



2012 Impaired Waters

Category 4 & 5 by 2012 Impaired Area ID*

New River Basin

Cause Group Code: **N18R-01-BAC - Crab Creek**

Location:	The upstream limit is the Crab Creek headwaters on the Ironto Quad. The downstream limit is at the Crab Creek mouth on the New River about 1.5 mi upstream of the Rt. 114 Bridge and downstream of Radford, Virginia (Riner, Blacksburg and Radford North Quads).
City/County	Montgomery Co.
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 4A

The Crab Creek Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved on 8/10/2004 [Fed ID 18594 / 23405] and SWCB approved 12/02/2004 (formerly VAW-N18R-01). The waters are initially 303(d) Listed with the 2002 Assessment for fecal coliform (FC) bacteria causing non-support of the Recreational Use for 12.01 miles. The TMDL 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].

9-CBC009.81 (Rt. 111 Bridge) There are no additional data beyond the 2008 IR where the 2010 data window finds four of 15 E.coli samples exceed the 235 cfu/100 ml instantaneous criterion. Exceedances range from 250 to greater than 2000 cfu/100 ml. Three non-exceeding E.coli observations remain within the 2012 data window. The 2008 assessment finds six of 18 E.coli samples exceed the instantaneous criterion and six of 15 exceed in 2006. The range of exceeding values is from 400 to greater than 2000 cfu/100 ml in 2008 and 2006.

9-CBC006.35 (Rt. 661 Bridge) Both the 2012 and 2010 data windows find four of 12 E.coli samples exceeding the instantaneous criterion. The range of exceedance is from 380 to 950 cfu/100 ml. E.coli data within the 2008 data window are three of six exceeding values. The 2006 assessment reports E.coli exceeds the WQS instantaneous criterion of 235 cfu/100 ml in eight of 16 observations. Exceeding values range from 250 to >800 cfu/100 ml. This station is located upstream of the former Christiansburg outfall.

9-CBC004.38 (Rt. 660 Bridge) There are no additional data beyond the 2010 data window. Five of 15 remaining Escherichia coli (E.coli) observations exceed the 235 cfu/100 ml instantaneous criterion ranging from 250 to 1200 cfu/100 ml. Data within the 2010 data window find exceedances ranging from 250 to 1200 cfu/100 ml in 14 of 35 observations. E.coli exceeds the 235 cfu/100 ml WQS instantaneous criterion in 16 of 33 observations within the 2008 data window. Exceeding values range from 280 to greater than 800 cfu/100 ml. 2006 E.coli results find 22 of 40 observations in excess of the instantaneous criterion and the same range of exceedance.

9-CBC001.00 (Route 663 Bridge near Walton) There are no additional data beyond the 2010 data window. Two of 15 remaining E.coli observations exceed the instantaneous criterion at 250 and 1300 cfu/100 ml. 2010 values exceeding the instantaneous criterion range from 250 to 1300 cfu/100 ml in 10 of 35 samples. Nine of 27 E.coli samples exceed the instantaneous criterion ranging from 260 to greater than 800 cfu/100 ml in 2008. The 2006 Integrated Report (IR) finds nine of 23 E.coli samples exceed the instantaneous criterion. The range of exceeding values is the same as in 2008.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAW-N18R_CBC01A00	Crab Creek	This section of the mainstem Crab Creek extends from its mouth on the New River on upstream of the Walton community.	4A	Escherichia coli	2004	2010	2.14
VAW-N18R_CBC02A00	Crab Creek	These mainstem waters of Crab Creek extend from upstream of the Walton community to upstream of the Vicker community. The end of the WQS public water supply (PWS) designation.	4A	Escherichia coli	2004	2010	1.15
		These waters are the Crab Creek mainstem from					

VAW-N18R_CBC03A00	Crab Creek	upstream of the Vicker community on upstream to the former Christiansburg STP outfall on Crab Creek.	4A	Escherichia coli	2004	2010	1.03
VAW-N18R_CBC04A00	Crab Creek	These mainstem waters extend from the former Christiansburg STP outfall upstream to Crab Creek's headwaters.	4A	Escherichia coli	2004	2010	7.69

