034J- (Rt. 687 Bridge) 2008 E.coli exceedances range from 350 to 1100 cfu/100 ml in excess of the 235 cfu/100 ml criterion from 5 of 17 samples. E.coli data within the 2010 and 2012 data windows exceed the instantaneous criterion in 4 of 12 samples.

4ABRY000.05 formerly 2000W0034E- (American Legion Bridge) There are no additional data beyond the 2008 assessment. The 2008 IR finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in 11 of 31 samples. Exceeding values range from 260 to 1200 cfu/100 ml. Three of 7 geometric mean calculations exceed the former (WQS frequency of 2 samples/calendar month) 126 cfu/100 ml criterion.

Special Study Stations (no additional data beyond 2008 assessment):
2008 E. coli exceedances/total observations; range 2008/2004 exceedances/total observations; range 2004.

2000W0034C- (Rt. 57A) SS data ends 6/06/02 - 2 of 11/range 500 to >800/2004 - 5 of 21 range 340 to >800.
2000W0034E- (American Legion Bridge) SS data ends 6/06/02 - 2004 - 7 of 20/range 250 to >800.
4ABRY000.05- 2004 FC exceeds the 400 cfu/100 ml instantaneous criterion in 4 of 20 samples with exceeding values ranging from 500 cfu/100 ml to greater than 8000.
2000W0034F- (upstream of Rt. 698 Bridge) SS data ends 6/06/02 - 5 of 11; range 280 to >800/2004 - 10 of 21 range 280 to >800.
2000W0034G- (Rt. 676 Bridge) SS data ends 6/06/02 - 1 of 10/620/2004 - 2 of 20; range 330 to 620.
2000W0034H- (Rt. 677 end) SS data ends 6/06/02 - 2 of 10; 280 and >800/2004 - 3 of 20; 280 and >800.
2000W0034I- (Rt. 882 Bridge) SS data ends 6/06/02 - 4 of 11; range 400 to greater than 800/2004 - 7 of 21; range 330 to >800.
2000W0034J- (Rt. 687 Bridge) SS data ends 6/06/02 - 2004 - 5 of 15; range 290 to >800.

Roanoke and Yadkin River Basins

2000W0034L- (at Microfilm Road) SS data ends 6/06/02 - 2004 - 8 of 19/range 250 to >800.
2000W0034R- (along Rt. 799) SS data ends 6/06/02 - 4 of 10; range 400 to >800/2004 - 8 of 20; range 380 to greater than 800.

Unnamed Tributary (UT) stations - No NHD stream trace. (No additional data beyond 208 assessment):
2000W0034M (above confluence w/Blackberry Cr.) SS data ends 6/06/02 - 0 of 10/2004 - 1 of 20; 280.
2000W0034S (above Rt. 832 Bridge) SS data ends 4/23/01 - 0 of 4/2004 - 1 of 11; >800.
2000W0034T (above Westwood Rt. 1226) SS data ends 12/17/01 - 1 of 5; 710/2004 - 6 of 15/range 490 to >800.
Unnamed Tributary (XMI):
2000W0034O (below Westwood Lagoon) SS data ends 6/06/02 - 6 of 10; range 300 to 630/2004 - 12 of 19; range 250 to >800.
2000W0034P (immediately above Westwood Lagoon) SS data ends 6/06/02 - 3 of 10; range 280 to >800/2004 - 7 of 20/range 290 to >800.
2000W0034U (below Westwood Lagoon) SS data ends 6/06/02 - 5 of 10; range 250 to 510/2004 - 9 of 19/range 250 to >800.
2000W0034V (below Westwood Lagoon) SS data ends 6/06/02 - 3 of 10; range 270 to 410/2004 - 8 of 19/range 250 to 780.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_BRY01A00 / Blackberry Creek / Blackberry Creek mainstem from the upper end of the WQS designated public water supply (PWS) section near the American Legion Bridge downstream to the Blackberry Creek mouth on the Smith River.	4A	Escherichia coli (E. coli)	2004	L	0.53
VAW-L52R_BRY02A00 / Blackberry Creek / The Blackberry Creek mainstem from the confluence of Whitt Branch downstream to the end of the WQS public water supply designation near the American Legion Bridge.	4A	Escherichia coli (E. coli)	2004	L	3.72
VAW-L52R_BRY03A00 / Blackberry Creek / Blackberry Creek mainstem from the Sanville Utilities Fairway Acres outfall downstream to Whitt Branch.	4A	Escherichia coli (E. coli)	2004	L	5.54
VAW-L52R_BRY04A02 / Blackberry Creek / Blackberry Creek mainstem from its headwaters downstream to the Sanville Utilities Fairway Acres outfall.	4A	Escherichia coli (E. coli)	2004	L	4.55
VAW-L52R_XMI01A02 / Blackberry Creek, UT (XMI) / An unnamed tributary to Blackberry Creek from its mouth upstream to its headwaters. The mouth of the tributary is located at 36° 44' 38" / 80° 03' 07".	4A	Escherichia coli (E. coli)	2004	L	1.15

Blackberry Creek and Blackberry, UTs **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**15.49**

Sources:

Municipal (Urbanized High Density Area)	Municipal Point Source Discharges	Unspecified Domestic Waste	Wastes from Pets
Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L52R-03-BAC** **Town Creek**

Cause Location: Town Creek from it's confluence on the Smith River upstream to the mouth of Grassy Fork.

City / County: Franklin Co. Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Town Creek Recreational Use impairment is a result of the 2012 assessment. Town Creek is nested within the overall Dan River Bacteria TMDL Watershed U.S. EPA approved on 12/8/2008, Fed ID: 35756 and SWCB approved on 4/28/2009.

4ATWN000.22- (Philpott Drive - Rt. 674 Bridge) Escherichia coli (E.coli) exceed the 235 cfu/100 ml water quality criterion in 4 of 12 samples collected during the 2018 data window. Excursions range from 275 to 15,531 cfu/100 ml. E.coli samples exceed the WQS 235 cfu/100 ml instantaneous criterion in 4 of 12 samples within the 2012 data window. Values in excess of the criterion range from 280 cfu/100 ml to 1300. There are no additional data within the 2014 or 2016 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L52R_TWN01A12 / Town Creek / Town Creek from it's confluence on the Smith River upstream to the mouth of Grassy Fork.	4A	Escherichia coli (E. coli)	2012	L	1.88

Town Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.88**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53L-01-BAC** **Martinsville (Beaver Creek) Reservoir**

Cause Location: Martinsville Reservoir

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. This bacteria impairment is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ABAU005.34 (Martinsville Reservoir at Dam) The 2018 assessment finds Escherichia coli (E.coli) exceeds the WQS instantaneous criterion of 235 cfu/100 ml in 0 of 14 samples, this reservoir is bracketed by impaired stream AUs, therefore the reservoir is going to remain impaired due to the other continuous impairments upstream and downstream. The 2010 assessment finds escherichia coli (E.coli) exceed the WQS instantaneous criterion of 235 cfu/100 ml in 2 of 13 observations. Values in excess of the criterion are 420 and 450 cfu/100 ml. There are no additional data within the 2014 data window.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53L_BAU01A02 / Martinsville (Beaver Creek) Reservoir / Martinsville Reservoir on Beaver Creek from its impounding structure upstream to its backwaters.	4A	Escherichia coli (E. coli)	2010	L	182.28

Martinsville (Beaver Creek) Reservoir **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:		**182.28**	

Sources:

Wet Weather Discharges (Non-Point Source)

Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-01-BEN** **Smith River**

Cause Location: Smith River from the mouth of Reed Creek downstream to the backwaters of the Martinsville Dam Power Pool.

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The 2012 Integrated Report (IR) partially delisted the original 4.74 mile General Standard Benthic impairment. The 2014 assessment finds impairment has returned and relists these waters for the General Standard Benthic impairment and extends the impairment upstream 2.25 miles. The extension upstream is due to declining Virginia Stream Condition Index (VSCI) scores at 4ASRE033.19. These waters (4.74 miles) were originally 303(d) Listed in 2008 for contravention of the General Standard and are now nested within the Smith River Benthic Phased TMDL. Phase I U.S. EPA approved 1/13/2011 (Fed IDs: 39703, 39705 (delist), 39706 & 39707).

4ASRE033.19- (Rt. 701 Bridge - Fieldale) Bio 'IM' No additional data since the 2016 assessment recorded 12 VSCI surveys (2009-2014) with an average score of 55.5. Spring bioassessments at this station show a decline since 2009 and Fall bioassessments show a slight improvement since 2009. Overall VSCI scores are declining. This station has been the upstream control site for all Smith River biomonitoring stations and is located approximately 0.65 miles upstream of the Upper Smith River WWTP which is currently off line. Eleven VSCI surveys (2007-2012) with an average 6 year score of 57.6 and 2 year score of 54.0 are recorded within the 2014 assessment. Bioassessments at this station have shown a range of scores between 50 and 63 and a slight decline from the fall of 2007 to the fall of 2012. The river is impacted by the operation of one hydroelectric dam, sediment deposition and urban NPS runoff. Sediment deposition in this reach of the Smith River may negatively affect the benthic community. This is possibly a result of the upstream scouring caused by discharges from Philpott Dam as well as inputs from tributaries.

4ASRE032.38- Bio 'IM' This station initially assessed in 2012 using Best Professional Judgment (BPJ) based on 4ASRE033.19 and 4ASRE0031.00 scoring in the 60s, or fully supporting. This station is re-assessed in 2014 indicating impairment. There are no additional data beyond the 2012 data window. Two 2010 surveys with an average score of 59.7 (spring 56.08; fall 63.48). This station is between the historical biomonitoring stations 4ASRE033.19 and 4ASRE031.00 and is adjacent to the closed Upper Smith River STP. Similar to station 4ASRE033.19 and 4ASRE031.00, this reach of the river appears to be impacted by sediment deposition and urban NPS runoff.

4ASRE031.00- (Behind Church at Kohler) During the 2018 data window, 9 VSCI surveys 12VSCI surveys (2009-2014) find impairment with an average score of 56.7 within the 2016 data window. The Spring average VSCI scores fall below the impairment threshold and the Fall VSCI scores are slightly above the impairment threshold. Both seasons are experiencing a decline in VSCI scores and overall decline to present. The 2014 assessment reports 9 Virginia Stream Condition Index (VSCI) surveys (2008 - 2012) with an average 6 year score of 59.2 and a 2 year average score of 54.10. These scores show impairment and result in the re-listing of this portion of the Smith River. The 2012 assessment de-listed these waters with a 6 year average score of 61.8 and a 2 year average of 64.8. Five VSCI surveys (2003 - 2008) within the 2010 data window report an average score of 52.6. Note: 2008 assessment (4 surveys 2003-2006) score 51.6. Compared to the upstream control site, there is a difference in the average Stream Condition Index (SCI) score (51.6 at this station versus 60.1 at 4ASRE033.19). The benthic community typically has fewer total taxa and fewer sensitive taxa than the reference site. The station is approximately 1.54 miles below the former Upper Smith River WWTP. Similar to the reference station, this reach of the river appears to be impacted by sediment deposition and urban NPS runoff. The WWTP ceased discharge November 11, 2003 and the VPDES permit terminated in June 2004. Benthic community scores declined between 2000 and 2004 and increased between 2005 and 2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_SRE01B06 / Smith River / Smith River mainstem from the former E. I. duPont outfall upstream to the E. I. duPont water intake on the Smith River (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	0.49
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2008	L	4.25

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).	4A	Benthic Macroinvertebrates Bioassessments	2014	L	2.25

Smith River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**6.99**

Sources:

Municipal (Urbanized High Density Area)	Sediment Resuspension (Clean Sediment)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-01-TEMP** **Smith River**

Cause Location: Smith River mainstem from the mouth of Reed Creek downstream to the E.I. DuPont Intake (RD24).

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5A

The 2016 Integrated Report (IR) is the initial 303(d) listing for Aquatic Life Use due to temperature impairment.

4ASRE033.19 - (Rt. 701 in Fieldale) A continuous temperature monitoring device was placed at the station during the critical time period of August 4th to September 2nd 2014. The device recorded temperature every 30 minutes for 30 days. The 2016 assessment reveals 20% of the days exceeded the max daily temperature at least 10.5% of the day for the Class VI Natural Trout criterion of 20°C. The rate of temperature change (0.5°C per hour) was exceeded 72.4% of the days the temperature sensor was deployed. These temperature exceedances are believed the result of the hydroelectric operations and flow release patterns from the Philpott Dam.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_SRE02A00 / Smith River / Smith River mainstem from the E. I. duPont intake upstream to the former Henry County PSA Upper Smith River STP outfall (RD24).	5A	Temperature	2016	L	4.25
VAW-L53R_SRE03A00 / Smith River / Smith River mainstem from the former Henry County PSA Upper Smith River STP upstream to the mouth of Reed Creek (RD24).	5A	Temperature	2016	L	2.25

Smith River **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**6.50**

Sources:

Dam or Impoundment

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-02-BAC** **Jordan Creek**

Cause Location: The mainstem waters of Jordan Creek from its headwaters to its mouth on the Smith River.

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2006 303(d) Listed 6.00 mile waters remain impaired for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Jordan Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AJOR000.02- (Rt. 682 Bridge) There are no additional data beyond the 2008 assessment where 7 of 21 Escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion. Exceeding values range from 320 to 1500 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_JOR01A06 / Jordan Creek / The mainstem waters of Jordan Creek (RD24).	4A	Escherichia coli (E. coli)	2006	L	6.00

Jordan Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.00**

Sources:

- Municipal (Urbanized High Density Area)
- Residential Districts
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-03-BAC** **Beaver Creek**

Cause Location: The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir.

City / County: Franklin Co. Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Recreational Use remains impaired for these 2006 303(d) Listed 5.30 mile waters. The impairment is extended 6.97 miles upstream from inundation of Martinsville Reservoir. Impairment results described below for station 4ABAU011.17 for a total of 12.27 impaired miles. The Dan River Bacteria TMDL is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. This bacteria impairment is nested within the Dan River Bacteria TMDL. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov <http://www.deq.virginia.gov/> .

4ABAU011.17 (Off Rt. 922 upstream of the Rt. 657 crossing) 3 of 3 E.coli samples exceed during the 2018 data window. In 2016, 2 of 2 escherichia coli (E.coli) samples exceed the WQS instantaneous criterion of 235 cfu/100 ml during the 2016 IR. All samples exceed at greater than 800 cfu/100 ml.

4ABAU000.94- (Rt. 220 Business Bridge) There are no additional data within the 2012, 2014 or 2016 data windows. Escherichia coli (E.coli) exceeds the 235 cfu/100 ml instantaneous criterion in 10 of 24 samples within the 2012 data window. Exceeding values range from 250 to greater than 2000 cfu/100 ml. The 2008 and 2010 assessments find E.coli exceeds the instantaneous criterion in 13 of 21 samples. Exceeding values range from 380 to greater than 2000 cfu/100 ml.

4ABAU000.25- (Off Koehler Rd.) E.coli bacteria exceed the instantaneous criterion in 3 of 12 observations within the 2016 data window. Values in excess of the criterion range from 250 cfu/100 ml to greater than 2000.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU01A06 / Beaver Creek / The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).	4A	Escherichia coli (E. coli)	2006	L	5.30
VAW-L53R_BAU02A06 / Beaver Creek / Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir (RD24).	4A	Escherichia coli (E. coli)	2016	L	6.97

Beaver Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**12.27**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-03-BEN** **Beaver Creek**

Cause Location: Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir.

City / County: Franklin Co. Henry Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2008 IR reports the Aquatic Life Use impaired for 6.97 miles due to contravention of the General Standard.

4ABAU011.17- (Off Rt. 922 upstream of Rt. 657 crossing) The 2018 IR adds 2 additional VSCI surveys (2015) to the 2016 assessment VSCI surveys (2011, 2013) for a total of 6 VSCI scores averaging 37.5. Two 2011 Virginia Stream Condition Index (VSCI) surveys within the 2014 data window find continued impairment with an average score of 38.8. Taxa richness is higher in the fall and the abundance of midges (Chironomidae) higher in the spring. Sediment deposition, bank erosion, bank vegetation, and riparian buffer width scores were low in this reach. Approximately 46% of the riparian land cover in the watershed is agricultural. The benthic community is dominated by pollution tolerant organisms and appears to be affected by habitat impacts. There are no additional data within the 2010 or 2012 data windows. The 2008 Integrated Report (IR) finds the benthic community impaired from 2 2004 VSCI surveys with an average score of 51.2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU02A06 / Beaver Creek / Beaver Creek mainstem from its headwaters downstream to its inundation at the Martinsville Reservoir (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2008	L	6.97

Beaver Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**6.97**

Sources:

Loss of Riparian Habitat

Sediment Resuspension (Clean Sediment)

Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-04-BAC** **Reed Creek**

Cause Location: Reed Creek mainstem from its mouth on the Smith River upstream approximately one mile above the Rt. 609 crossing.

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This 2008 303(d) Listed water extends 4.13 miles resulting in non-support for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Reed Creek as it lies within the TMDL Watershed. Reed Creek is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AREE000.80 (Rt. 993 Bridge upstream of Rt. 57 Bridge) There are no additional data beyond the 2014 Integrated Report (IR). Three of 12 Escherichia coli (E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excessive values range from 325 to 925 cfu/100 ml within the 2014 data window. There are no additional data within the 2012 Integrated Report (IR). Four escherichia coli (E.coli) samples of 21 exceed the instantaneous criterion in both the 2008 and 2010 assessments. Exceeding values range from 300 to greater than 2000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_REE01A00 / Reed Creek / Reed Creek mainstem from its mouth on the Smith River upstream approximately one mile above the Rt. 609 crossing (RD23).	4A	Escherichia coli (E. coli)	2008	L	4.13

Reed Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.13**

Sources:

Municipal (Urbanized High Density Area)	Residential Districts	Unspecified Domestic Waste	Wet Weather Discharges (Non-Point Source)
Wildlife Other than Waterfowl			

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-04-BEN** **Jones Creek, UT (XMP)**

Cause Location: Unnamed tributary (XMP) to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek.

City / County: Franklin Co. Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2006 303(d) Listed 2.04 mile Aquatic Life Use impairment remains due to contravention of the General Standard. There are no additional data beyond the 2008 assessment.

4AXMP001.85- (directly below Henry County Landfill) Bio 'IM' A single 2003 Virginia Stream Condition Index (VSCI) survey scoring spring 2003 47.1. Analysis of the benthic community data with VSCI metrics displays a difference between the benthic communities above and below the landfill. The community at the reference site (4AXMP002.21, VSCI avg.=72.8) was very diverse in pollution sensitive organisms and approximated what would be considered Ecoregion reference quality for a first order stream in the Piedmont area. Two metrics that show the difference in pollution sensitivity of the communities are the Taxa Richness and EPT metrics. EPT represents the sensitive Mayflies, Stoneflies, and Caddisflies. The reference site also had a much higher number of organisms present (159) in a similar amount of habitat sampled relative to the impact site (34).

The main physical difference between the 2 stations is the presence of large growths of sphaerotilus bacteria at the downstream site. The bacteria covered practically every part of the stream substrate including the mineral sand, gravel and cobble bottom of the stream as well as the woody debris and leaf packs in stream. This covering ranged in thickness from about 1 inch in high velocity areas to approximately 1 foot in pool habitats. This bacterium typically thrives in waters impacted by organic effluents and is often referred to as "sewage fungus." This bacterium was not observed at the reference site. Such a large presence of this bacterium indicates a pollution impact. More recent investigations have found that sphaerotilus bacteria is common in waters impacted by landfill leachate indicating that excessive growths are related to volatile organic chemicals. The bacterial growth has an impact on the abundance of benthic organisms.

4AXMP001.26- 1 fall 2006 survey scoring 57.4. Several metrics indicated a substantial difference in the pollution sensitivity of the communities at this station versus the upstream site. This sample also required 3.5 times more effort than the upstream site to collect an equivalent number of organisms, displaying a large difference in macro invertebrate abundance.

4AXMP000.44 4AXMP000.44 (Dwnstr. of Henry Co. Landfill off Rt. 663; Clearview Dr.) Bio 'J' 4 VSCI surveys (2013-2014) with an average score of 52.3. This stream begins upslope of the Martinsville Sanitary Landfill then flows through a pipe that is buried below the landfill. In 2003 the stream appeared to be impacted by landfill leachate. Volatile organic chemicals (VOCs) were found in both groundwater and surface water samples collected down gradient of the landfill.

This new station was sampled to determine the status of the benthic community at a location well beyond the landfill boundary and above the confluence with Jones Creek as well as to validate the assessment of upstream station (4AXMP001.26) sampled in the fall of 2006. The VSCI scores from 2014 were much better than those from 2013 but the 2 year average is below 60. DEQ is going to reserve judgment at this time and plans to sample this site in 2016.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_XMP01A06 / Jones Creek, UT (XMP) / Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2006	L	2.00

Jones Creek, UT (XMP)	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.00**

Sources:

Landfills

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-05-BAC** **Daniels Creek**

Cause Location: Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

This initial 2016 Recreational Use impairment is a result of escherichia coli (E.coli) excursions of the WQS instantaneous criterion. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Daniels Creek bacteria impairment is nested within the overall Dan River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4ADEL001.35 (Off Rt. 619 (Daniels Cr. Rd) on Miles Rd.) No new data beyond the 2016 data window where 6 of 6 E.coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. Excursions range from 1,625 cfu/100 ml to 24,196.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_DEL01A10 / Daniels Creek / Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).	4A	Escherichia coli (E. coli)	2016	L	3.99

Daniels Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.99**

Sources:

Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste	Unspecified Urban Stormwater
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-05-BEN** **Beaver Creek**

Cause Location: The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).

City / County: Henry Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2016 Integrated Report finds the benthic community impaired due to contravention of the WQS General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4ABAU000.25 (Off Koehler Rd.) Bio 'IM' 6 Virginia Stream Condition Index (VSCI) surveys (2013-2015) with an average score of 34.3. The benthic community consisted of more pollution tolerant taxa and less diversity in the Spring surveys. Total Habitat Scores were in the Marginal to low Sub-Optimal range. Embeddedness and Substrate scores were the lowest ranging from marginal to poor and are likely the dominant factors in the negative effect on the benthic macroinvertebrate community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_BAU01A06 / Beaver Creek / The mainstem waters of Beaver Creek from its mouth on the Smith River upstream to the Martinsville Reservoir (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	5.30

Beaver Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.30**

Sources:

Clean Sediments	Sediment Resuspension (Clean Sediment)	Unspecified Urban Stormwater

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L53R-06-BAC** **Jones Creek, UT (XMP)**

Cause Location: Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).

City / County: Franklin Co. Henry Co. Martinsville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2016 Listed water extends 2.00 miles resulting in non-support for the Recreational Use. The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35756] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Jones Creek unnamed tributary (XMP) as it lies within the TMDL Watershed. The Jones Creek unnamed tributary (XMP) is nested within the Dan River Bacteria TMDL. The TMDL and allocations can be viewed at http://www.deq.virginia.gov

4AXMP000.44 (Dwnstr. Of Henry Co. Landfill off Rt. 663; Clearview Dr.) 5 of 11 E.coli samples exceed the instantaneous criterion within the 2016 data window. Values in excess of the 235 cfu/10 ml criterion range from 300 to greater than 2000 cfu/10 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_XMP01A06 / Jones Creek, UT (XMP) / Unnamed tributary to Jones Creek from downstream of the Henry County Landfill to its confluence with Jones Creek (RD24).	4A	Escherichia coli (E. coli)	2016	L	2.00

Jones Creek, UT (XMP) **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.00**

Sources:

- Municipal (Urbanized High Density Area)
- Residential Districts
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-06-BEN** **Daniels Creek**

Cause Location: Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).

City / County: Henry Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired due to contravention of the WQS General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4ADEL001.35 (Off Rt. 619 (Daniels Cr. Rd) on Miles Rd.) The 2016 assessment finds the benthic community impaired from 4 of 4 Virginia Stream Condition Index (VSCI) surveys with an average score of 18.6. Habitat survey scores were low in this reach due to urban impacts to the watershed. The benthic community is dominated by pollution tolerant organisms. Pollution sensitive organisms were not present in some samples.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_DEL01A10 / Daniels Creek / Daniels Creek from its headwaters downstream to its confluence with the Smith River Class III PWS (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	3.99

Daniels Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**3.99**

Sources:

Municipal (Urbanized High Density Area)	Streambank Modifications/Destabilization	Unspecified Urban Stormwater	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L53R-07-BEN** **Jones Creek**

Cause Location: Jones Creek mainstem upstream to XMP confluence (RD24).

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

This 2016 initial macroinvertebrate impaired water is Listed for contravention of the WQS Aquatic Life Use General Standard. The Virginia Stream Condition Index (VSCI) is a multi-metric statewide stream index of biotic integrity based on data collected from minimally impacted reference sites throughout Virginia. This index shows that an VSCI score of 60.0 is the lower limit for unimpaired conditions in a benthic community.

4AJCR000.42 (Upstream of Rt. 220 Business) There is no additional data beyond the 2016 data window where Bio 'IM' The benthic community is impaired based on 4 Virginia Stream Condition Index (VSCI) (2013-2014) with an average score of 29.2.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L53R_JCR01A16 / Jones Creek / Jones Creek mainstem upstream to XMP confluence (RD24).	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.36

Jones Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.36**

Sources:

Municipal (Urbanized High Density Area)	Unspecified Urban Stormwater	Wet Weather Discharges (Non-Point Source)

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-01-BAC** **Smith River**

Cause Location: The bacteria impairment begins at the Martinsville Dam (Martinsville West Quad) and extends downstream to the VA/NC State Line on the Northwest Eden Quad.

City / County: Henry Co. Martinsville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the Smith River as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Station 4ASRE022.71 is a 1999 Federal Consent Decree Attachment B station and was not 2002 listed as impaired for fecal coliform (FC) bacteria. Only 4 of 59 samples exceeded the former 1000 cfu/100 ml instantaneous criterion for an exceedance rate of 6 percent in 2002. The 2002 303(d) Listing for 10.06 miles has been extended upstream 3.65 miles (2004 Integrated Report (IR)) and downstream 6.30 miles (2006 IR) for a total of 20.01 miles thru the 2008 Assessment.

4ASRE026.27- There are no additional data beyond the 2008 assessment where 2 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion from 21 total samples. The E.coli data indicate this station would meet delisting guidance however the range of exceeding values is from 600 to 1060 cfu/100 ml. Due to the magnitude of the exceedances and the downstream exceedances the waters remain impaired for the Recreational Use.

4ASRE022.71- (Footbridge above the Martinsville STP) There are no additional data beyond the 2004 IR where 8 of 41 FC samples exceed the former 400 cfu/100 ml instantaneous criterion. Exceeding values range from 500 to greater than 8000 cfu/100 ml. The 2004 IR 303(d) Listing extends the 2002 bacteria impairment 3.59 miles upstream from the original 303(d) Listing. Data within the 2006 data window find 3 of 17 samples in excess of the criterion with exceeding values ranging from 600 to 900 cfu/100 ml.

4ASRE021.58 (Rt. 58 Bypass Bridge, Henry Co.) There are no additional E.coli data beyond the 2008 assessment where E.coli excursions range from 300 to 1400 cfu/100 ml in 4 of 9 samples. Each exceedance is in excess of the 235 cfu/100 ml instantaneous criterion. The 2006 data window produces 3 of 17 FC samples in excess of the former 400 cfu/100 ml instantaneous criterion ranging from 1100 to greater than 8000 cfu/100 ml. The 2004 IR reports 6 of 35 FC observations exceed the instantaneous criterion. The exceeding values range from 600 to greater than 8000 cfu/100 ml.

4ASRE019.00- Both the 2010 and 2008 assessments find 6 of 20 E.coli observations exceed the 235 cfu/100 ml instantaneous criterion within their respective data windows. Exceeding values range from 250 to 1060 cfu/100 ml. Two of 6 geometric mean calculations exceed the former (2 samples/calendar month) 126 cfu/100 ml criterion at 150 and 235. There are no additional data beyond the 2008 assessment.

4ASRE015.43 (Rt. 636 Bridge) There are no additional E.coli data beyond the 2008 assessment. Both the 2010 and 2008 assessments find E.coli exceed the instantaneous criterion in 4 of 20 samples. The range of exceedance is from 250 to 990 cfu/100 ml in each respective data window. One of 6 geometric mean calculations exceeds the former (2 samples/calendar month) 126 cfu/100 ml criterion at 306 in 2008. One excursion of the instantaneous criterion is found from 17 observations within the 2006 data window. The single exceedance is 1100 cfu/100 ml. 2004 IR findings are FC exceeds the former 400 cfu/100 ml criterion in 6 of 35 samples. Exceeding values range from 500 to 1300 cfu/100 ml.

4ASRE007.90(Rt. 622 Bridge, Morgan Ford Bridge) The 2018 IR finds 9 of 47 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Excursions range from 241 to 1,850 cfu/100 ml. Seven of 48 escherichia coli (E.coli) exceed the WQS instantaneous criterion of 235 cfu/100 ml. Values in excess of the criterion range from 325 to 1850 cfu/100 ml. 2014 cycle data produce 5 of 36 E.coli observations exceeding the WQS instantaneous criterion. Excessive values range from 350 to 1850 cfu/10 ml. E.coli exceedances of the WQS instantaneous criterion range from 250 to 1500 cfu/100 ml from 7 of 36 samples within the 2012 data window. The 2010 data window finds 8 of 33 E.coli samples exceed the instantaneous criterion. Values in excess of the criterion range from 250 to 1700 cfu/100 ml. 2008 E.coli exceedances of the instantaneous criterion range from 250 to 600 cfu/100 ml from 6 of 21 samples. The 2006 IR reports 6 of 48 FC samples exceed the former WQS 400 cfu/100 ml instantaneous criterion with exceedances ranging from 600 to 950 cfu/100 ml.

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_SRE01A00 / Smith River / Smith River mainstem from the Home Creek mouth downstream to VA/NC State Line (RD30).	4A	Escherichia coli (E. coli)	2008	L	3.19
VAW-L54R_SRE02A00 / Smith River / The mainstem Smith River located between the Turkeypen Branch mouth downstream to the Home Creek mouth (RD30).	4A	Escherichia coli (E. coli)	2008	L	3.11
VAW-L54R_SRE03A00 / Smith River / Smith River mainstem from the Leatherwood Creek mouth downstream to the confluence of Turkeypen Branch (RD30).	4A	Escherichia coli (E. coli)	2008	L	4.67
VAW-L54R_SRE03A02 / Smith River / Smith River mainstem from the Marrowbone Creek mouth downstream to the confluence of Leatherwood Creek (RD26).	4A	Escherichia coli (E. coli)	2008	L	1.74
VAW-L54R_SRE04A00 / Smith River / The mainstem Smith River located between the HCPSA Lower Smith River STP and the confluence of Marrowbone Creek (RD26).	4A	Escherichia coli (E. coli)	2008	L	0.39
VAW-L54R_SRE05A00 / Smith River / The mainstem Smith River located between the Martinsville City STP outfall downstream to the Henry County PSA Lower Smith STP outfall (RD26).	4A	Escherichia coli (E. coli)	2008	L	3.27
VAW-L54R_SRE06A00 / Smith River / The mainstem Smith River located between the Martinsville Dam downstream to Martinsville City STP outfall (RD26).	4A	Escherichia coli (E. coli)	2008	L	3.65

Smith River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**20.02**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-01-BEN** **Smith River**

Cause Location: The benthic impairment begins near the Martinsville Dam and extends downstream to the mouth of Turkeypen Creek.

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Smith River General Standard - Benthic TMDL received U.S. EPA approval on 1/13/2011 for a phased approach. Federal IDs are 39703, 39705, 39706 and 39707. Phase I seeks to define and identify stressors to the benthic community beyond general identification. The 2012 assessment delisted the benthic impairment for 3.59 miles (Assessment Unit VAW-L54R_SRE06A00/Fed ID 39705). The former delisting is based on Virginia Stream Condition Index (VSCI) surveys from stations 4ASRE024.30 and 4ASRE022.90 upstream of the Martinsville STP. Benthic data from station 4ASRE024.30 show a decline during the 2016 data window and result in the return of 3.65 miles to impaired status. The increase of 0.06 miles from 2012 are due to the 2014 cycle GIS mapping conversion of the National Hydrography Dataset (NHD) from 1:100K scale to 1:24K scale.

The 1998 Aquatic Life Use impairment remains for these 13.71 mile waters. Two municipal facilities have closed as a result of industrial plant closings in the Martinsville/Henry County area. Greatly reduced influent chloride levels from industrial inputs to the Martinsville STP are a result. An earlier 1998 Corbicula study indicates chlorides may have impacted the benthos. However, the benthic community impairment remains. Stations listed below are downstream of 2 hydroelectric dams resulting in daily fluctuations of stream flow and temperature.

4ASRE024.30 (Off Frith Rd. downstream of railroad trestle) Bio 'IM' 12VSCI surveys (2009-2014). The Spring seasonal averages scored an average of 17 points below the impairment threshold of VSCI <60 while the Fall seasonal averages scored an average of 8 points above the impairment threshold. Overall, there is a decline in the VSCI scores within the 2016 data window. Given the range of variability between seasonal scores and the decline in scores during this assessment period, this station is assessed Impaired. Recent emergency sewer repairs upstream of this site may contribute to improved conditions in the future.

4ASRE022.90 (Downstream of Machine Br. mouth) 11 VSCI surveys show non-impaired conditions with an average score of 62.4. The fall 2013 score (55.90) and 2014 spring score (36.50) indicate a slight decline in the benthic community and recovery with a 2014 fall score of 63.0. However with the most recent decline of scores at 4ASRE024.30 these waters return to impaired status as well.

4ASRE022.30 (below the Martinsville STP) Bio 'IM' No additional VSCI samples within the 2018 IR data window. Ten VSCI surveys spanning the 2016 data window (2009-2014) find benthic impairment with an average score of 58.6. Eleven VSCI surveys (2007 thru 2012; 2014 data window) with an average 6 year score of 57.3 and 2 year score of 63.9. Bio 'IM' 2012 benthic collections find impairment from 7 VSCI surveys (2005 thru 2010) 6 of which scored less than the 60 threshold with an average 6 year score of 53.52 and 2 year score of 56.47. Seven VSCI surveys (2003 thru 2008 - 2010 data window) score an average of 52.0 and 2001 thru 2006 - 2008 data window) of 51.3.

Historical data show the VSCI scores over the past 6 years (2016 data window) are higher in the spring than in the fall. In the last 2 years, the Fall scores have been slightly higher than the Spring scores. The Fall 2011 and Spring 2012 scores (75.29 and 68.66, respectively) indicate the best water quality (Non-Impaired or >60 VSCI score) at this station since it was established in 1997. The historical data show a slight improvement in VSCI scores. Similar to other stations on the Smith River, these data indicate improvements and declines during the assessment period. However, the data indicate a decline in Fall 2012 to an impaired VSCI score of 52.63. Historical data also show that the benthic community at this site typically consisted of more pollution tolerant taxa in the spring. Point and non-point source pollution (sediment) appear to affect the river. Previous assessments find this station shows the least improvement of the stations sampled for the Smith River TMDL. The 2008 samples show an improvement in the community from the sample collected in 2007. The fall 2005 survey indicates a community dominated by the moderately tolerant caddisfly (Hydropsychidae) an indication of organic and nutrient pollution. Improvement in the operation of the Martinsville WWTP may be responsible for the increasing assessment scores since 2001.

4ASRE019.00 (above the Marrowbone Creek mouth) Bio 'IM' The 2016 Integrated Report (IR) finds 11 VSCI surveys (2009-2014) with an average 6 year score of 54.9 and 2 year score of 53.5. In the Spring of 2012, the highest VSCI score (68.59) was recorded, since then scores have declined. Eleven VSCI surveys (2007-2012; 2014 data window) with an average 6 year score of 54.3 and 2 year score of 61.2. Nine VSCI surveys (2005-2010; 2012 data window) with an average 6 year score of

49.58 and 2 year score of 49.71. Seven VSCI surveys score an average (2003 thru 2008 - 2010 data window) of 46.8 and (2001 thru 2006 5 surveys 2008 data window) score an average 42.4.

Point and non-point source pollution (sediment) from land use conversion throughout the watershed also appear to affect the river. The dominant family observed has typically been the moderately tolerant caddisfly Hydropsychidae (an indication of organic and nutrient pollution). In the most recent surveys, Hydropsychidae and Simuliidae dominated the samples. The numbers of these individuals per sample appears to be declining. The Fall 2009 non-impaired sample had the largest percentage (27.84%) of mayflies (VSCI=62.0). The fall 2008 VSCI score (58.22) had 13.22% mayflies. In the fall 2001 survey, the numbers of sensitive insects in the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) decreased and the number of pollution tolerant organisms increased relative to earlier surveys. The 2007 and 2008 surveys report Hydropsychidae and other nutrient/organic pollution tolerant families dominate the samples. This station is downstream of the Martinsville and former Lower Smith River (Henry County PSA) WWTPs. The closure of the Lower Smith River Wastewater Treatment Plant (just upstream of this station) in November 2005 did not appear to have a significant affect on the benthic community.

4ASRE015.43 (Rt. 636 Bridge) Bio 'IM' 9 (2011-2014, 2016) VSCI surveys during the 2018 data window average 59.7. The 2016 data window reports 11 VSCI surveys (2009-2014) with a 6 year average score of 58.0 and 2 year score of 55.7. The benthic macroinvertebrate community indicates a water quality pattern of recovery followed by years of decline. Overall water quality at this site remains impaired. Recent surveys also show that the benthic community is dominated by the tolerant organisms (Hydropsychidae, Chironomidae, Pleuroceridae and Simulidae) a possible indication of organic and nutrient pollution. The 2014 assessment reports 11 VSCI surveys (2007-2012) with an average 6 year score of 54.9 and 2 year score of 55.5. Benthic collections within the 2012 data window report 9 VSCI surveys (2005-2010) with an average 6 year score of 54.9 and 2 year score (2009-2010) of 55.5. Seven VSCI surveys (2003 thru 2008 are within the 2010 data window) scoring an average of 52.4 and (2001 thru 2006 5 surveys 2008 data window) score an average of 52.1.

This station is the furthest downstream biological monitoring site and the first site where the benthic community historically showed signs of recovery. This site has shown improvement in the fall scores since fall 2006, but a decline in the fall 2010 sample followed by a large improvement in 2011 and another decline in 2012. Non-point source urban runoff and sediment appear to affect the river. The station is located downstream of Leatherwood Creek which may be a significant source of sediment. Recent surveys show that the benthic community is dominated by the moderately tolerant caddisfly Hydropsychidae as well as Chironomidae, Pleuroceridae and Simulidae, an indication of organic and nutrient pollution. There was some improvement in the benthic community between Fall 2006 and 2009. The same affect was found with improvement in the benthic community scores between 1999 and 2001 as well (2008 data window). Improved water quality may have been the result of operational improvements at the Martinsville WWTP. However, the decline in benthic community scores in spring 2008-2010 and Fall 2008, 2010 and 2012 indicates that water quality at this site is still degraded.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_SRE03A00 / Smith River / Smith River mainstem from the Leatherwood Creek mouth downstream to the confluence of Turkeypen Branch (RD30).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	4.67
VAW-L54R_SRE03A02 / Smith River / Smith River mainstem from the Marrowbone Creek mouth downstream to the confluence of Leatherwood Creek (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	1.74
VAW-L54R_SRE04A00 / Smith River / The mainstem Smith River located between the HCPSA Lower Smith River STP and the confluence of Marrowbone Creek (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	0.39
VAW-L54R_SRE05A00 / Smith River / The mainstem Smith River located between the Martinsville City STP outfall downstream to the Henry County PSA Lower Smith STP outfall (RD26).	4A	Benthic Macroinvertebrates Bioassessments	1998	L	3.27
VAW-L54R_SRE06A00 / Smith River / The mainstem Smith River located between the Martinsville Dam downstream to Martinsville City STP outfall (RD26).	4A	Benthic Macroinvertebrates Bioassessments	2004	L	3.65

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Smith River	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**13.72**

Sources:

Dam or Impoundment	Municipal (Urbanized High Density Area)	Sediment Resuspension (Clean Sediment)	Silviculture Harvesting

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-02-BAC** **Mulberry Creek**

Cause Location: Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00").