Crab Creek

Estuary (sq. miles)	Reservoir (acres)	River (miles)
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Impaired area ID: **VAW-N18R-01**

Escherichia coli / 4A

Total impaired size by water type:

12.01

Recreation**Sources:**

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

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



2012 Impaired Waters

Category 4 & 5 by 2012 Impaired Area ID*

New River Basin

Cause Group Code: **N18R-01-BEN - Crab Creek**

Location:	The upstream limit is the Crab Creek headwaters on the Ironto Quad. The downstream limit is at the Crab Creek mouth on the New River about 1.5 mi upstream of the Rt. 114 Bridge and downstream of Radford, Virginia (Riner, Blacksburg and Radford North Quads).
City/County	Montgomery Co.
Use(s):	Aquatic Life
Cause(s) / VA Category:	Benthic-Macroinvertebrate Bioassessments / 4A

The 1996 303(d) Listing of the Crab Creek General Standard (Benthic) Total Maximum Daily Load (TMDL) is U.S. EPA approved 8/10/2004 [Sediment- Fed ID 18595 / 23406]. The SWCB approved the TMDL on 12/02/2004 (formerly VAW-N18R-01). The TMDL identifies sediment to be the primary stressor, with organic matter and nutrient enrichment as additional stressors. The waters remain impaired for the aquatic life use for 12.01 miles.

Natural seasonal effects are noted at the sites below. Pollution tolerant families are dominant in both seasons, the midge family Chironomidae in spring and the caddisfly family Hydropsychidae in fall. Beginning in spring 2002, Toms Creek was determined to be a more suitable ecoregion reference site because of similarity in size and watershed characteristics than the previous reference site (Sinking Creek, 9-SNK012.06). Agricultural and urban NPS runoff impact Crab Creek. Habitat impacts to this reach result in fine sediment deposition causing stream substrates to become embedded from bank erosion, altered hydrology, and degraded riparian buffers due to residences, roads, and railroad tracks. An apparent nutrient rich environment all contribute to the benthic impairment.

9-CBC006.35- Bio 'IM'; Two 2008 Virginia Stream Condition Index (VSCI) surveys with an average score of 39.36 are within the 2012 data window. Three VSCI surveys (2003 & 2008 result in an average VSCI score of 43.33 are within the 2010 data window. Moderately pollution tolerant to pollution tolerant organisms (oligochaetes, chironomidae, hydropsychidae, and elmidae) are dominant in both seasons. Habitat impacts to this reach result in fine sediment deposition that causes stream substrates to become embedded, altered hydrology, and degraded riparian buffers due to roads. The 2008 IR reports five RBP II surveys scoring- 2000 spring 47.83, fall- 34.78; 2002 spring- 52.17, fall- 59.09 and 2003 spring- 65.22. Seasonal 5 year Spring score 55.07 and Fall score 46.94.

9-CBC004.38- Bio 'IM'; Two 2008 VSCI surveys lie within the 2012 data window with an average score of 53.03. The 2010 data window finds three VSCI surveys (2003 & 2008) with an average score of 52.28 are produced within the 2010 data window. There is some difference in the biological condition scores between seasons. Fall samples showed an increase of %mayflies over the spring samples. Agricultural and urban NPS runoff impact Crab Creek. Habitat impacts to this reach result in fine sediment deposition that causes stream substrates to become embedded, bank erosion from altered hydrology, and degraded riparian buffers due to pastures, railroad tracks, and the Christiansburg STP. Five RBP II surveys scoring- 2000 spring- 39.13, fall- 34.78; 2002 spring- 65.22, fall- 59.09 and 2003 spring- 69.57. Seasonal 5 year Spring score 57.97; Fall score 46.94 are reported in the 2008 IR.