City / County: Henry Co. Martinsville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35748] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Mulberry Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMBY001.51 (Sam Lions Trail/Country Club Dr. Crossing) There is no additional data beyond the 2016 Integrated report (IR) which found the initial bacteria Listing from 4 of 12 escherichia coli (E.coli) samples in excess of the WQS instantaneous criterion of 235 cfu/100 ml. The range of exceeding values is from 275 to 500 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MBY01A10 / Mulberry Creek / Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00") (RD26).	4A	Escherichia coli (E. coli)	2016	L	2.60

Mulberry Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.60**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	Unspecified Domestic Waste	Wastes from Pets
Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-02-BEN** **Machine Branch**

Cause Location: Machine Branch from its mouth on the Smith River upstream to its headwaters.

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

4AMCH000.53 (Clover Rd - Rt. 976 Bridge) Bio 'IM' The 2016 & 2018 Integrated Reports (IRs) find continued impaired benthic community impairment. Five Virginia Stream Condition Index (VSCI) surveys (2009-2014) report an average score of 21.9. The 2014 (IR) finds Aquatic Life Use impairment from 3 VSCI (2008-2009) surveys. The average score is 24.0. The original 2010 303(d) Listing is based on the single 2008 survey scoring 30.7. The surveys find a stressed community with low taxonomic diversity dominated by pollution-tolerant organisms. Habitat surveys indicate a stream section with substrates impacted by excessive fine sediments, severely eroded stream banks, and impacted riparian buffer strips.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MCH01A10 / Machine Branch / Machine Branch from its mouth on the Smith River upstream to its headwaters (RD26).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	0.68

Machine Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**0.68**

Sources:

Loss of Riparian Habitat

Sediment Resuspension (Clean Sediment)

Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-03-BAC** **Machine Branch**

Cause Location: Machine Branch from its mouth on the Smith River upstream to its headwaters.

City / County: Henry Co. Martinsville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Machine Branch as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

4AMCH000.53 (Clover Rd - Rt. 976 Bridge) 4 of 13 escherichia coli samples exceed the WQS instantaneous criterion of 235 cfu/100 ml. This initial 2016 listing of the waters shows a range of exceeding values from 259 to 591 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MCH01A10 / Machine Branch / Machine Branch from its mouth on the Smith River upstream to its headwaters (RD26).	4A	Escherichia coli (E. coli)	2016	L	0.68

Machine Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**0.68**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	Unspecified Domestic Waste	Wastes from Pets
Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl		

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L54R-03-BEN** **Mulberry Creek**

Cause Location: Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00").

City / County: Henry Co. Martinsville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The Aquatic Life Use is impaired as determined by the 2010 assessment.

4AMBY001.51 (Sam Lions Trail/Country Club Dr. Crossing) Bio 'IM' There are no additional data beyond the 2016 Integrated Report (IR) which found impairment from 4 Virginia Stream Condition Index (VSCI) surveys (2013-2014). The average score is 45.9. The samples are dominated by pollution tolerant organisms and show variability in the total number of taxa observed. Habitat surveys indicated the stream is impacted by eroded banks and sediment.

4AMBY001.33- Bio 'IM' A 2008 probabilistic site. Two 2008 Virginia Stream Condition Index (VSCI) surveys with an average score of 46.8 find a stressed benthic community dominated by pollution tolerant organisms. Habitat surveys indicate the stream is impacted by eroded banks, sediment deposition and a riparian zone that has almost no vegetation. There are no additional data within the 2012 or 2014 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L54R_MBY01A10 / Mulberry Creek / Mulberry Creek from its confluence with the Smith River upstream to an unnamed tributary (36°40'03"/79°50'00") (RD26).	5A	Benthic Macroinvertebrates Bioassessments	2010	L	2.60

Mulberry Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.60**

Sources:

Loss of Riparian Habitat

Sediment Resuspension (Clean Sediment)

Streambank Modifications/Destabilization

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L55R-01-BAC** **Marrowbone Creek**

Cause Location: The bacteria impairment begins at the former Henry County PSA Water Treatment Plant on Marrowbone Creek and extends downstream to Marrowbone Creek's mouth on the Smith River (Northwest Eden Quad).

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Marrowbone Creek as it lies within the TMDL Watershed. The TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Station 4AMRR000.02 is a 1999 Federal Consent Decree Attachment B station. The 2002 impairment remains for the Recreational Use.

4AMRR000.02 (Rt. 642 Bridge) There are no additional data beyond the 2014 data window. Seven of 24 escherichia coli (E.coli) samples exceed the 235 cfu/100 ml instantaneous criterion within the 2014 data window. Exceedances range from 250 cfu/100 ml to 850 causing non-support of the Recreational Use. The 2010 and 2012 data windows report 8 of 23 E.coli samples in excess of the 235 cfu/100 ml instantaneous criterion. The 8 exceeding values range from 250 to 1410 cfu/100 ml. The 2008 assessment finds 3 of 11 E.coli exceedances ranging from 270 cfu/100 ml to 1410.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L55R_MRR01A00 / Marrowbone Creek / Marrowbone Creek mainstem from its mouth on the Smith River upstream to the Henry County PSA Water Treatment Plant (RD25).	4A	Escherichia coli (E. coli)	2008	L	4.47

Marrowbone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.47**

Sources:

- Livestock (Grazing or Feeding Operations)
- Municipal (Urbanized High Density Area)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L56R-01-BAC** **Leatherwood Creek and Headwater Tributaries**

Cause Location: This bacteria impairment begins in the headwater tributaries and mainstem of Leatherwood Creek, excluding the West Fork of Leatherwood Creek, on downstream to its mouth on the Smith River (Martinsville East and Northwest Eden Quads).

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35757] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates Leatherwood Creek as it lies within the TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov.

Station 4ALWD002.54 is a 1999 Federal Consent Decree Attachment B station. The waters are 2002 303(d) Listed for fecal coliform bacteria where 3 of 23 samples exceed the former 1000 cfu/100 ml instantaneous criterion (1996 to 2000 data window). The 2002 original 8.45 mile 303(d) Listing is extended 25.30 miles with the 2006 Integrated Report (IR) based on results from station 4ALWD011.03. Bacteria impaired waters now total 33.75 miles. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters].

4ALWD011.03 (Rt. 648 Bridge) There is no additional data beyond the 2014 IR which found 6 of 12 escherichia coli (E.coli) samples are in excess of the WQS 235 cfu/100 ml instantaneous criterion. Excessive values range from 350 to 850 cfu/100 ml. There are no additional data within the 2010 or 2012 data windows. The 2008 assessment finds 8 of 21 E.coli samples exceed the 235 cfu/100 ml criterion. Values in excess of the criterion range from 250 to 1600 cfu/100 ml. Two of 5 geometric mean calculations exceed the former (2 samples/calendar month) 126 cfu/100 ml criterion at 188 and 704 cfu/100 ml. 2006 E.coli results extended the bacteria impairment on the mainstem of Leatherwood upstream to include headwater tributaries (excluding the West Fork) for a total of 15.95 miles.

4ALWD002.54 (Rt. 650 Bridge) There is no new data since the 2016 data window. The 2016 assessment finds 4 of 12 E.coli samples exceed the WQS instantaneous criterion with values ranging from 250 to 450 cfu/100 ml. There are no additional data beyond the 2008 assessment where 8 of 31 E.coli samples exceed the 235 cfu/100 ml criterion. Values in excess of the criterion range from 250 to 1600 cfu/100 ml. Two of 5 geometric mean calculations exceed the former (2 samples/calendar month) 126 cfu/100 ml criterion at 188 and 704 cfu/100 ml

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L56R_LWD01A00 / Leatherwood Creek / Leatherwood Creek mainstem from its mouth on the Smith River upstream to an unnamed tributary's confluence with Leatherwood approximately 0.1 miles upstream of the Rt. 620 crossing (RD29).	4A	Escherichia coli (E. coli)	2008	L	5.44
VAW-L56R_LWD02A00 / Leatherwood Creek / Leatherwood Creek mainstem from an unnamed tributary's confluence with Leatherwood approximately 0.1 miles upstream of the Rt. 620 crossing on upstream to the Martinsville City water intake (RD29).	4A	Escherichia coli (E. coli)	2008	L	3.01
VAW-L56R_LWD02B14 / Leatherwood Creek / Leatherwood Creek from the Martinsville City intake upstream to West Fork Leatherwood Creek confluence and tributaries to points 5 miles upstream (RD29).	4A	Escherichia coli (E. coli)	2006	L	0.03
VAW-L56R_LWD03A00 / Leatherwood Creek / Leatherwood Creek mainstem and tributaries from the mouth of West Fork Leatherwood Creek to points 5 miles upstream Class III sec. 4c PWS (RD27).	4A	Escherichia coli (E. coli)	2006	L	25.30

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Leatherwood Creek and Headwater Tributaries

Recreation	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**33.78**

Sources:

Livestock (Grazing or Feeding Operations)	Municipal (Urbanized High Density Area)	On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)	Unspecified Domestic Waste
Wastes from Pets	Wet Weather Discharges (Non-Point Source)	Wildlife Other than Waterfowl	

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L56R-02-BAC** **West Fork Leatherwood Creek**

Cause Location: West Fork of Leatherwood Creek mainstem and tributaries from its mouth on Leatherwood Creek upstream to the end of WQS PWS section waters.

City / County: Henry Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 12/08/2008 [Fed ID 35752] and SWCB approved 4/28/2009. The Dan River Bacteria TMDL incorporates the West Fork Leatherwood Creek as it lies within the TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at http://www.deq.virginia.gov. The 2012 assessment initially finds the Recreational Use impaired due to escherichia coli (E.coli) exceedances.

4ALWF004.32 (Rt. 57 Bridge) The 2018 data window finds 3 of 11 samples exceed the 235 cfu/100 ml instantaneous E.coli criterion. Excursions range from 292-528 cfu/100 ml. The 2012 IR finds escherichia coli (E.coli) exceed the WQS 235 cfu/100 ml instantaneous criterion in 6 of 12 samples. Values in excess of the criterion range from 380 to 550 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L56R_LWF01A00 / West Fork Leatherwood Creek & Tributaries / West Fork of Leatherwood Creek mainstem and tributaries from its mouth on Leatherwood Creek to points 5 miles upstream from the Martinsville City intake on Leatherwood Creek (RD28).	4A	Escherichia coli (E. coli)	2012	L	23.45

West Fork Leatherwood Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**23.45**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L57R-01-BAC** **Dan River**

Cause Location: Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia).

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.38 miles of impaired waters. 4ADAN075.22 (Ambient)(Route 880 Bridge at State Line)

4ADAN075.22 (Ambient)(Route 880 Bridge at State Line) Six 37 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN04A00 / Dan River / Dan River mainstem from the downstream most Virginia/North Carolina State Line (exiting Virginia) in Watershed L57R upstream to the Rt. 880 crossing (Virginia/North Carolina State Line entering Virginia).	4A	Escherichia coli (E. coli)	2006	L	7.36

Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.36**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L57R-04-BAC** **Cascade Creek**

Cause Location: Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 11.79 miles of impaired waters. 4ACAS001.92 (Ambient)(Route 860- near State Line)

4ACAS001.92 (Ambient) (Route 860 - near State Line) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_CAS01A00 / Cascade Creek / Cascade Creek mainstem from the VA/NC State Line upstream to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	11.81

Cascade Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.81**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L58R-01-BAC** **Sandy River**

Cause Location: Sandy River mainstem from the Hickory Forest Creek mouth downstream to the Sandy River confluence on the Dan River.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 7.23 miles of impaired waters. 4ASRV000.20 (Ambient, TMDL Monitoring)(Route 58 Bridge)

4ASRV000.20 (Ambient, TMDL Monitoring)(Route 58 Bridge) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SRV01A00 / Sandy River / Sandy River mainstem from the Hickory Forest Creek mouth downstream to the Sandy River confluence on the Dan River.	4A	Escherichia coli (E. coli)	2010	L	7.22

Sandy River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.22**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L58R-02-BAC** **Tanyard Creek**

Cause Location: Tanyard Creek from the confluence of Glady Fork to South Prong Sandy River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 2.86 miles of impaired waters. 4ATRD000.04 (Ambient) (Route 855 in Soap Stone)

4ATRD000.04 (Ambient) (Route 855 in Soap Stone) two of 11 samples in excess of the instantaneous criterion.

Was listed in 2008 as Tardy Creek - correct name is Tanyard Creek

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_TRD01A06 / Tanyard Creek / From the confluence of Glady Fork to South Prong Sandy River	4A	Escherichia coli (E. coli)	2006	L	2.85

Tanyard Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.85**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L58R-04-BAC** **Sandy River**

Cause Location: Sandy River from its headwaters to its confluence with Bawley Branch.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

Two stations are located within the 10.79 miles of impaired waters. 4ASRV022.99 (Ambient)(Sandy River @ Wyatt Farm Road RT. 612) and 4ASRV025.40 (Ambient)(2018)(Sandy River @ Mapleton Rd.)

4ASRV022.99 (Ambient)(Sandy River @ Wyatt Farm Road RT. 612) Three of 12 samples in excess of the instantaneous criterion.

4ASRV025.40 (Ambient)(2018)(Sandy River @ Mapleton Rd.) Six of 12 samples in excess of the instantaneous criterion..

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SRV04A06 / Sandy River / From its headwaters to its confluence with Bawley Branch	4A	Escherichia coli (E. coli)	2006	L	10.78

Sandy River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**10.78**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L58R-05-BAC** **Sugartree Creek**

Cause Location: Sugartree Creek from its headwaters to its mouth on Sandy River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 6.97 miles of impaired waters. 4ASUT000.89 (Ambient)(2018)(Sugartree @ Inman Rd)

4ASUT000.89 (Ambient)(2018)(Sugartree @ Inman Rd) Three of 10 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SUT01A08 / Sugartree Creek / Sugartree Creek from its headwaters to its mouth on Sandy River	4A	Escherichia coli (E. coli)	2008	L	6.96

Sugartree Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.96**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L58R-06-BAC** **Stewart Creek**

Cause Location: Stewart Creek from its headwaters to its mouth on Sandy River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35759, 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 7.34 miles of impaired waters. 4ASWA002.97 (TMDL Monitoring)(Route 882)

4ASWA002.97 (TMDL Monitoring)(Route 882) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SWA01A08 / Stewart Creek / Stewart Creek from its headwaters to its mouth on Sandy River	4A	Escherichia coli (E. coli)	2008	L	7.34

Stewart Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.34**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L58R-07-BAC** **South Prong Sandy River**

Cause Location: South Prong Sandy River from its headwaters to the confluence with Sandy River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2018: 35759, EPA Approved 12/8/2008

The Dan River Bacteria TMDL Study (Sandy River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35759] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35759, 12/8/2008

One station is located within the 13.22 miles of impaired waters. 4ASSP002.44 (Rt. 841, Whispering Pines Rd.)

4ASSP002.44 (Rt. 841, Whispering Pines Rd.) - The 2018 data window finds six of 10 Escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion. Excursions range from 246 to 1850 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L58R_SSP01A06 / South Prong Sandy River / From its headwaters to the confluence with Sandy River	4A	Escherichia coli (E. coli)	2018	L	13.22

South Prong Sandy River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**13.22**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L59R-01-BAC** **Sandy Creek**

Cause Location: Sandy Creek mainstem from near its headwaters downstream to the confluence of Little Sandy Creek.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Sandy Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID 35758] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35758, 12/8/2008

One station is located within the 9.49 miles of impaired waters. 4ASCR007.06 (Ambient, TMDL Monitoring)(Route 746 Bridge)

4ASCR007.06 (Ambient, TMDL Monitoring)(Route 746 Bridge) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L59R_SCR02A02 / Sandy Creek / Sandy Creek mainstem from near its headwaters downstream to the confluence of Little Sandy Creek.	4A	Escherichia coli (E. coli)	2008	L	9.48

Sandy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.48**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-01-BAC** **Dan River**

Cause Location: Dan River from the VA/NC State Line to its confluence with Peter Creek.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

Three stations are located within the 36.91 miles of impaired waters. 4ADAN042.80 (Ambient)(2018)(Route 62 at VA/NC State Line), 4ADAN028.90 (Ambient)(Route 658 at Paces), and 4ADAN015.30 (Ambient)(Route 501 below South Boston)

4ADAN042.80 (Ambient)(2018)(Route 62 at VA/NC State Line) Three of 12 samples in excess of the instantaneous criterion.

4ADAN028.90 (Ambient) (Route 658 at Paces)11 of 36 samples in excess of the instantaneous criterion.

4ADAN015.30 (Ambient)(Route 501 below South Boston)6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch.	4A	Escherichia coli (E. coli)	2004	L	1.83
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge.	4A	Escherichia coli (E. coli)	1998	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek.	4A	Escherichia coli (E. coli)	1998	L	2.80
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location.	4A	Escherichia coli (E. coli)	1998	L	10.56
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	4A	Escherichia coli (E. coli)	1998	L	6.58
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)	4A	Escherichia coli (E. coli)	1998	L	3.30

Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**36.93**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-01-HG** **Dan River, Banister River and Hyco River**

Cause Location: Dan River within the state of Virginia from Schoolfield Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to Rt. 738 bridge and Banister River up to the Banister Dam.

City / County: Danville City Halifax Co. Pittsylvania Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov/ for more information about mercury contamination and http://www.vdh.virginia.gov for VDH Advisories or Bans.

4ADAN054.03 [Route 265 Bridge]- The initial 303(d) Listing is based on 2007 fish tissue analysis where mercury (Hg) is found in Hg 4 Species; smallmouth bass at 0.71 ppm, flathead catfish at 0.90 ppm and 0.78 ppm and 0.38 ppm, channel catfish at 0.31 ppm, and quillback carpsucker 0.39 ppm ; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 data windows. Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm is found in 1 species in the 2015 FT Sample collections; flathead catfish at 0.34 ppm and 4 species in the 2016 FT Sample collections; flathead catfish at 0.84 ppm and 0.64 ppm, striped bass at 0.74 ppm, 0.62 ppm, and 0.31 ppm, largemouth bass at 0.31 ppm, and smallmouth bass at 0.30 ppm

4ABAN000.50 (2007 FT/Sed)[upstream of the pipeline]- The initial 303(d) Listing is based on 2007 fish tissue analysis where mercury (Hg) is found in two species; longnose gar at 1.03ppm, 0.83ppm, and 1.09 ppm and blue catfish at 0.72 ppm, 0.83 ppm, 0.39 ppm, 0.37 ppm, 0.36 ppm, and 0.32; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

4ABAN008.30 (2007 FT/Sed)[near Route 614 bridge]- The initial 303(d) Listing is based on 2007 fish tissue analysis where mercury (Hg) is found in one species; blue catfish at 0.52 ppm and 0.51 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

4ADAN001.18 [Dan River/Kerr Reservoir near State Park] - The initial 303(d) Listing is based on 2007 fish tissue analysis where mercury (Hg) is found in three species; white crappie at 0.42 ppm and 0.39 ppm, largemouth bass at 0.36 ppm and 0.43 ppm, and flathead catfish at 0.37 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 windows. Exceedance of the Mercury (Hg) WQS based tissue value (TV) of 0.3 ppm is found in 1 species in the 2015 FT Sample collections; blue catfish at 0.38 ppm and 2 species in the 2016 FT sample collections; golden redhorse sucker at 0.34 ppm and 0.32 ppm; and largemouth bass at 0.55 ppm, 0.31 ppm, and 0.30 ppm

4AHYC002.70 (2007 FT/Sed)[Hyco River near Route 58] - The initial 303(d) Listing is based on 2007 fish tissue analysis where mercury (Hg) is found in three species; largemouth bass at 1.28 ppm, 0.73 ppm, and 0.48 ppm
bowfin at 0.47 ppm, and blue catfish at 0.45 ppm and 0.44 ppm; each in excess of the new WQS TV based 0.3 ppm. There are no additional data within the 2012, 2014, 2016 or 2018 data windows.

VDH Fish Advisory - PCBs: Issued 10/27/99, revised 12/31/04 & Mercury: Issued 8/31/07
Dan River within the state of Virginia from the Brantley Steam Plant Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to Rt. 738 bridge and Banister River up to the Banister Dam. These river segments comprise ~67 miles.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN01A00 / Dan River / Dan River mainstem from the mouth of Sandy River upstream to the Schoolfield Dam.	5A	Mercury in Fish Tissue	2010	L	1.17
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch.	5A	Mercury in Fish Tissue	2008	L	1.83

Roanoke and Yadkin River Basins

VAW-L60R_DAN02A00 / Dan River / Dan River mainstem from Danville Northside POTW downstream to VA/NC State Line (exiting Virginia).	5A	Mercury in Fish Tissue	2008	L	2.02
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW.	5A	Mercury in Fish Tissue	2008	L	0.37
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam	5A	Mercury in Fish Tissue	2010	L	4.27
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge.	5A	Mercury in Fish Tissue	2008	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek.	5A	Mercury in Fish Tissue	2008	L	2.80
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location.	5A	Mercury in Fish Tissue	2008	L	10.56
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	5A	Mercury in Fish Tissue	2008	L	6.58
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge.	5A	Mercury in Fish Tissue	2008	L	1.39
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek.	5A	Mercury in Fish Tissue	2008	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River.	5A	Mercury in Fish Tissue	2008	L	2.33
VAW-L73L_DAN07A04 / Dan River / Peter Creek Confluence to Roanoke River Confluence (Kerr Reservoir)	5A	Mercury in Fish Tissue	2008	L	######
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)	5A	Mercury in Fish Tissue	2008	L	3.30
VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	5A	Mercury in Fish Tissue	2008	L	6.12

Dan River, Banister River and Hyco River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**1,655.18**	**62.85**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-01-PCB** **Dan River, Banister River and Hyco River**

Cause Location: Dan River within the state of Virginia from Schoolfield Dam in Danville downstream to the confluence with Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to the VA/NC State Line and Banister River up to the Banister Dam.

City / County: Danville City Halifax Co. Pittsylvania Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCBs in Fish Tissue / 5A

Fish tissue data are reviewed by the VDH in making an advisory determination. A complete listing of fish tissue collection sites and associated fish tissue data are available at http://www.deq.virginia.gov. A more detailed presentation of the data can also be found using an interactive mapping application at http://www.deq.virginia.gov. The VDH Advisory information is also available via the web at http://www.vdh.virginia.gov. 2018 data window addition extends the impairment upstream on Hyco River by 17.48 miles.

4ADAN054.03 (FT/Sed)(Route 265 Bridge-downstream of Danville) 2013 four species analyzed - Flathead catfish exceeds WQS TV of 20 ppb at 235.05 ppb. Remaining species analyzed Carp at 58.81 ppb and 76.6 ppb; Blue catfish at 91.57 ppb; and Golden redhorse sucker at 42.590ppb.
2007 four species analyzed - Flathead catfish exceeds WQS TV of 20 ppb at 222.30 ppb, 130.18 ppb, and 33.24 ppb. Remaining species analyzed Channel catfish at 32.20 ppb and 38.37 ppb; Redhorse sucker at 29.85 ppb; and Carp at 20.65 ppb and 27.66 ppb.

4ADAN028.90 (FT/Sed) (near Route 658 Bridge near Paces) 2013 four species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 283.76 ppb and 68.92 ppb. Remaining species analyzed Carp at 45.77 ppb and 69.326 ppb; Blue catfish at 55.42 ppb and 27.79 ppb; and Channel catfish at 33.926 ppb.

4ADAN015.30 (2013 FT/Sed)(near Route 501 below South Boston) 2013 three species analyzed - Blue catfish exceeds WQS TV of 20 ppb; at 118.84 ppb, 268.04 ppb and 44.04 ppb. Remaining species analyzed Carp at 71.31 ppb; Flathead catfish at 724.49 ppb and 602.72 ppb.

4ABAN000.50 (FT/Sed)(upstream of the pipeline) 2013 three species analyzed - Blue catfish exceeds WQS TV of 20 ppb; at 32.91 ppb. Remaining species analyzed Flathead catfish at 225.11 ppb; and Carp at 32.19 ppb and 54.88 ppb. 2007 three species analyzed - Longnose gar exceeds WQS TV of 20 ppb; at 172.08 ppb, 686.90 ppb, and 254.03 ppb. Remaining species analyzed Blue catfish at 115.07 ppb, 180.97 ppb, 62.57 ppb, 70.64 ppb, 87.68 ppb, 82.28 ppb, and 40.18 ppb; and Carp at 97.04 ppb, 76.16 ppb, 40.53 ppb, 27.50 ppb, and 37.69 ppb

4ABAN008.30 (FT/Sed)(near Route 614 bridge) 2013 –PCB No exceedances. 2007 three species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 222.46 ppb. Remaining species analyzed Channel catfish at 99.31 ppb and 28.23 ppb; and Blue catfish at 199.72 ppb and 48.23 ppb

4ADAN009.93 (FT/Sed)(at mouth of Grassy Creek) 2013 four species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 480.96 ppb and 535.55 ppb. Remaining species analyzed Carp at 50.73 ppb and 87.03 ppb; Blue catfish at 84.23 ppb and 30.06 ppb; and Golden redhorse sucker at 39.84 ppb.

4ADAN001.18 (2007 FT/Sed)(near Staunton River State Park) 2007 three species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 357.84 ppb. Remaining species analyzed Channel catfish at 21.28 ppb, 20.95 ppb, and 51.00 ppb; and Carp at 61.70 ppb, 158.54 ppb, and 20.33 ppb.

4AHYC010.76 (Near Rt. 744 Bridge) 2013 fish tissue data finds two Channel Catfish PCB concentrations greater than DEQ's screening value of 20 ppb at 29.4 ppb and 28.1 ppb total PCB.

4AHYC002.70 (FT/Sed)(near Route 58 bridge) 2013 two species analyzed - Flathead catfish exceeds WQS TV of 20 ppb; at 77.40 ppb. Remaining species analyzed Carp at 36.12 ppb and 71.07 ppb. 2007 species analyzed - Channel catfish exceeds WQS TV of 20 ppb; at 28.88 ppb. Remaining species analyzed Blue catfish at 43.16 ppb and 51.89 ppb; and Carp at 36.80 ppb, 21.49 ppb, 23.20 ppb, 27.61 ppb, and 23.02 ppb.

VDH Fish Advisory - PCBs: Issued 10/27/99, revised 12/31/04 & Mercury: Issued 8/31/07
Dan River within the state of Virginia from the Brantley Steam Plant Dam in Danville downstream to the confluence with

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Roanoke River on John. H. Kerr Reservoir, including its tributaries Hyco River up to Rt. 738 bridge and Banister River up to the Banister Dam. These river segments comprise ~67 miles.
VDH recommends the following precautions to reduce any potential harmful effects from eating contaminated fish:

Eat smaller, younger fish (within the legal limits). Younger fish are less likely to contain harmful levels of contaminants than larger, older fish.
Eat fewer or smaller servings of fish.
Try to eat different species of fish from various sources (i.e., different creeks, rivers and streams).
Cleaning or cooking contaminated fish does not eliminate or reduce mercury. However, levels of PCBs in fish can be reduced by taking the following precautions:
Remove the skin, the fat from the belly and top and internal organs before cooking the fish.
Bake, broil or grill on an open rack to allow fats to drain away from the meat.
Discard the fats that cook out of the fish.
Avoid or reduce the amount of fish drippings or broth that is used to flavor the meal.
Eat less deep-fried fish, since frying seals contaminants into the fatty tissue.
For more information about fish consumption advisories, including frequently asked questions go to http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L57R_DAN01A00 / Dan River / Dan River mainstem from the mouth of Sandy River upstream to the Schoolfield Dam.	5A	PCBs in Fish Tissue	2010	L	1.17
VAW-L60R_DAN01A00 / Dan River / Dan River mainstem from VA/NC State Line downstream to watershed L60R/L62R boundary downstream of the mouth of Mineral Springs Branch.	5A	PCBs in Fish Tissue	2002	L	1.83
VAW-L60R_DAN02A00 / Dan River / Dan River mainstem from Danville Northside POTW downstream to VA/NC State Line (exiting Virginia).	5A	PCBs in Fish Tissue	2006	L	2.02
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW.	5A	PCBs in Fish Tissue	2006	L	0.37
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam	5A	PCBs in Fish Tissue	2010	L	4.27
VAW-L62R_DAN02A98 / Dan River / Mineral Springs Branch to Route 658 bridge.	5A	PCBs in Fish Tissue	2002	L	11.86
VAW-L62R_DAN03A98 / Dan River / Route 658 bridge to Birch Creek.	5A	PCBs in Fish Tissue	2004	L	2.80
VAW-L64R_DAN04A98 / Dan River / Birch Creek to South Boston raw water intake location.	5A	PCBs in Fish Tissue	2002	L	10.56
VAW-L64R_DAN05A98 / Dan River / South Boston raw water intake location to Banister River.	5A	PCBs in Fish Tissue	2002	L	6.58
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge.	5A	PCBs in Fish Tissue	2004	L	1.39
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek.	5A	PCBs in Fish Tissue	2004	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River.	5A	PCBs in Fish Tissue	2004	L	2.33
VAW-L73L_DAN07A04 / Dan River / Peter Creek Confluence to Roanoke River Confluence (Kerr Reservoir)	5A	PCBs in Fish Tissue	2002	L	######
VAW-L73R_DAN06A98 / Dan River / Dan River from the Banister	5A	PCBs in Fish Tissue	2002	L	3.30

Roanoke and Yadkin River Basins

River (watershed boundary) to the Peter Creek confluence (Kerr Reservoir)

VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	5A	PCBs in Fish Tissue	2006	L	6.12
VAW-L74R_HYC02A06 / Hyco River / From the VA/NC State Line downstream to the Route 738 Bridge	5A	PCBs in Fish Tissue	2018	L	17.48

Dan River, Banister River and Hyco River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		**1,655.18**	**80.33**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-02-BAC** **Pumpkin Creek**

Cause Location: Pumpkin Creek from the VA/NC line to the mouth on the Dan River.

City / County: Danville City Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 4.28 miles of impaired waters. 4APKP002.31 (Ambient)(Old Route 86)

4APKP002.31 (Ambient) (Old Route 86) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_PKP01A06 / Pumpkin Creek / From the VA/NC line to the mouth on the Dan River	4A	Escherichia coli (E. coli)	2006	L	4.28

Pumpkin Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.28**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-02-BEN** **Pumpkin Creek**

Cause Location: From the VA/NC line to the mouth on the Dan River

City / County: Danville City Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4APKP002.46 (2009/2015 Bio) (Pumpkin Creek at College Park Road) The 2018 data window finds Bio 'IM' from two 2015 VSCI surveys: Spring 26.5, Fall 57.7. 2012 data window: Bio IM. Sampling station is in an urban watershed with abundant impervious surfaces. Flow regime and sedimentation seem to be affecting the benthic community negatively.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_PKP01A06 / Pumpkin Creek / From the VA/NC line to the mouth on the Dan River	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.28

Pumpkin Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.28**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-03-BAC** **Cane Creek**

Cause Location: Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 12.25 miles of impaired waters. 4ACAN000.80 (Ambient)(2018)(Cane Cr. @ Cedar Rd (NC Route 1530))

4ACAN000.80 (Ambient)(2018) (Cane Cr. @ Cedar Rd (NC Route 1530)) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_CAN1A02 / Cane Creek / Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.	4A	Escherichia coli (E. coli)	2008	L	12.25

Cane Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**12.25**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-03-BEN** **Cane Creek**

Cause Location: Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ACAN000.80 (2009/2016 Bio)(Cane Cr. @ Cedar Rd (NC Route 1530)) The 2018 data window finds Bio 'IM' from two 2016 VSCI surveys: Spring 43.7, Fall 74.0. Bank scour and sedimentation are negatively affecting the site. The fall 2015 VSCI is very promising and could indicate recovery; therefore this stream will be monitored in the future to document any improvements.

2012 data window: Bio 'IM' - Bank scour and sedimentation are negatively affecting the site.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_CAN1A02 / Cane Creek / Cane Creek mainstem from its headwaters downstream to the VA/NC State Line.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	12.25

Cane Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**12.25**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-04-BEN** **Rutledge Creek**

Cause Location: Rutledge Creek from its headwaters to the mouth on Pumpkin Creek

City / County: Danville City

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ARUT000.45 (2009 & 2011 Bio) (Rutledge Cr @ Edmunds St, Danville) No new data since the 2016 data window:
IM - 4ARUT000.45 is located in an older suburban watershed with abundant impervious surfaces. An historic pollution event at an up gradient industrial facility may be affecting the benthic community as well.
4ARUT002.04 (2009/2014 Bio) No new data since the 2016 data window:
J - 4ARUT002.04 is located in an older suburban watershed with abundant impervious surfaces. An historic pollution event at an up gradient industrial facility may be affecting the benthic community as well. Significant seasonal variability and a single score near the impairment cutoff of 60 warrants further sampling at 4ARUT002.04

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_RUT01A12 / Rutledge Creek / Rutledge Creek from its headwaters to the mouth on Pumpkin Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	L	4.37

Rutledge Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.37**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L60R-05-BAC** **Dan River**

Cause Location: Dan River from its confluence with Sandy River downstream to the Danville Northside POTW

City / County: Danville City

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for the original 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008. The 2018 303(d) listed waters are nested in the Dan River Bacteria TMDL.

4ADAN053.40 (Bridge located near Danville STP) The 2018 data window finds four of 11 E.coli samples in exceedance of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L60R_DAN03A02 / Dan River / Dan River mainstem from the Brantley Steam Plant Dam downstream to the Danville Northside POTW.	4A	Escherichia coli (E. coli)	2018	L	0.37
VAW-L60R_DAN04A06 / Dan River / From its confluence with Sandy River to Brantley Steam Plant Dam	4A	Escherichia coli (E. coli)	2018	L	4.27

Dan River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.64**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L61R-01-BAC** **Fall Creek**

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Fall Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID 35751] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35751, 12/8/2008

Three stations are located within the 11.97 miles of impaired waters. 4AFAL001.58 (Ambient, TMDL Monitoring)(Route 730), 4AFAL005.42 (TMDL)(Fall Cr @ Twin Arch Dr (Rt 695)), and 4AFAL006.58 (ProbAmbient)(2018)(in stream)

4AFAL001.58 (Ambient, TMDL Monitoring)(Route 730) Three of 24 samples in excess of the instantaneous criterion.

4AFAL005.42 (TMDL)(Fall Cr @ Twin Arch Dr (Rt 695)) Five of 12 samples in excess of the instantaneous criterion.

4AFAL006.58 (ProbAmbient)(2018)(in stream) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	11.97

Fall Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.97**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L61R-01-BEN** **Fall Creek**

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AFAL000.92 (2007-2008, 2011-2012 Bio)(Fall Creek near E. Thomas St. (Rt. 655))
IM - AFAL000.92 exhibits significant seasonal variation. Additional data must be collected to accurately characterize the status of the stream community. VSCI scores from 2011 and 2012 indicate an unbalanced community with tolerant taxa dominating the samples. Sediment and nutrient enrichment are probable stressors to this reach.
4AFAL006.61 (2014 Probmon/2016) The 2018 data window finds Bio 'IM' from four VSCI surveys (2014, 2016) with an average score of 48.3.
IM - Bank scour and slight sedimentation were observed. Originally a PROBMON station, accessible from Rt 29 in Danville.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2014	L	11.97

Fall Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**11.97**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L61R-01-HG** **Fall Creek**

Cause Location: Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Station ID:
4AFAL000.92 (2007 FT Sampling)(Fall Creek near E. Thomas St. (Rt. 655))
Hg 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_FAL01A00 / Fall Creek / Fall Creek mainstem from its mouth on the Dan River upstream to its headwaters.	5A	Mercury in Fish Tissue	2010	L	11.97

Fall Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**11.97**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L61R-02-BAC** **Lawless Creek**

Cause Location: Lawless Creek from its headwaters to its mouth at Fall Creek.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35751

The Dan River Bacteria TMDL Study (Fall Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID 35751] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35751, 12/8/2008

One station is located within the 4.72 miles of impaired waters. 4ALAW002.43 (Ambient)(2018)(Lawless Creek @ Lawless Creek Rd)

4ALAW002.43 (Ambient)(2018)(Lawless Creek @ Lawless Creek Rd) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_LAW01A04 / Lawless Creek / Lawless Creek from its headwaters to its mouth at Fall Creek.	4A	Escherichia coli (E. coli)	2014	L	4.71

Lawless Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.71**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L61R-02-BEN** **Lawless Creek**

Cause Location: Lawless Creek from its headwaters to its mouth at Fall Creek.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

This initial 2018 Aquatic Life Use impairment listing is based on Virginia Stream Condition Index (VSCI) surveys collected at two stations on Lawless Creek.

4ALAW002.43 (Above Lawless Creek Rd.) - The 2018 data window finds Bio 'IM' from four (2013, 2015) VSCI surveys with an average score of 46.2, which is below the impairment threshold of VSCI = 60.

4ALAW002.33 (40 meters downstream of Lawless Creek Rd. bridge) - The 2018 data window finds Bio 'IM' from five VSCI surveys (2013-2015) with an average VSCI score of 50.8.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L61R_LAW01A04 / Lawless Creek / Lawless Creek from its headwaters to its mouth at Fall Creek.	5A	Benthic Macroinvertebrates Bioassessments	2018	L	4.71

Lawless Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.71**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-03-BAC** **Double Creek**

Cause Location: Double Creek from its headwaters to its mouth on the Dan River.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Double Creek) received U.S. EPA approval on 12/8/2008 [Fed. ID 35942] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35942, 12/8/2008

One station is located within the 8.89 miles of impaired waters. 4ADBC002.19 (Ambient, TMDL)

4ADBC002.19 (Ambient, TMDL) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_DBC01A98 / Double Creek / Headwaters to Dan River	4A	Escherichia coli (E. coli)	2008	L	8.88

Double Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.88**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-04-BAC** **Byrds Branch**

Cause Location: Byrds Branch from its headwaters to the mouth at the Dan River

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Dan River Bacteria TMDL Study (Byrds Branch) received U.S. EPA approval on 12/8/2008 [Fed. ID 35750] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35750, 12/8/2008

Two stations are located within the 3.76 miles of impaired waters. 4ABYR000.80 (Hog Farm Special Study Station & Follow-up) and 4ABYR002.13 (Hog Farm Special Study Station & Follow-up)(2018)

4ABYR000.80 (Hog Farm Special Study Station & Follow-up) Two of 6 samples in excess of the instantaneous criterion.

4ABYR002.13 (Hog Farm Special Study Station & Follow-up)(2018) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_BYR01A04 / Byrds Branch / Byrds Branch from its headwaters to the mouth at the Dan River	4A	Escherichia coli (E. coli)	2008	L	3.76

Byrds Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.76**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-05-BAC** **Big Toby Creek**

Cause Location: Big Toby Creek from its headwaters to its mouth on the Dan River

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.57 miles of impaired waters. 4ABTC000.60 (Ambient)(2018)

4ABTC000.60 (Ambient)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_BTC01A08 / Big Toby Creek / Big Toby Creek from its headwaters to its mouth on the Dan River	4A	Escherichia coli (E. coli)	2008	L	7.56

Big Toby Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.56**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-06-BAC** **Powells Creek**

Cause Location: Powells Creek from its headwaters to its mouth on the Dan River

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 4.63 miles of impaired waters. 4APOW000.69 (Ambient)(2018)

4APOW000.69 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_POW01A08 / Powells Creek / Powells Creek from its headwaters to its mouth on the Dan River	4A	Escherichia coli (E. coli)	2008	L	4.63

Powells Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.63**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-07-BEN** **Wolfe Creek**

Cause Location: Wolfe Creek from its headwaters to its mouth on the Dan River

City / County: Halifax Co. Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AWFE000.60 (2012 Bio)
J - This stream had marginal bank stability and increased sedimentation as well as marginal habitat.
4AWFE001.57 (2006-2007 FPM)
IM - scored close to the VSCI impairment cutoff score of 60. Habitat seemed suitable in Wolfe Creek; nutrient levels may be shifting the stream community towards more tolerant taxa. Access to the site is limited by private landowners and additional sampling will be difficult.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_WFE01A08 / Wolfe Creek / Wolfe Creek from its headwaters to its mouth on the Dan River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	2.86

Wolfe Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.86**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-08-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its headwaters to the mouth at the Dan River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 9.41 miles of impaired waters.
4ASLC002.75 (Ambient)(2018)

4ASLC002.75 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_SLC01A04 / Sandy Creek / Sandy Creek from its headwaters to the mouth at the Dan River	4A	Escherichia coli (E. coli)	2012	L	9.41

Sandy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.41**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-09-BAC** **Winns Creek**

Cause Location: Winns Creek from its headwaters to the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 7.12 miles of impaired waters. 4AWNS004.02 (Ambient)(2018)

4AWNS004.02 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_WNS01A04 / Winns Creek / Winns Creek from its headwaters to the mouth at the Dan River	4A	Escherichia coli (E. coli)	2016	L	7.11

Winns Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.11**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-10-BAC** **Sandy Creek, Unnamed Tributary**

Cause Location: Unnamed Tributary of Sandy Creek from its headwaters to the mouth.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 2.3 miles of impaired waters. 4AXVQ000.97 (Prob Ambient)(2018)

4AXVQ000.97 (Prob Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_XVQ01A16 / Sandy Creek, Unnamed Tributary / Unnamed Tributary of Sandy Creek from its headwaters to the mouth.	4A	Escherichia coli (E. coli)	2016	L	2.29

Sandy Creek, Unnamed Tributary **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.29**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L62R-10-BEN** **Sandy Creek, Unnamed Tributary**

Cause Location: Unnamed Tributary of Sandy Creek from its headwaters to the mouth.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AXVQ000.77 (2013 FPM)
IM - 4AXVQ000.77 is a small stream within the PROBMON program. Access to the site is limited by private landowners and additional sampling will not be possible.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L62R_XVQ01A16 / Sandy Creek, Unnamed Tributary / Unnamed Tributary of Sandy Creek from its headwaters to the mouth.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	2.29

Sandy Creek, Unnamed Tributary **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.29**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L63R-01-BAC** **Birch Creek**

Cause Location: Birch Creek from its headwaters to the mouth on the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID 23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

Five stations are located within the 20.14 miles of impaired waters. 4ABIR001.00 (Ambient & Birch Creek TMDL), 4ABIR004.22 (Birch Creek TMDL), 4ABIR005.34 (Birch Creek TMDL), 4ABIR011.55 (Birch Creek TMDL & Ambient)(2018), and 4ABIR014.28 (Birch Creek TMDL)

4ABIR001.00 (Ambient & Birch Creek TMDL) Six of 11 samples in excess of the instantaneous criterion.

4ABIR004.22 (Birch Creek TMDL) Five of 11 samples in excess of the instantaneous criterion.

4ABIR005.34 (Birch Creek TMDL) Six of 11 samples in excess of the instantaneous criterion.

4ABIR011.55 (Birch Creek TMDL & Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

4ABIR014.28 (Birch Creek TMDL) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_BIR01A98 / Birch Creek / From its headwaters to its mouth on the Dan River	4A	Escherichia coli (E. coli)	2004	L	20.15

Birch Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**20.15**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L63R-01-BEN** **Birch Creek**

Cause Location: Birch Creek from its headwaters to the mouth on the Dan River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABIR011.55 (2013 Bio)
IM - Unbalanced benthic community. A breached mill dam is present upstream which may negatively affect the flow regime. Moderate algae production and embeddedness indicate nutrient enrichment and sedimentation are also likely stressors.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_BIR01A98 / Birch Creek / From its headwaters to its mouth on the Dan River	5A	Benthic Macroinvertebrates Bioassessments	2016	L	20.15

Birch Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**20.15**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L63R-02-BAC** **Unnamed Tributary to Birch Creek**

Cause Location: Unnamed Tributary to Birch Creek from its headwaters to its mouth on Birch Creek

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23317

The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID 23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

One station is located within the 5.35 miles of impaired waters. 4AXDK000.94 (TMDL Monitoring)

4AXDK000.94 (TMDL Monitoring) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_XDK01A06 / Birch Creek, Unnamed Tributary / From its headwaters to the mouth on Birch Creek	4A	Escherichia coli (E. coli)	2006	L	5.35

Unnamed Tributary to Birch Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.35**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L63R-03-BAC** **Germy Creek**

Cause Location: Germy Creek from its headwaters to its mouth on Birch Creek

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 23317

The Birch Creek Bacteria TMDL Study received U.S. EPA approval on 5/26/2004 [Fed. ID 23317] and SWCB approval on 8/31/2004 for these 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 23317, 5/26/2004

One station is located within the 5.37 miles of impaired waters. 4AGER001.17 (Ambient)(2018)

4AGER001.17 (Ambient)(2018) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L63R_GER01A08 / Germy Creek / Germy Creek from its headwaters to its mouth on Birch Creek	4A	Escherichia coli (E. coli)	2014	L	5.36

Germy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.36**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-01-BAC** **Lawsons Creek**

Cause Location: Lawsons Creek from its headwaters to the mouth on the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 15.54 miles of impaired waters. 4ALSN007.45 (Ambient, TMDL Monitoring)

4ALSN007.45 (Ambient, TMDL Monitoring) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_LSN01A98 / Lawsons Creek / Headwaters to Jerimy Creek	4A	Escherichia coli (E. coli)	2008	L	8.26
VAW-L64R_LSN02A02 / Lawsons Creek / Jerimy Creek to Dan River	4A	Escherichia coli (E. coli)	2012	L	7.27

Lawsons Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**15.53**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-01-DO** **Lawsons Creek**

Cause Location: Lawsons Creek from its headwaters to its confluence with Jerimy Creek.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4ALSN007.45 (Ambient) No new data since 2010 data window:
DO - 2/12 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_LSN01A98 / Lawsons Creek / Headwaters to Jerimy Creek	5A	Dissolved Oxygen	2010	L	8.26

Lawsons Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**8.26**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-02-BAC** **Miry Creek**

Cause Location: Miry Creek from the Mikes Creek confluence to the Dan River

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 1.12 miles of impaired waters. 4AMRY000.82 (Ambient)

4AMRY000.82 (Ambient) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_MRY01A04 / Miry Creek / Miry Creek from the Mikes Creek confluence to the Dan River (RD48).	4A	Escherichia coli (E. coli)	2006	L	1.11
VAW-L64R_MRY02A18 / Miry Creek (Middle) / Miry Creek from the confluence with Mikes Cr. upstream to the UT confluence at Deer View Trl crossing (36 41 32.5 N, -78 59 56.4 W) (RD48).	4A	Escherichia coli (E. coli)	2018	L	2.12
VAW-L64R_MRY03A18 / Miry Creek (Upper) / Miry Creek from its confluence with Unnamed Tributary at Deer View Trl crossing (36 41 32.5 N, -78 59 36.4 W) upstream to its headwaters (RD48).	4A	Escherichia coli (E. coli)	2018	L	9.83

Miry Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**13.06**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-03-BEN** **Grassy Creek**

Cause Location: Grassy Creek from its headwaters to the Route 744 crossing

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AGSY004.98 (2006 FPM)
IM - Headwater stream which flows through an active cattle pasture. The stream community may be negatively impacted from sedimentation and excess nutrients. Additional monitoring needed to accurately delineate impairment.

4AGSY004.60 (2010/2014 Bio) Bio 'IM' from two 2014 VSCI surveys: Spring 23.5, Fall 46.1. IM - Significant seasonal variability and a VSCI score close to the impairment cutoff of 60. Very low flows are characteristic of this waterbody. Further sampling is required to accurately assess this waterbody. 4AGSY004.60 was sampled in response to a J assessment of an upstream PROBMON station (4AGSY004.98).

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_GSY01A08 / Grassy Creek / Grassy Creek from its headwaters to the Route 744 crossing	5A	Benthic Macroinvertebrates Bioassessments	2008	M	0.83

Grassy Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**0.83**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-04-BEN** **Poplar Creek**

Cause Location: Poplar Creek from its headwaters to its mouth on the Dan River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4APDA000.35 (2008/2012 Bio)
Bio 'IM' from four VSCI surveys with an avg score of 41.2. Flow regime related sedimentation seems to be negatively affecting the stream community. 4APDA000.35 is located in a highly urban/industrial watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_PDA01A10 / Poplar Creek / Poplar Creek from its headwaters to its mouth on the Dan River.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	4.04

Poplar Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.04**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-05-BEN** **Reedy Creek**

Cause Location: Reedy Creek from its headwaters to the confluence of Woods Creek.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ARAC000.92 (2008/2012 Bio)
IM - 4ARAC000.92 is located in an older suburban watershed with abundant impervious surfaces which negatively affects flows and sedimentation. There is also an unlined municipal landfill in the watershed which has historical leachate issues.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_RAC01A04 / Reedy Creek / Reedy Creek from its headwaters to the confluence of Woods Creek.	5A	Benthic Macroinvertebrates Bioassessments	2010	M	2.92

Reedy Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.92**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L64R-06-BAC** **Stokes Creek**

Cause Location: Stokes Creek from its headwaters to its mouth on Lawsons Creek.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 35748

The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 2.3 miles of impaired waters. 4ASKS002.80 (Ambient)(2018)

4ASKS002.80 (Ambient)(2018) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L64R_SKS01A08 / Stokes Creek / Stokes Creek from its headwaters to its mouth on Lawsons Creek	4A	Escherichia coli (E. coli)	2014	L	6.35

Stokes Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.35**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L65R-01-BAC** **Banister River**

Cause Location: Banister River from its headwaters to its confluence with Bearskin Creek.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 33820] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33820, 11/04/2007

Two stations are located within the 11.88 miles of impaired waters. 4ABAN070.20 (Ambient & Banister River TMDL Study)(2018) and 4ABAN074.58 (TMDL Monitoring)

4ABAN070.20 (Ambient & Banister River TMDL Study)(2018) Six of 12 samples in excess of the instantaneous criterion.

4ABAN074.58 (TMDL Monitoring) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BAN03A00 / Banister River / Banister River mainstem from the mouth of Bearskin Creek upstream to the mouth of Wet Sleeve Creek.	4A	Escherichia coli (E. coli)	2010	L	5.09
VAW-L65R_BAN04A00 / Banister River / Banister River mainstem from the mouth of Wet Sleeve Creek upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	6.79

Banister River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.88**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L65R-02-BAC** **Bearskin Creek**

Cause Location: Bearskin Creek from its mouth on the Banister River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33820

The Banister River Bacteria TMDL Study (Bearskin Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 34104] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34104, 11/04/2007

One station is located within the 9.57 of impaired waters. 4ABKN002.47 (Banister River TMDL Study)

4ABKN002.47 (Banister River TMDL Study) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BKN01A00 / Bearskin Creek / Bearskin Creek from its mouth on the Banister River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	9.57

Bearskin Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.57**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L65R-02-BEN** **Bearskin Creek**

Cause Location: Bearskin Creek from its mouth on the Banister River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABKN000.52 (Ambient, Bio)
2008/2011/2012/2014 Bio -2016 data window finds five VSCI surveys with average score: 59.3. IM - Sediment and flow regime seem to affect the stream community negatively. Showing improvement in 2012 and 2014. Sedimentation still seems to be the main stressor. However, when in-stream snag habitat is present a fairly diverse benthic community is supported.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_BKN01A00 / Bearskin Creek / Bearskin Creek from its mouth on the Banister River upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	9.57

Bearskin Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**9.57**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L65R-03-BAC** **White Oak Creek**

Cause Location: White Oak Creek from its headwaters to its mouth.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33820

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 33820] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33820, 11/04/2007

One station is located within the 6.37 miles of impaired waters.
4AWOA002.43 (Ambient)(2018)

4AWOA002.43 (Ambient)(2018) 10 of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_WOA01A10 / White Oak Creek / White Oak Creek from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2010	L	6.36

White Oak Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.36**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L65R-04-BEN** **Strawberry Creek**

Cause Location: Strawberry Creek from its headwaters to its mouth on the Banister River.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ASRW002.32 (2011 Bio)
IM - Habitat scores and taxa lists indicate sedimentation as a stressor causing an unbalanced community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L65R_SRW02A08 / Strawberry Creek / Strawberry Creek from its headwaters to its mouth on the Banister River	5A	Benthic Macroinvertebrates Bioassessments	2014	L	5.96

Strawberry Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.96**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L66L-01-DO** **Cherrystone Reservoir**

Cause Location: Cherrystone Reservoir

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4ACRR008.32 (Lake Station)
Dissolved Oxygen - 8 / 37 Exceedance Rate
Chlorophyll a - 0/2 Samples (90% Calculated over 1 Sample Yr)
No Total Phos assessed since lake has not been treated with algaecide

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66L_CRR01A02 / Cherrystone Reservoir / Cherrystone Reservoir from its impounding structure upstream to its backwaters.	5A	Dissolved Oxygen	2010	L	104.27

Cherrystone Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		**104.27**	

Sources:

Dam or Impoundment

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L66L-02-DO** **Roaring Fork Reservoir**

Cause Location: Roaring Fork Reservoir

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4ARFK000.20 (Lake Station)
Dissolve Oxygen - 3/23 Exceedance Rate
Chlorophyll a - 0/2 Samples (90% Calculated over 1 Sample Yr)
No Total Phos assessed since no algaecide used in lake.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66L_RFK01A06 / Roaring Fork Reservoir / From its headwaters to its impounding structure	5A	Dissolved Oxygen	2008	L	19.58

Roaring Fork Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		**19.58**	

Sources:

Dam or Impoundment

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L66L-02-PH** **Roaring Fork Reservoir**

Cause Location: Roaring Fork Reservoir

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5A

Station ID:
4ARFK000.20 (Lake Station)
pH - 5/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66L_RFK01A06 / Roaring Fork Reservoir / From its headwaters to its impounding structure	5A	pH	2016	L	19.58

Roaring Fork Reservoir **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:		**19.58**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L66R-01-BAC** **Cherrystone Creek**

Cause Location: Cherrystone Creek from the Cherrystone Creek Reservoir Dam to the Chatham STP outfall.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 5.97 miles of impaired waters. 4ACRR003.56 (Ambient)

4ACRR003.56 (Ambient) 9 of 12 samples in excess of the instantaneous criterion.
Station ID:

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_CRR02A00 / Cherrystone Creek / Cherrystone Creek mainstem from the Chatham STP outfall upstream to Chatham's water intake.	4A	Escherichia coli (E. coli)	2008	L	3.48
VAW-L66R_CRR03A00 / Cherrystone Creek / Cherrystone Creek from the town of Chatham water intake upstream to the Cherrystone Creek Dam.	4A	Escherichia coli (E. coli)	2008	L	2.48

Cherrystone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.96**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L66R-02-BAC** **Little Cherrystone Creek**

Cause Location: Little Cherrystone Creek from its headwaters to its mouth on Cherrystone Creek

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33823

The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 4.84 miles of impaired waters. 4ALCC000.59 (Ambient)(2018)

4ALCC000.59 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_LCC01A08 / Little Cherrystone Creek / Little Cherrystone Creek from its headwaters to its mouth on Cherrystone Creek	4A	Escherichia coli (E. coli)	2008	L	4.83

Little Cherrystone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.83**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L66R-03-BAC** **Pole Bridge Branch**

Cause Location: Pole Bridge Branch from its headwaters to its mouth.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33823

The Banister River Bacteria TMDL Study (Cherrystone Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33823] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33823, 11/04/2007

One station is located within the 5.02 miles of impaired waters. 4APDE002.12 (Ambient)

4APDE002.12 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L66R_PDE01A10 / Pole Bridge Branch / Pole Bridge Branch from its headwaters to its mouth.	4A	Escherichia coli (E. coli)	2010	L	5.01

Pole Bridge Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.01**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-01-BAC** **Banister River**

Cause Location: Banister River from its confluence with Cherrystone Creek to the backwaters of Banister Lake.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

Four stations are located within the 39.29 miles of impaired waters. 4ABAN023.28 (Ambient), 4ABAN029.81 (TMDL Monitoring), 4ABAN039.76 (Ambient)(2018), and 4ABAN053.77 (Ambient)(2018)

4ABAN023.28 (Ambient) Three of 12 samples in excess of the instantaneous criterion.

4ABAN029.81 (TMDL Monitoring) Three of 12 samples in excess of the instantaneous criterion.

4ABAN039.76 (Ambient)(2018) 7 of 35 samples in excess of the instantaneous criterion.

4ABAN053.77 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BAN01A98 / Banister River / Elkhorn Creek to Sandy Creek	4A	Escherichia coli (E. coli)	2004	L	8.60
VAW-L67R_BAN02A04 / Banister River / Banister River from the Pittsylvania/Halifax County line downstream to the Elkhorn Creek confluence.	4A	Escherichia coli (E. coli)	2012	L	1.83
VAW-L67R_BAN03A04 / Banister River / Banister River from the Stinking River confluence downstream to the Pittsylvania/Halifax County line.	4A	Escherichia coli (E. coli)	2012	L	7.47
VAW-L67R_BAN04A08 / Banister River / Banister River from its confluence with Cherrystone Creek to its confluence with Stinking River	4A	Escherichia coli (E. coli)	2016	L	16.87
VAW-L71R_BAN02A98 / Banister River / Sandy Creek to Banister Lake	4A	Escherichia coli (E. coli)	2004	L	4.49

Banister River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**39.26**

Sources:

Livestock (Grazing or Feeding Operations)

Unspecified Domestic Waste

Wastes from Pets

Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-02-BAC** **Allen Creek**

Cause Location: Allen Creek from its headwaters to its mouth on the Banister River

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 5.45 miles of impaired waters. 4AALL001.13 (Ambient)

4AALL001.13 (Ambient) 8 of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_ALL01A08 / Allen Creek / Allen Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2008	L	6.02

Allen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.02**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-03-BEN** **Elkhorn Creek**

Cause Location: Elkhorn Creek from its headwaters to its mouth.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AEKH003.18 (2001 Probabilistic Monitoring)
4AEKH003.68 (Bio)
2008/2012 Bio - IM
4AEKH003.68 was sampled to replace 4AEKH003.18. Bio 'IM' from four VSCI surveys (2012, 2015). VSCI scores average 45.7.
4AEKH003.18 was a probabilistic monitoring station located on private property. The final assessment of 4AEKH003.18 was “J”, meaning more information was needed for an accurate assessment. The remoteness of this site makes future sampling at 4AEKH003.18 unlikely.
The proximity of station 4AEKH003.68 to 4AEKH003.18 makes it a suitable surrogate for the assessment of both stations.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_EKH01A04 / Elkhorn Creek / Elkhorn Creek from the Pittsylvania/Halifax County line downstream to the Banister River.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	3.00
VAW-L67R_EKH02A10 / Elkhorn Creek / Elkhorn Creek from the Pittsylvania/Halifax County line upstream to its headwaters.	5A	Benthic Macroinvertebrates Bioassessments	2010	L	9.90

Elkhorn Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**12.90**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-04-BAC** **Bradley Creek**

Cause Location: Bradley Creek from its headwaters to its mouth on the Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 6.47 miles of impaired waters. 4ABDB000.75 (Ambient)(2018)

4ABDB000.75 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BDB01A08 / Bradley Creek / Bradley Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2014	L	6.46

Bradley Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.46**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-04-BEN** **Bradley Creek**

Cause Location: Bradley Creek from its headwaters to its mouth on the Banister River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABDB000.75 (2010/2014 Bio)
IM - VSCI scores continually close to the impairment cutoff score of 60. Additional sampling yielded lower scores. Loose, soft sand/sediment dominated stream bottom and banks.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BDB01A08 / Bradley Creek / Bradley Creek from its headwaters to its mouth on the Banister River	5A	Benthic Macroinvertebrates Bioassessments	2016	L	6.46

Bradley Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**6.46**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L67R-05-BAC** **Bye Creek**

Cause Location: Bye Creek from its headwaters to its mouth on the Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/04/2007

One station is located within the 7.3 miles of impaired waters. 4ABYE000.85 (Ambient)(2018)

4ABYE000.85 (Ambient)(2018) Five of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L67R_BYE01A08 / Bye Creek / Bye Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2014	L	7.29

Bye Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.29**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L68R-01-BAC** **Whitehorn Creek**

Cause Location: Whitehorn Creek mainstem from its mouth upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Whitehorn Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33819] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33819, 11/04/2007

Two stations are located within the 15.89 miles of impaired waters. 4AWRN000.43 (Ambient, TMDL Monitoring)(2018) and 4AWRN000.43 (Ambient, TMDL Monitoring)(2018)

4AWRN000.43 (Ambient, TMDL Monitoring)(2018) Five of 11 samples in excess of the instantaneous criterion.

4AWRN000.43 (Ambient, TMDL Monitoring)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L68R_WRN01A00 / Whitehorn Creek / Whitehorn Creek mainstem from its mouth upstream to the confluence with Georges Creek	4A	Escherichia coli (E. coli)	2006	L	0.78
VAW-L68R_WRN02A06 / Whitehorn Creek / From its headwaters to the confluence with Georges Creek	4A	Escherichia coli (E. coli)	2006	L	15.10

Whitehorn Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**15.88**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L68R-01-BEN** **Whitehorn Creek**

Cause Location: Whitehorn Creek mainstem from its confluence with Georges Creek upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AWRN005.50 (2009/2013/2016 Bio) 2008 data window finds Bio 'IM' from four VSCI surveys (2013, 2016) averaging 51.1. Exhibits significant seasonal variation. Additional data were collected to accurately characterize the stream community. 2013 data are dominated by tolerant Chironomidae taxa and may indicate sediment as a probable stressor.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L68R_WRN02A06 / Whitehorn Creek / From its headwaters to the confluence with Georges Creek	5A	Benthic Macroinvertebrates Bioassessments	2016	L	15.10

Whitehorn Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**15.10**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L69R-01-BAC** **Stinking River**

Cause Location: Stinking River mainstem from its mouth on the Banister River upstream to its headwaters.

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Stinking Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33822] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33822, 11/04/2007

Two stations are located within the 14.15 miles of impaired waters. 4ASNE005.30 (Ambient, TMDL Monitoring)(2018) and 4ASNE010.46 (TMDL Monitoring)

4ASNE005.30 (Ambient, TMDL Monitoring)(2018) One of 12 samples in excess of the instantaneous criterion.

4ASNE010.46 (TMDL Monitoring) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L69R_SNE01A00 / Stinking River / Stinking River mainstem from its mouth on the Banister River upstream to its headwaters.	4A	Escherichia coli (E. coli)	2008	L	14.15

Stinking River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**14.15**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L70R-01-BAC** **Sandy Creek**

Cause Location: Sandy Creek from its confluence with Pine Creek to its mouth on the Banister River.

City / County: Halifax Co. Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Sandy Creek) received U.S. EPA approval on 11/4/2007 [Fed. ID 33821] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33821, 11/04/2007

Two stations are located within the 20.47 miles of impaired waters. 4ASNA000.20 (Ambient)(2018) and 4ASNA015.30 (Ambient)

4ASNA000.20 (Ambient)(2018) Five of 17 samples in excess of the instantaneous criterion.

4ASNA015.30 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_SNA01A00 / Sandy Creek / Near the Pittsylvania/Halifax County line to mouth on Banister River	4A	Escherichia coli (E. coli)	2014	L	14.56
VAW-L70R_SNA01B10 / Sandy Creek / Sandy Creek from its confluence with Pine Creek to near the Halifax/Pittsylvania County line.	4A	Escherichia coli (E. coli)	2010	L	5.89

Sandy Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**20.45**

Sources:

Livestock (Grazing or Feeding Operations)

Unspecified Domestic Waste

Upstream Impoundments

Wastes from Pets

Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L70R-02-BEN** **Sweden Fork**

Cause Location: Sweden Fork from its headwaters to the mouth.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ASDE004.07
Bio 'IM' from two 2014 VSCI surveys averaging 52.6.

4ASDE002.18 (2012 FPM/2014)
No additional data since the 2016 data window: Bio 'IM' from three VSCI surveys (2012, 2014) averaging 38.9. This site is on private property and was sampled as part of the Probabilistic Monitoring program, therefore it will not be revisited. The stream had relatively unstable banks and increased sediment deposition. There was a large beaver dam just downstream of the reach in fall 2012 in addition to several smaller beaver dams throughout the sampling reach.

4ASDE002.65 (2010 FPM)
J - VSCI scores close to the impairment cutoff of 60. Further sampling is required to accurately assess this waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_SDE01A12 / Sweden Fork / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2014	L	8.63

Sweden Fork **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.63**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L70R-03-BEN** **Bar Branch**

Cause Location: Bar Branch from its headwaters to its mouth.

City / County: Pittsylvania Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABAR000.32 (2012/2014 Bio) No additional data beyond the 2016 data window:
IM - 4ABAR000.32 exhibits great seasonal variability with the fall sample scoring near the impairment threshold of 60. Habitat scores indicate sediment may be a stressor on the system. Additional sampling is required to accurately assess water quality within this reach.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_BAR01A06 / Bar Branch / From its headwaters to the mouth	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.03

Bar Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.03**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L70R-04-BAC** **Lick Branch**

Cause Location: Lick Branch mainstem from its mouth on Sandy Cr. to the confluence of two unnamed tributaries (RD63).

City / County: Pittsylvania Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The 2018 initial Recreational Use listing of Lick Branch is Nested in the Banister River Bacteria TMDL Study (Sandy Creek) which received U.S. EPA approval on 11/4/2007 [Fed. ID 33821] and SWCB approval on 7/31/2008. The TMDL addressed 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33821, 11/04/2007

4ALBR000.37 (Route 662 / Randolph Road) The 2018 data window finds an E.coli exceedance rate of 5/12 with excursions ranging from 246 to greater than 1,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L70R_LBR01A18 / Lick Branch / Lick Branch mainstem from its mouth on Sandy Cr. to the confluence of two unnamed tributaries (RD63).	4A	Escherichia coli (E. coli)	2018	L	3.00

Lick Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**3.00**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71L-01-DO** **Banister Lake**

Cause Location: Banister Lake

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 4C

Station ID:
4ABAN012.46 (Lake)
Dissolve Oxygen - 7/52 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71L_BAN03L00 / Banister Lake / From its impounding structure to its backwaters on the Banister River	4C	Dissolved Oxygen			351.84

Banister Lake **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		**351.84**	

Sources:

Natural Conditions - Water Quality Standards Use Attainability Analyses Needed

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71R-04-BAC** **Banister River**

Cause Location: Banister River from Banister Lake Dam to its mouth on the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013 [Fed. ID 52942] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013

Two stations are located within the 11.99 miles of impaired waters. 4ABAN005.58 (Ambient)(2018) and 4ABAN001.86 (Ambient)

4ABAN005.58 (Ambient)(2018) 12 of 36 samples in excess of the instantaneous criterion.

4ABAN001.86 (Ambient) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_BAN04A00 / Banister River / Banister Lake to Burlington Industries raw water intake 2000' downstream of Route 360 bridge.	4A	Escherichia coli (E. coli)	2012	L	1.39
VAW-L71R_BAN05A00 / Banister River / 2000' downstream of Rt. 360 bridge (Burlington Industries' raw water intake) to its confluence with Wolf Trap Creek.	4A	Escherichia coli (E. coli)	2012	L	8.25
VAW-L71R_BAN06A08 / Banister River / Confluence of Wolf Trap Creek to its mouth on the Dan River.	4A	Escherichia coli (E. coli)	2008	L	2.33

Banister River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.97**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71R-05-BAC** **Polecat Creek**

Cause Location: Polecat Creek from its headwaters to the mouth at the Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 34089

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 11/4/2007 [Fed. ID 34089] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 34089, 11/4/2007

Two stations are located within the 9.7 miles of impaired waters. 4APEC002.42 (Ambient)(2018) and 4APEC006.49 (Ambient)

4APEC002.42 (Ambient)(2018) Three of 12 samples in excess of the instantaneous criterion.

4APEC006.49 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_PEC01A04 / Polecat Creek / Polecat Creek from its headwaters to the mouth at the Banister River	4A	Escherichia coli (E. coli)	2010	L	9.70

Polecat Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.70**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71R-05-BEN** **Polecat Creek**

Cause Location: Polecat Creek from its headwaters to the mouth at the Banister River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4APEC002.42 (2009 & 2013 Bio) 2018 data window:
Bio 'IM' from four VSCI surveys (2013, 2016) with an average score of 49.1.
IM - 4APEC002.42 exhibits seasonal variability. Spring scores are very low. Sedimentation is a likely stressor due to high embeddedness scores.
4APEC006.49 (2009/2013/2016 Bio) 2018 data window:
Bio 'IM' from four VSCI surveys (2013, 2016) averaging 43.8. IM - 4APEC006.49 has fall VSCI scores very close to the impairment cutoff score of 60. Spring scores are very low. Sedimentation is a likely stressor due to high embeddedness scores.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_PEC01A04 / Polecat Creek / Polecat Creek from its headwaters to the mouth at the Banister River	5A	Benthic Macroinvertebrates Bioassessments	2016	L	9.70

Polecat Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**9.70**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71R-06-BAC** **Winn Creek**

Cause Location: Winn Creek from its headwaters to the mouth on the Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Winn Creek) received U.S. EPA approval on 7/8/2013 [Fed. ID 52941] and SWCB approval on 74/4/2014 for these 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52941, 7/8/2013

One station is located within the 7.09 miles of impaired waters. 4AWNN000.99 (Ambient)

4AWNN000.99 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_WNN01A06 / Winn Creek / From its headwaters to the mouth on the Banister River	4A	Escherichia coli (E. coli)	2008	L	7.09

Winn Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**7.09**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L71R-07-BAC** **Gibson Creek**

Cause Location: Gibson Creek from its headwaters to its mouth on the Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 52942

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013[Fed. ID 52942] and SWCB approval on 7/31/2008 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013

One station is located within the 5.26 miles of impaired waters. 4AGIB000.66 (Ambient)(2018)

4AGIB000.66 (Ambient)(2018) Two of 6 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_GIB01A08 / Gibson Creek / Gibson Creek from its headwaters to its mouth on the Banister River	4A	Escherichia coli (E. coli)	2014	L	5.38

Gibson Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.38**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L71R-08-BAC** **Kents Creek**

Cause Location: Kents Creek from its backwaters on Banister Lake to its headwaters (RD65).

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Banister River Bacteria TMDL Study (Banister River) received U.S. EPA approval on 7/8/2013 [Fed. ID 52942] and SWCB approval on 4/4/2014 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 52942, 7/8/2013. The Unnamed Tributary to Kents Creek (XVY) is nested within the Banister River TMDL Study.

4AXVY000.00 (Off Ball Park Loop) - The 2018 data window finds E.coli exceeds the 235 cfu/100 ml instantaneous criterion in five of 12 samples with excursions ranging from 243 to greater than 11,000 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L71R_KTS01A18 / Kents Creek / Kents Creek from its backwaters on Banister Lake to its headwaters (RD65).	4A	Escherichia coli (E. coli)	2018	L	1.89

Kents Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.89**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L72R-01-BAC** **Terrible Creek**

Cause Location: Terrible Creek from Little Terrible Creek to its mouth on Banister River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ATRR001.92 (Ambient/Bio)(2018)
E. coli - 4/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L72R_TRR01A00 / Terrible Creek / Little Terrible Creek to Banister River	5A	Escherichia coli (E. coli)	2014	L	4.82

Terrible Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.82**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L72R-01-BEN** **Terrible Creek**

Cause Location: Terrible Creek from Little Terrible Creek to its mouth on Banister River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ATRR001.92 (Ambient/Bio) - The 2018 data window finds Aquatic Life Use impairment based on six VSCI surveys (2011-2012, 2016) with an average score of 55.1. 4ATRR001.92 exhibits some seasonal variability near the assessment threshold of 60. The community depends greatly on snag habitat which is limited by scoured banks and sandy bottoms. Sampling was moved downstream of the bridge in fall 2016 due to a massive beaver dam under the bridge. Beaver activity in the area may be affecting the flow regime of the stream and consequently the benthic community. Benthic macroinvertebrate community data was also collected: 2005-2006.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L72R_TRR01A00 / Terrible Creek / Little Terrible Creek to Banister River	5A	Benthic Macroinvertebrates Bioassessments	2014	L	4.82

Terrible Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.82**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L73R-01-BAC** **Aarons Creek**

Cause Location: Aarons Creek from its headwaters to the first unnamed tributary downstream of White House Road.

City / County: Halifax Co. Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 64072
The Hyco River Bacteria TMDL Study (Aarons Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID 64072] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64072, 2/3/2015

One station is located within the 9.41 miles of impaired waters. 4AAAR006.20 (Ambient)(2018)

4AAAR006.20 (Ambient)(2018) Three of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_AAR02A10 / Aarons Creek / Aarons Creek from the VA/NC border to the confluence with Big Branch located downstream of White House Road.	4A	Escherichia coli (E. coli)	2016	L	9.40

Aarons Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.40**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L73R-02-BAC** **North Fork Aarons Creek**

Cause Location: From its headwaters to the mouth on Aarons Creek

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 64072
The Hyco River Bacteria TMDL Study (Aarons Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID 64072] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64072, 2/3/2015

One station is located within the 9.75 miles of impaired waters. 4ANFA000.35 (Ambient)

4ANFA000.35 (Ambient) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_NFA01A06 / North Fork Aarons Creek / From its headwaters to the mouth on Aarons Creek	4A	Escherichia coli (E. coli)	2012	L	9.75

North Fork Aarons Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.75**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L73R-03-BAC** **Peter Creek**

Cause Location: Peter Creek from its headwaters to its confluence with the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 35748
The Dan River Bacteria TMDL Study (Dan River) received U.S. EPA approval on 12/8/2008 [Fed. ID 35748] and SWCB approval on 4/28/2009 for these 2004 303(d) Listed waters for fecal coliform and 2006 303(d) Listed waters for Bacteria. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 35748, 12/8/2008

One station is located within the 6.6 miles of impaired waters. 4APET004.35 (Ambient)(2018)

4APET004.35 (Ambient)(2018) Four of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_PET01A16 / Peter Creek / From its headwaters to its confluence with the Dan River	4A	Escherichia coli (E. coli)	2016	L	6.61

Peter Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.61**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L73R-03-DO** **Peter Creek**

Cause Location: Peter Creek from its headwaters to its confluence with the Dan River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4APET004.35 (Ambient) No new data since the 2016 data window:
Dissolved Oxygen - 3/12 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L73R_PET01A16 / Peter Creek / From its headwaters to its confluence with the Dan River	5A	Dissolved Oxygen	2016	L	6.61

Peter Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**6.61**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-01-BAC** **Hyco River**

Cause Location: Hyco River from the VA/NC state line to its mouth on the Dan River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID 64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 23.57 miles of impaired waters. 4AHYC016.70 (Ambient)(2018)

4AHYC016.70 (Ambient)(2018) Four of 36 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_HYC01A00 / Hyco River / Route 738 Bridge to Dan River.	4A	Escherichia coli (E. coli)	2008	L	6.12
VAW-L74R_HYC02A06 / Hyco River / From the VA/NC State Line downstream to the Route 738 Bridge	4A	Escherichia coli (E. coli)	2006	L	17.48

Hyco River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**23.60**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-03-BAC** **Coleman Creek**

Cause Location: Coleman Creek from its headwaters to its mouth on the Hyco River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID 64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

Two stations are located within the 8.49 miles of impaired waters. 4ACLB005.17 (Hog Farm Special Study & Follow-up)(2018) and 4ACLB007.78 (Hog Farm Special Study & Follow-up)

4ACLB005.17 (Hog Farm Special Study & Follow-up)(2018) One of 6 samples in excess of the instantaneous criterion.

4ACLB007.78 (Hog Farm Special Study & Follow-up) Three of 6 Insufficient Data.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_CLB01A06 / Coleman Creek / From its headwaters to its mouth on the Hyco River	4A	Escherichia coli (E. coli)	2008	L	8.48

Coleman Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.48**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-03-BEN** **Coleman Creek**

Cause Location: Coleman Creek from its headwaters to its mouth on the Hyco River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

The Coleman Creek Sediment TMDL for a Benthic Impairment received U.S. EPA approval on 2/3/2015 [Fed. ID 63928] and SWCB approval on 12/11/2014 for this 2008 303(d) Listed impairment to the benthic community.

Station IDs:
4ACLB001.90 (2006 Probmon) No new data since 2008 data window:
Impaired Benthic Assessment - Lack of suitable habitat is negatively affecting the stream community.
4ACLB004.14 (2012 Bio) No new data since 2014 data window:
IM - Beaver dam downstream. Very slow-moving water. Habitat rather lacking and livestock have access upstream of bridge.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_CLB01A06 / Coleman Creek / From its headwaters to its mouth on the Hyco River	4A	Benthic Macroinvertebrates Bioassessments	2008	L	8.48

Coleman Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.48**

Sources:

Clean Sediments

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-03-DO** **Coleman Creek**

Cause Location: Coleman Creek from its headwaters to its mouth on the Hyco River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station IDs:
4ACLB001.90 (FPM/TMDL) No new data since 2014 data window:
DO - 5/12 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_CLB01A06 / Coleman Creek / From its headwaters to its mouth on the Hyco River	5A	Dissolved Oxygen	2014	L	8.48

Coleman Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**8.48**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-04-BAC** **Big Bluewing Creek**

Cause Location: Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 64076

The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID 64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 11.24 miles of impaired waters. 4ABLU002.02 (Ambient)(2018)

4ABLU002.02 (Ambient)(2018) Two of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_BLU01A08 / Big Bluewing Creek / Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River	4A	Escherichia coli (E. coli)	2008	L	11.23

Big Bluewing Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**11.23**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L74R-04-DO** **Big Bluewing Creek**

Cause Location: Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4ABLU002.02 (Ambient) No new data since the 2014 data window:
Dissolved Oxygen - 2/11 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_BLU01A08 / Big Bluewing Creek / Big Bluewing Creek from the VA/NC state line to its mouth on the Hyco River	5A	Dissolved Oxygen	2008	L	11.23

Big Bluewing Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**11.23**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-05-BEN** **Bowes Branch**

Cause Location: Bowes Branch from the VA/NC State Line to its confluence with the Hyco River.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABOS000.13 (2004 FPM)
IM - Segment affected by beaver activity. Suitable habitat was limited for the maintenance of an adequate stream community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_BOS01A06 / Bowes Branch / From the VA/NC State Line to its confluence with the Hyco River	5A	Benthic Macroinvertebrates Bioassessments	2008	L	1.44

Bowes Branch **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**1.44**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-06-BAC** **Mayo Creek**

Cause Location: Mayo Creek from the VA/NC border to its confluence with Hyco River.

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 64076
The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID 64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 4.93 miles of impaired waters. 4AMYO001.48 (Ambient)(2018)

4AMYO001.48 (Ambient)(2018) Two of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_MYO01A04 / Mayo Creek / Mayo Creek from the VA/NC border to its confluence with Hyco River	4A	Escherichia coli (E. coli)	2016	L	4.93

Mayo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.93**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-07-BAC** **Powells Creek**

Cause Location: Powells Creek from its headwaters to the confluence with an unnamed tributary upstream of NC Route 1325. (Virginia Portion of Powells Creek)

City / County: Halifax Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2016: 64076
The Hyco River Bacteria TMDL Study (Hyco River) received U.S. EPA approval on 2/3/2015 [Fed. ID 64076] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64076, 2/3/2015

One station is located within the 4.65 miles of impaired waters. 4APWL001.11 (Ambient)(2018)

4APWL001.11 (Ambient)(2018) Three of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_PWL01A10 / Powells Creek / Powells Creek from its headwaters to the confluence with an unnamed tributary upstream of NC Route 1325.	4A	Escherichia coli (E. coli)	2016	L	4.65

Powells Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.65**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L74R-08-BEN** **Little Bluewing Creek**

Cause Location: Little Bluewing Creek mainstem from its mouth on Big Bluewing Cr. to its headwaters in Halifax Co.

City / County: Halifax Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

The 2018 data window produces this initial Aquatic Life Use listing for Little Bluewing Creek.

4ALWN000.08 (Rt. 740/Wilson Rd) Bio 'IM' from two 2015 VSCI surveys: Spring 41.5, Fall 50.6. The high numbers of Chironomids (blackfly larvae) and Chuematopsyche (netspinning caddisfly larvae) in spring indicate a nutrient or organic pollution problem.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L74R_LWN01A18 / Little Bluewing Creek / Little Bluewing Creek mainstem from its mouth on Big Bluewing Cr. to its headwaters in Halifax Co. (RD73).	5A	Benthic Macroinvertebrates Bioassessments	2018	L	7.92

Little Bluewing Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**7.92**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L75L-01-PCB** **Kerr Reservoir**

Cause Location: Kerr Reservoir from the John H. Kerr dam to its backwaters, excluding the Dan River portion.

City / County: Halifax Co. Mecklenburg Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCBs in Fish Tissue / 5A

VDH Fish Advisory - PCBs: Issued 7/24/98 , revised 8/31/07 & Mercury: Issued 8/31/07
Roanoke (Staunton) River from below Leesville Dam downstream ~ 98 miles to the confluence of Dan River including its tributary Cub Creek up to Rough Creek Road (State Route 695) near Rough Creek.
VDH recommends the following precautions to reduce any potential harmful effects from eating contaminated fish:

Eat smaller, younger fish (within the legal limits). Younger fish are less likely to contain harmful levels of contaminants than larger, older fish.
Eat fewer or smaller servings of fish.
Try to eat different species of fish from various sources (i.e., different creeks, rivers and streams).
Cleaning or cooking contaminated fish does not eliminate or reduce mercury. However, levels of PCBs in fish can be reduced by taking the following precautions:
Remove the skin, the fat from the belly and top and internal organs before cooking the fish.
Bake, broil or grill on an open rack to allow fats to drain away from the meat.
Discard the fats that cook out of the fish.
Avoid or reduce the amount of fish drippings or broth that is used to flavor the meal.
Eat less deep-fried fish, since frying seals contaminants into the fatty tissue.
For more information about fish consumption advisories, including frequently asked questions go to http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/.

4AROA129.95 (near Bus Route 29 Bridge near Altavista Gage) 2013 three species exceeded VDH lower level of concern (50 ppb); Flathead catfish, channel catfish, and Carp. 2006 one species exceeded VDH upper level of concern (500 ppb); carp. 2006 six species exceeded VDH lower level of concern (50 ppb); Smallmouth bass, Rock bass, Redbreast sunfish, Channel catfish, Carp, Redhorse sucker.

4AROA108.09 (near Long Island) 2013 one species exceeded VDH upper level of concern (500 ppb); Flathead catfish. Four species exceeded VDH lower level of concern (50 ppb); Channel catfish, Carp, Shorthead redhorse sucker, and gizzard shad. 2006 one species exceeded VDH upper level of concern (500 ppb); carp. Three species exceeded VDH lower level of concern (50 ppb); Smallmouth bass, Channel catfish, Carp, Redhorse sucker.

4AROA097.07 (Route 501 at Brookneal) -2013 two species exceeded VDH upper level of concern (500 ppb); Blue catfish and Flathead catfish. Four species exceeded VDH lower level of concern (50 ppb; striped bass, Blue catfish, carp, and Channel catfish. 2006 one species exceeded VDH upper level of concern (500 ppb); Striped bass. Five species exceeded VDH lower level of concern (50 ppb); Striped bass, Black crappie, Channel catfish, Carp, and Redhorse sucker.

4AROA067.91 (Route 746 Bridge) - 2006 two species exceeded VDH upper level of concern (500 ppb); Walleye, and Carp. Five species exceeded VDH lower level of concern (50 ppb); Blue catfish, Channel catfish, carp, Golden redhorse sucker, and Gizzard shad.

4AROA059.12 (Route 360 Bridge, east of Clover) - 2006 two species exceeded VDH upper level of concern (500 ppb); Striped bass and Carp. Seven species exceeded VDH lower level of concern (50 ppb); Striped bass, White bass, Largemouth bass, walleye, Channel catfish, carp, and Redhorse sucker.

4AROA036.59 (Station #B Buoy 18 Kerr Reservoir) - 2006 two species exceeded VDH lower level of concern (50 ppb); Carp and golden redhorse sucker.

4AROA028.04 (Station #B-9 Kerr Reservoir - Buoy 9) - 2006 two species exceeded VDH lower level of concern (50 ppb); Largemouth bass and Longnose gar.

4AROA004.54 (Lake Gaston near state line) - 2006 one species exceeded VDH lower level of concern (50 ppb); carp

4ACUB010.96 (near Route 40 Gaging Station) – 2006 one species exceeded VDH upper level of concern (500 ppb); carp.

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Three species exceeded VDH lower level of concern (50 ppb); channel catfish, carp, and Redhorse sucker

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75L_ROA05L98 / Kerr Reservoir / Kerr Reservoir from the John H. Kerr dam to its backwaters, excluding the Dan River portion, Bluestone Creek and Buffalo Creek.	5A	PCBs in Fish Tissue	2002	L	######
VAW-L76L_BMA01A06 / Buffalo Creek / Buffalo Creek and Tribs included in the boundaries of Kerr Reservoir	5A	PCBs in Fish Tissue	2002	L	358.96
VAW-L77L_BST01A06 / Bluestone Creek / Bluestone Creek and Tribs included in the boundaries of Kerr Reservoir	5A	PCBs in Fish Tissue	2002	L	860.21

Kerr Reservoir **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		**31,884.59**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L75R-03-BAC** **Beech Creek**

Cause Location: Beech Creek from its headwaters to the VA/NC state line.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Hyco River Bacteria TMDL Study (Beech Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID 64066] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64066, 2/3/2015

One station is located within the 4.7 miles of impaired waters. 4ABEE000.80 (Ambient)(2018)

4ABEE000.80 (Ambient)(2018) Four of 11 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75R_BEE01A98 / Beech Creek / Headwaters to North Carolina Border.	4A	Escherichia coli (E. coli)	2008	L	4.69

Beech Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.69**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L75R-03-BEN** **Beech Creek**

Cause Location: Beech Creek from its headwaters to the VA/NC state line.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABEE000.80 (Ambient) 2018 data window finds Bio 'IM' from four VSCI surveys (2014, 2016) averaging 52.5.
2010/2014 Bio - IM - Site exhibits seasonal variability. Further sampling indicates an unbalanced benthos community.
Sedimentation and nutrient enrichment are probable stressors.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L75R_BEE01A98 / Beech Creek / Headwaters to North Carolina Border.	5A	Benthic Macroinvertebrates Bioassessments	2016	L	4.69

Beech Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**4.69**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L76R-01-BAC** **Little Buffalo Creek**

Cause Location: Little Buffalo Creek from its headwaters to its mouth on Kerr Reservoir.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Hyco River Bacteria TMDL Study (Little Buffalo Creek) received U.S. EPA approval on 2/3/2015 [Fed. ID 64074] and SWCB approval on 12/11/2014 for these 2004 303(d) Listed waters for fecal, 2006 303(d) Listed waters for bacteria, and 2008 303(d) Listed waters for E.coli. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 64074, 2/3/2015

One station is located within the 2.51 miles of impaired waters. 4ALFF001.85 (Ambient)(2018)

4ALFF001.85 (Ambient)(2018) Six of 12 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_LFF01A00 / Little Buffalo Creek / Headwaters to Kerr Reservoir.	4A	Escherichia coli (E. coli)	2004	L	2.51

Little Buffalo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.51**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L76R-01-BEN** **Little Buffalo Creek**

Cause Location: Little Buffalo Creek from its headwaters to its mouth on Kerr Reservoir.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ALFF001.85 (Bio) 2018 data window finds Bio 'IM' from two 2015 VSCI surveys greater than 60.0: Spring 30.0, Fall 38.7.
2010 Bio - IM - Sedimentation and STP effluent have negatively affected the benthic community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_LFF01A00 / Little Buffalo Creek / Headwaters to Kerr Reservoir.	5A	Benthic Macroinvertebrates Bioassessments	2012	L	2.51

Little Buffalo Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**2.51**

Sources:

Municipal Point Source Discharges

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L76R-02-BAC** **Buffalo Creek**

Cause Location: Buffalo Creek from its headwaters to the backwaters of Kerr Reservoir.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID: 4ABMA002.00 - The 2018 data window finds four of 36 Escherichia coli (E.coli) samples in excess of the 235 cfu/100 ml instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_BMA01A06 / Buffalo Creek / From its headwaters to the backwaters of Kerr Reservoir	5A	Escherichia coli (E. coli)	2018	L	5.68

Buffalo Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.68**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L76R-02-BEN** **Buffalo Creek**

Cause Location: Buffalo Creek from its headwaters to the backwaters of Kerr Reservoir.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

4ABMA005.64 - The 2018 data window finds Aquatic Life Use impairment from two 2015 VSCI surveys: Spring 27.8 and Fall 57.1. There was a large beaver dam just upstream of the sampling reach, which may have affected the benthic community. Further sampling is required to accurately assess the waterbody.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L76R_BMA01A06 / Buffalo Creek / From its headwaters to the backwaters of Kerr Reservoir	5A	Benthic Macroinvertebrates Bioassessments	2018	L	5.68

Buffalo Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**5.68**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L77R-01-BAC** **Little Bluestone Creek**

Cause Location: Little Bluestone Creek from a fork upstream of Route 696 to Kerr Reservoir.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ALNE006.56 (Ambient)(2018)
E. coli - 7/35 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_LNE01A98 / Little Bluestone Creek / Fork upstream of Route 696 to Kerr Reservoir.	5A	Escherichia coli (E. coli)	2006	L	9.38

Little Bluestone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.38**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L77R-02-BAC** **Bluestone Creek**

Cause Location: Bluestone Creek from its headwaters to its confluence with Moody Creek.

City / County: Charlotte Co. Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ABST017.09 (Ambient)(2018)
E. coli - 5/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_BST02A06 / Bluestone Creek / From its headwaters to Moody Creek	5A	Escherichia coli (E. coli)	2006	L	8.25

Bluestone Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.25**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L77R-02-BEN** **Bluestone Creek**

Cause Location: Bluestone Creek from its confluence with Moody Creek to the backwaters of Kerr Reservoir.

City / County: Charlotte Co. Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ABST013.64 (2012/2015 Bio) Bio 'IM' from four VSCI surveys with an average score of 43.3.
IM - 4ABST013.64 has limited habitat due to scour and sedimentation. Riparian vegetation was suitable but bank scour was evident. Spring taxa list was dominated by Simuliidae and Chironomidae, bringing VSCI scores well below the impairment threshold.
4ABST014.94 (2007 FPM)
J Benthic Assessment - 4ABST014.94 exhibits significant seasonal variation. Additional data must be collected to accurately characterize the status of the stream community.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L77R_BST01A98 / Bluestone Creek / Moody Creek to the backwaters of Kerr Reservoir	5A	Benthic Macroinvertebrates Bioassessments	2014	L	13.73

Bluestone Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**13.73**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L78R-02-BAC** **Unnamed Tributary to Allen Creek**

Cause Location: Entire tributary located just south of the intersection of Redlawn and Baskerville Roads in Mecklenburg County.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Fecal Coliform / 5A

Station ID:
4AXUQ000.00 (Hog Farm SS)
Total Fecal Coliform - 2/4 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_XUQ01A04 / Allen Creek, Unnamed Tributary / Entire tributary located just south of the intersection of Redlawn and Baskerville Roads in Mecklenburg County.	5A	Fecal Coliform	2004	L	1.27

Unnamed Tributary to Allen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:			**1.27**

Sources:

Non-Point Source

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-03-BAC** **Allen Creek**

Cause Location: Allen Creek from its headwaters to Cox Creek.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4AALN009.12 (Ambient)(2018)
E. coli - 7/36 Exceedance Rate
4AALN016.38 (Ambient)(2018)
E. coli - 3/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ALN03A04 / Allen Creek / Layton Creek downstream to Cox Creek	5A	Escherichia coli (E. coli)	2006	L	8.97
VAW-L78R_ALN04A06 / Allen Creek / From its headwaters to Layton Creek	5A	Escherichia coli (E. coli)	2012	L	15.27

Allen Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**24.24**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-03-BEN** **Allen Creek**

Cause Location: Allen Creek from its headwaters to Layton Creek.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4AALN016.38 (Ambient/2013 Bio)
J - 4AALN016.38 exhibits significant seasonal variability. Sedimentation is a potential stressor. Additional data needed to accurately characterize the benthic community
4AALN020.60 (2013 Bio)
IM - Sedimentation is a probable stressor to the benthic community. Silviculture is taking place within the nearby watershed.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ALN04A06 / Allen Creek / From its headwaters to Layton Creek	5A	Benthic Macroinvertebrates Bioassessments	2016	L	15.27

Allen Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**15.27**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-04-BEN** **Cox Creek**

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ACOX007.73 (2005 Probmon)
IM - Lack of suitable habitat is negatively affecting the stream community. Beaver activity has made the reach unwadeable. Accurate assessment depends on locating a suitably accessible site.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek	5A	Benthic Macroinvertebrates Bioassessments	2008	M	10.80

Cox Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**10.80**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L78R-04-DO** **Cox Creek**

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4ACOX000.38 (Ambient) No new data since 2006 data window:
Dissolved Oxygen - 3/11 Violation Rate
4ACOX003.23 (Ambient) No new data since 2010 data window:
Dissolved Oxygen - 4/12 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek	5A	Dissolved Oxygen	2004	M	10.80

Cox Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**10.80**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-04-PH** **Cox Creek**

Cause Location: Cox Creek from its headwaters to its confluence with Allen Creek

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: pH / 5A

Station ID:
4ACOX000.38 (Ambient) No new data since 2006 data window:
pH - 2/11 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_COX01A04 / Cox Creek / Cox Creek from its headwaters to its confluence with Allen Creek	5A	pH	2006	M	10.80

Cox Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:			**10.80**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L78R-05-BAC** **Cotton Creek**

Cause Location: Cotton Creek from its headwaters to its mouth on the Roanoke River

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ACTT000.70 (Ambient)(2018)
E. coli - 8/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_CTT01A08 / Cotton Creek / Cotton Creek from its headwaters to its mouth on the Roanoke River	5A	Escherichia coli (E. coli)	2008	L	4.39

Cotton Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.39**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L78R-06-BAC** **Layton Creek**

Cause Location: Form its headwaters to its confluence with Allen Creek

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ALYT003.77 (Ambient)(2018)
E. coli - 11/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_LYT01A06 / Layton Creek / Form its headwaters to its confluence with Allen Creek	5A	Escherichia coli (E. coli)	2012	L	8.64

Layton Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**8.64**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-06-BEN** **Layton Creek**

Cause Location: Form its headwaters to its confluence with Allen Creek

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 5A

Station ID:
4ALYT003.77 (Bio)
IM - 2005-2012/2014 Bio
4ALYT003.77 was negatively affected by drought in 2007-2008, with periods of very low flow. Logging in the up gradient watershed appears to have negatively affected the benthic community with sedimentation. Current monitoring (2014) has yielded similar results.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_LYT01A06 / Layton Creek / Form its headwaters to its confluence with Allen Creek	5A	Benthic Macroinvertebrates Bioassessments	2012	M	8.64

Layton Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**8.64**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L78R-07-BAC** **Kettles Creek**

Cause Location: Kettles Creek from its headwaters to the mouth

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4AKTT001.15 (Ambient)(2018)
E. coli - 1/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_KTT01A12 / Kettles Creek / Kettles Creek from its headwaters to the mouth	5A	Escherichia coli (E. coli)	2012	L	5.48

Kettles Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.48**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L78R-07-DO** **Kettles Creek**

Cause Location: Kettles Creek from its headwaters to the mouth

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4AKTT001.15 (Ambient) No new data beyond 2016 data window:
DO - 9/22 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_KTT01A12 / Kettles Creek / Kettles Creek from its headwaters to the mouth	5A	Dissolved Oxygen	2012	M	5.48

Kettles Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**5.48**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79L-02-CHLA** **Lake Gordon**

Cause Location: Lake Gordon

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Chlorophyll-a / 5A

Station ID:
4AMES007.54 (2013-2014 Lake Gordon)
Dissolved Oxygen - 3/22 Exceedance Rate Violation Rate
Chlorophyll a - 2/2 Samples (90% Calculated over 1 Sample Yr)
No Total Phos assessed since lake has not been treated with algaecide

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_MES01L00 / Lake Gordon / On Miles Creek.	5A	Chlorophyll-a	2016	L	107.48

Lake Gordon **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Chlorophyll-a - Total Impaired Size by Water Type:		**107.48**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79L-02-DO** **Lake Gordon**

Cause Location: Lake Gordon

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4AMES007.54 (2013-2014 Lake Gordon)
Dissolved Oxygen - 3/22 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_MES01L00 / Lake Gordon / On Miles Creek.	5A	Dissolved Oxygen	2018	L	107.48

Lake Gordon **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:		**107.48**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L79L-02-HG** **Lake Gordon**

Cause Location: Lake Gordon

City / County: Mecklenburg Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Station ID:
4AMES007.54 (2006 FT/Sed)
Hg 2 Species

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79L_MES01L00 / Lake Gordon / On Miles Creek.	5A	Mercury in Fish Tissue	2010	L	107.48

Lake Gordon **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**107.48**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79R-01-BAC** **Flat Creek**

Cause Location: Flat Creek from its headwaters to its mouth on the Roanoke River.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

Station ID:
4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)
E. coli - 3/7 Exceedance Rate
4AFLT008.80 (2004 Flat Creek TMDL)
E. coli - 3/6 Exceedance Rate
4AFLT008.79 (Ambient, Benthic, 2002 FT/Sed, Flat Creek TMDL Station)
E. coli - 1/7 Exceedance Rate (No New Bacteria Data for 2010)
4AFLT002.60 (Ambient)(2018)
E. coli - 5/36 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	4A	Escherichia coli (E. coli)	2006	L	1.69
VAW-L79R_FLT02A96 / Flat Creek / From the South Hill STP discharge to the Belfield Road crossing.	4A	Escherichia coli (E. coli)	2006	L	6.23
VAW-L79R_FLT03A08 / Flat Creek / From the Belfield Road crossing to its mouth on the Roanoke River	4A	Escherichia coli (E. coli)	2016	L	1.42

Flat Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.34**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79R-01-BEN** **Flat Creek**

Cause Location: Flat Creek from its headwaters to its mouth on the Roanoke River.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Benthic Macroinvertebrates Bioassessments / 4A

Station ID:
4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)
The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.
2008/2010-2011 Bio
IM - 4AFLT009.17 is in the headwater segment of Flat Creek with several small channels.
Flow regime related sedimentation seems to be negatively affecting the stream community.
4AFLT008.79 (Ambient, Benthic, 2002 FT/Sed, Flat Creek TMDL Station)
The benthic TMDL completed in 2004 identified sediment as the stressor to the benthic community.
2008 Bio
IM - 4AFLT008.79 has sparse habitat, effluent affected flow, and is subject to occasionally significant storm flows.
4AFLT002.60 (Ambient, Bio)
2008/2010-2011 Bio
IM - Flat Creek is a very slow moving stream at river mile 2.60. Habitat was adequate with abundant leaf packs. Field measurements indicate a slight depression of dissolved oxygen in the warmest summer months. August dissolved oxygen values around 6 mg/L since 2003. No DO measurements exceeded the standard of 4 mg/L.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	4A	Benthic Macroinvertebrates Bioassessments	2008	L	1.69
VAW-L79R_FLT02A96 / Flat Creek / From the South Hill STP discharge to the Belfield Road crossing.	4A	Benthic Macroinvertebrates Bioassessments	1996	L	6.23
VAW-L79R_FLT03A08 / Flat Creek / From the Belfield Road crossing to its mouth on the Roanoke River	4A	Benthic Macroinvertebrates Bioassessments	1996	L	1.42

Flat Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Benthic Macroinvertebrates Bioassessments - Total Impaired Size by Water Type:			**9.34**

Sources:

Clean Sediments

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79R-01-DO** **Flat Creek**

Cause Location: Flat Creek from upstream of the South Hill STP discharge to its headwaters.

City / County: Mecklenburg Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Dissolved Oxygen / 5A

Station ID:
4AFLT009.17 (Benthic & 2004 Flat Creek TMDL)
Dissolved Oxygen - 2/8 Violation Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_FLT01A00 / Flat Creek / Upstream of the South Hill STP discharge to its headwaters.	5A	Dissolved Oxygen	2006	L	1.69

Flat Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Dissolved Oxygen - Total Impaired Size by Water Type:			**1.69**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

Cause Group Code: **L79R-02-BAC** **Smith Creek**

Cause Location: Smith Creek from the VA/NC state line to its mouth on Kerr Reservoir

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ASMI003.58 (Ambient)(2018)
E. coli - 4/24 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_SMI01A08 / Smith Creek / Smith Creek from the VA/NC state line to its mouth	5A	Escherichia coli (E. coli)	2008	L	1.90

Smith Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**1.90**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L79R-03-BAC** **Miles Creek**

Cause Location: Lake Gordon to the Roanoke River.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4AMES004.78 (Ambient)(2018)
E coli - 2/11 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L79R_MES01A98 / Miles Creek / Lake Gordon to the Roanoke River.	5A	Escherichia coli (E. coli)	2016	L	5.97

Miles Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**5.97**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L80L-01-PCB** **Lake Gaston**

Cause Location: Roanoke River from the John H. Kerr Dam into Lake Gaston within Virginia.

City / County: Mecklenburg Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCBs in Fish Tissue / 5A

Fish tissue data are reviewed by the VDH in making an advisory determination. A complete listing of fish tissue collection sites and associated fish tissue data are available at http://www.deq.virginia.gov. A more detailed presentation of the data can also be found using an interactive mapping application at http://www.deq.virginia.gov. The VDH Advisory information is also available via the web at http://www.vdh.virginia.gov.

4AROA004.54 (near NC-VA State line) – 2006 one species exceeded VDH lower level of concern (50 ppb); carp.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L78R_ROA06A98 / Roanoke River / Kerr Dam to Route 1 bridge.	5A	PCBs in Fish Tissue	2004	L	5.69
VAW-L79L_ROA07A98 / Roanoke River / Upper portion of Lake Gaston - Route 1 to the confluence of Smith Creek.	5A	PCBs in Fish Tissue	2004	L	######
VAW-L80L_ROA08A04 / Lake Gaston / Lower Portion of Lake Gaston on the Roanoke River- Smith Creek confluence downstream to the VA/NC State Line, including coves that enter the mainstem within VA.	5A	PCBs in Fish Tissue	2004	L	######

Lake Gaston **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCBs in Fish Tissue - Total Impaired Size by Water Type:		**4,440.93**	**5.69**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L80R-01-BAC** **Great Creek**

Cause Location: Great Creek from its headwaters to Lake Gaston.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID 33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

Three stations are located within the 6.69 miles of impaired waters. 4AGRT003.82 (Ambient/Bio)(2018), 4AGRT004.70 (Great Creek Bacteria TMDL), and 4AGRT008.49 (Great Creek Bacteria TMDL)

4AGRT003.82 (Ambient/Bio)(2018) Three of 12 samples in excess of the instantaneous criterion.

4AGRT004.70 (Great Creek Bacteria TMDL) 7 of 9 samples in excess of the instantaneous criterion.

4AGRT008.49 (Great Creek Bacteria TMDL) Two of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_GRT01A00 / Great Creek / Headwaters to Lake Gaston.	4A	Escherichia coli (E. coli)	2006	L	6.68

Great Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.68**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L80R-02-BAC** **Hagood Creek**

Cause Location: Hagood Creek from its headwaters to its mouth on Great Creek.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33313
The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID 33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

One station is located within the 6.8 miles of impaired waters. 4AHAG002.95 (TMDL Monitoring)

4AHAG002.95 (TMDL Monitoring) Three of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_HAG01A06 / Hagood Creek / From its headwaters to the mouth on Great Creek	4A	Escherichia coli (E. coli)	2008	L	6.80

Hagood Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.80**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L80R-03-BAC** **Long Branch**

Cause Location: Long Branch from its headwaters to its mouth on Great Creek.

City / County: Mecklenburg Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 4A

NESTED 2014: 33313
The Great Creek Bacteria TMDL Study received U.S. EPA approval on 9/20/2007 [Fed. ID 33313] and SWCB approval on 7/31/2008 for this 2004 303(d) Listed waters for fecal coliform. Escherichia coli (E.coli) replaces fecal coliform (FC) bacteria as the indicator as per Water Quality Standards [9 VAC 25-260-170. Bacteria; other waters]. 33313, 9/20/2007

One station is located within the 2.08 miles of impaired waters. 4ALYA000.60 (TMDL Monitoring)

4ALYA000.60 (TMDL Monitoring) Five of 9 samples in excess of the instantaneous criterion.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L80R_LYA01A06 / Long Branch / From its headwaters to the mouth on Great Creek	4A	Escherichia coli (E. coli)	2008	L	2.08

Long Branch **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.08**

Sources:

Livestock (Grazing or Feeding Operations)	Unspecified Domestic Waste	Wastes from Pets	Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L81R-02-BAC** **Lizard Creek**

Cause Location: Lizard Creek from its headwaters to Lake Gaston.

City / County: Brunswick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ALIZ003.42 (Ambient)(2018)
E. coli - 4/12 Exceedance Rate

*Segment was shortened in 2014 to only include VA Portion of Lizard Creek

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LIZ01A10 / Lizard Creek / Lizard Creek from its headwaters to Lake Gaston.	5A	Escherichia coli (E. coli)	2010	L	2.73

Lizard Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.73**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L81R-03-BAC** **Little Poplar Creek**

Cause Location: Little Poplar Creek from its headwaters to its mouth on Poplar Creek.

City / County: Brunswick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4ALPP002.66 (ProbAmbient)
E coli - 2/12 Exceedance Rate
4ALPP004.46 (2013 ProbAmbient)(2018)
E coli - 2/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L81R_LPP01A16 / Little Poplar Creek / Little Poplar Creek from its headwaters to its mouth on Poplar Creek.	5A	Escherichia coli (E. coli)	2016	L	6.51

Little Poplar Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.51**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* L82R-01-BAC** **Pea Hill Creek**

Cause Location: Pea Hill Creek from its headwaters to Lake Gaston.

City / County: Brunswick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

Station ID:
4APHC006.38 (Ambient)(2018)
E coli - 4/12 Exceedance Rate

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-L82R_PHC01A00 / Pea Hill Creek / Headwaters to Lake Gaston.	5A	Escherichia coli (E. coli)	2016	L	4.86

Pea Hill Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**4.86**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02L-01-DDD** **Lovills Creek Lake**

Cause Location: The Lovills Creek flood control impoundment east of Cana.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: DDD (Dichlorodiphenyldichloroethane) / 5A

Fish tissue samples collected on 8/8/2007 at station 4BLOV008.45 exceeded the Department of Environmental Quality screening value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County, WQS Section 1.	5A	DDD (Dichlorodiphenyldichloroethane)	2010	L	42.46

Lovills Creek Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DDD (Dichlorodiphenyldichloroethane) - Total Impaired Size by Water Type:		**42.46**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02L-01-DDE** **Lovills Creek Lake**

Cause Location: The Lovills Creek flood control impoundment east of Cana.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: DDE (Dichlorodiphenyldichloroethylene) / 5A

Fish tissue samples collected on 8/8/2007 at station 4BLOV008.45 exceeded the Department of Environmental Quality screening value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County, WQS Section 1.	5A	DDE (Dichlorodiphenyldichloroethylene)	2010	L	42.46

Lovills Creek Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DDE (Dichlorodiphenyldichloroethylene) - Total Impaired Size by Water Type:		**42.46**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02L-01-DDT** **Lovills Creek Lake**

Cause Location: The Lovills Creek flood control impoundment east of Cana.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: DDT in Fish Tissue / 5A

Fish tissue samples collected on 8/8/2007 at station 4BLOV008.45 exceeded the Department of Environmental Quality screening value.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County, WQS Section 1.	5A	DDT in Fish Tissue	2010	L	42.46

Lovills Creek Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DDT in Fish Tissue - Total Impaired Size by Water Type:		**42.46**	

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02L-01-HG** **Lovills Creek Lake**

Cause Location: The Lovills Creek flood control impoundment east of Cana.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

Fish tissue samples collected at station 4BLOV008.45 exceeded the Department of Environmental Quality screening value. The Virginia Department of Health recommends no more than two meals per month of largemouth bass.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02L_LOV01B10 / Lovills Creek Lake / Lovills Creek flood control impoundment east of Cana; completed in 1990 and owned by Carroll County, WQS Section 1.	5A	Mercury in Fish Tissue	2010	L	42.46

Lovills Creek Lake **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:		**42.46**	

Sources:

Atmospheric Deposition - Toxics	Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02R-01-BAC** **Lovills Creek**

Cause Location: Lovills Creek mainstem from the North Carolina state line upstream to just above the Route 686 crossing. This segment also includes Stewarts Creek from the North Carolina state line upstream near Route 696 at Lambsburg.

City / County: Carroll Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

The ambient water quality monitoring station 4BLOV007.92 had a 58% exceedance of the E.coli water quality standard. Station 4BSTE007.99 had a 22% exceedance of the E. coli water quality standard.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02R_LOV01A02 / Lovills Creek / YA05: Lovills Creek mainstem southeast of Cana, from the NC state line upstream to Lovills Lake dam, WQS Section 1.	5A	Escherichia coli (E. coli)	2008	M	2.15

Lovills Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**2.15**

Sources:

Source Unknown Unrestricted Cattle Access

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02R-01-DDE** **Lovills Creek**

Cause Location: Lovills Creek mainstem from the North Carolina state line upstream to just above the Route 686 crossing.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: DDE (Dichlorodiphenyldichloroethylene) / 5A

Fish tissue samples at station 4BLOV007.92 exceeded DEQ's screening value for DDE.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02R_LOV01A02 / Lovills Creek / YA05: Lovills Creek mainstem southeast of Cana, from the NC state line upstream to Lovills Lake dam, WQS Section 1.	5A	DDE (Dichlorodiphenyldichloroethylene)	2010	L	2.15

Lovills Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DDE (Dichlorodiphenyldichloroethylene) - Total Impaired Size by Water Type:			**2.15**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02R-01-DDT** **Lovills Creek**

Cause Location: Lovills Creek mainstem from the North Carolina state line upstream to just above the Route 686 crossing.

City / County: Carroll Co.

Use(s): Fish Consumption

Cause(s) / VA Category: DDT in Fish Tissue / 5A

Fish tissue samples at station 4BLOV007.92 exceeded DEQ's screening value for DDT.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02R_LOV01A02 / Lovills Creek / YA05: Lovills Creek mainstem southeast of Cana, from the NC state line upstream to Lovills Lake dam, WQS Section 1.	5A	DDT in Fish Tissue	2010	L	2.15

Lovills Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DDT in Fish Tissue - Total Impaired Size by Water Type:			**2.15**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M02R-01-TEMP** **Lovills Creek and Stewarts Creek**

Cause Location: Lovills Creek mainstem from the North Carolina state line upstream to just above the Route 686 crossing. This segment also includes Stewarts Creek from the North Carolina state line upstream near Route 696 at Lambsburg.

City / County: Carroll Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5A

The ambient water quality monitoring station 4BLOV007.92 had a 33% exceedance of the Class V, 21°C stockable trout water criterion. Exceeding temperature values up to 25°C occurred from August 2005 to August 2006. In addition, 4BSTE007.99 had a 33% exceedence of temperature values.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAS-M02R_LOV01A02 / Lovills Creek / YA05: Lovills Creek mainstem southeast of Cana, from the NC state line upstream to Lovills Lake dam, WQS Section 1.	5A	Temperature	2008	M	2.15
VAS-M02R_STE01A02 / Stewarts Creek / YA06: Stewarts Creek mainstem from the VA / NC state line upstream to near Rt. 696 south of Lambsburg, WQS Section 1.	5A	Temperature	2016	M	2.05

Lovills Creek and Stewarts Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**4.20**

Sources:

Grazing in Riparian or Shoreline Zones	Unrestricted Cattle Access

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M03R-01-BAC** **Ararat River**

Cause Location: Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing.

City / County: Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

4BARA035.13 (Rt. 739 Bridge, near VA/NC State Line)- No additional data. The 2008 and 2010 assessments find escherichia coli (E.coli) exceeds the WQS instantaneous criterion of 235 cfu/100 ml in 3 of 9 samples. Exceeding values range from 250 to 950 cfu/100 ml. There are no additional data within the 2012 or 2014 data windows.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_ARA01A00 / Ararat River / Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing Class IV sec. 1 PWS (YA03).	5A	Escherichia coli (E. coli)	2010	H	6.13

Ararat River **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**6.13**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M03R-01-HG** **Ararat River**

Cause Location: Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing.

City / County: Patrick Co.

Use(s): Fish Consumption

Cause(s) / VA Category: Mercury in Fish Tissue / 5A

This initial 2010 303(d) Listing is based on 2007 fish tissue collections and new Water Quality Standards (WQS) effective 2/01/2010. Mercury (Hg) exceedances of the DEQ 0.3 parts per million (ppm) tissue value cause impairment of the Fish Consumption Use. No VDH Fish Consumption or Drinking Water Advisories are issued for mercury for these waters. The Virginia Department of Health (VDH) level of concern is 0.5 ppm. Please visit http://www.deq.virginia.gov/info/mercury.html for more information about mercury contamination and http://www.vdh.virginia.gov/environmental-epidemiology/public-health-toxicology/fish-consumption-advisories/ for VDH Advisories or Bans.

4BARA035.07 (Rt. 739 Bridge near VA/NC State Line)- 2007 fish tissue analysis finds mercury (Hg) exceeds the WQS based tissue value (TV) of 0.30 ppm in 3 species; yellow bullhead catfish (1 fish 27.7 cm) at 0.495 ppm; white sucker (4 fish composite 31.0-39.1 cm) at 0.369 ppm; and 2 groups of redhorse sucker (6 fish composite 36.5 - 38.6 cm) at 0.535 ppm and (7 fish composite 28.5 - 34.6 cm) at 0.412 ppm. A 2002 golden redhorse sucker collection (4 fish 25.7-34.3 cm) exceeds the WQS TV at 0.35 ppm.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_ARA01A00 / Ararat River / Ararat River mainstem from the VA/NC State Line upstream to the Rt. 823 crossing Class IV sec. 1 PWS (YA03).	5A	Mercury in Fish Tissue	2010	L	6.13

Ararat River **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Mercury in Fish Tissue - Total Impaired Size by Water Type:			**6.13**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M03R-01-TEMP** **Johnson Creek**

Cause Location: Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V.

City / County: Carroll Co. Patrick Co.

Use(s): Aquatic Life

Cause(s) / VA Category: Temperature / 5C

4BJOH004.45 (Rt. 672 Bridge, Johnson Creek Rd.) There are no new data within the 2018 or 2016 data windows. The 2014 assessment finds 2 of 12 temperature measurements exceed the Class V stockable trout criterion of 21°C. Exceedances occur on 6/29/2011 at 21.5°C and 7/31/2012 at 22.3°C. There are no additional data within the 2012 data window. Both the 2008 and 2010 assessments find 2 of 9 temperature measurements exceed the Class V stockable trout criterion of 21°C. Exceedances occur on 8/24/2005 at 21.6°C and 8/30/2006 at 22.8°C.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_JOH01A02 / Johnson Creek / Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V sec. 1 PWS (YA04).	5C	Temperature	2008	L	9.15

Johnson Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Temperature - Total Impaired Size by Water Type:			**9.15**

Sources:

Source Unknown

Fact Sheets for Impaired (Category 4 or 5) Waters in 2018

Roanoke and Yadkin River Basins

***Cause Group Code:* M03R-02-BAC** **Johnson Creek**

Cause Location: Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V.

City / County: Carroll Co. Patrick Co.

Use(s): Recreation

Cause(s) / VA Category: Escherichia coli (E. coli) / 5A

This 2014 initial 303(d) Listing results in impairment of the Recreational Use.

4BJOH004.45 (Rt. 672 Bridge, Johnson Creek Rd.) There is no additional data within the 2018 or 2016 data windows. The 2014 assessment finds 2 escherichia coli (E.coli) observations exceed the WQS 235 cfu/100 ml instantaneous criterion from 12 observations at 350 and 475 cfu/100 ml.

Assessment Unit / Water Name / Location Desc.	Cause Category	Cause Name	Cycle First Listed	TMDL Dev. Priority	Water Size
VAW-M03R_JOH01A02 / Johnson Creek / Johnson Creek mainstem from the VA / NC State Line upstream to its headwaters Class V sec. 1 PWS (YA04).	5A	Escherichia coli (E. coli)	2014	H	9.15

Johnson Creek **Recreation**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Escherichia coli (E. coli) - Total Impaired Size by Water Type:			**9.15**

Sources:

- Livestock (Grazing or Feeding Operations)
- On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)
- Unspecified Domestic Waste
- Wet Weather Discharges (Non-Point Source)
- Wildlife Other than Waterfowl