9-CBC001.00- Bio 'IM' The 2012 data window finds an average score of 55.04 from two surveys (2008). The 2010 IR finds impairment remains from three VSCI surveys (2003 & 2008) with an average score of 60.0. The moderately pollution tolerant midge family Chironomidae is dominant in both seasons. Impacts to the benthos and stream habitat are the same as noted at 9-CBC004.38. The 2008 IR reports three VSCI surveys (2002-2003) with an average score of 58.43. Pollution tolerant families are dominant in spring and fall, the midge family Chironomidae in spring and the caddisfly family Hydropsychidae in fall. Impacts to the benthic community and stream habitat are the same as noted at 9-CBC004.38.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAW-N18R_CBC01A00	Crab Creek	This section of the mainstem Crab Creek extends from its mouth on the New River on upstream of the Walton	4A	Benthic-Macroinvertebrate	1996	2010	2.14

		community.		Bioassessments			
VAW-N18R_CBC02A00	Crab Creek	These mainstem waters of Crab Creek extend from upstream of the Walton community to upstream of the Vicker community. The end of the WQS public water supply (PWS) designation.	4A	Benthic-Macroinvertebrate Bioassessments	1996	2010	1.15
VAW-N18R_CBC03A00	Crab Creek	These waters are the Crab Creek mainstem from upstream of the Vicker community on upstream to the former Christiansburg STP outfall on Crab Creek.	4A	Benthic-Macroinvertebrate Bioassessments	1996	2010	1.03
VAW-N18R_CBC04A00	Crab Creek	These mainstem waters extend from the former Christiansburg STP outfall upstream to Crab Creek's headwaters.	4A	Benthic-Macroinvertebrate Bioassessments	1996	2010	7.69

Crab Creek

Estuary (sq. miles)	Reservoir (acres)	River (miles)
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Impaired area ID: VAW-N18R-01Benthic-Macroinvertebrate Bioassessments / 4A
Total impaired size by water type:

12.01

Aquatic Life**Sources:**

- Discharges from Municipal Separate Storm Sewer Systems (MS4)
- Loss of Riparian Habitat
- Municipal (Urbanized High Density Area)
- Post-development Erosion and Sedimentation
- Sediment Resuspension (Clean Sediment)
- Sediment Resuspension (Contaminated Sediment)
- Streambank Modifications/destabilization

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



2012 Impaired Waters

Category 4 & 5 by 2012 Impaired Area ID*

New River Basin

Cause Group Code: **N18R-02-BAC - Connellys Run**

Location:	Bacteria impairment begins near the headwaters of Connellys Run at an unnamed tributary (37°07'04" / 80°32'16") downstream to its mouth on the New River.
City/County	Radford City
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 5A

Fecal coliform (FC) bacteria excursions of the former WQS 400 cfu/100 ml instantaneous criterion cause non-support of the Recreational Use for 2.75 miles. The impairment for the 2004 303(d) Listed water remains. 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].

9-CNL000.01 (Bissett Park Bridge, Radford) 2012 and 2010 E.coli data exceed the 235 cfu/100 ml instantaneous criterion in four of 12 samples. Excessive values range from 260 to 1260 cfu/100 ml. The 2006 assessment finds FC exceedances of the former WQS instantaneous criterion of 400 cfu/100 ml in three of 11 observations. The range of excursions is from 500 to 1900 cfu/100 ml. The initial 2004 303(d) Listing is based on FC exceedances of the former WQS instantaneous criterion of 400 cfu/100 ml in three of nine observations with the range of exceedance the same as 2006.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAW-N18R_CNL01A02	Connellys Run	Connellys Run from an unnamed tributary @37°07'23" / 80°33'21"; 1.57 miles upstream of the Connellys Run mouth downstream to its confluence on the New River.	5A	Escherichia coli	2010	2016	1.56
VAW-N18R_CNL02A02	Connellys Run	Connellys Run from near Rt. 611 @37°07'04" / 80°32'16"; 2.76 miles upstream of Connellys Run mouth downstream to the confluence of an unnamed tributary @37°07'23" / 80°33'21"; 1.57 miles upstream of the Connellys Run mouth on the New River.	5A	Escherichia coli	2010	2016	1.19

Connellys Run

Estuary (sq. miles) **Reservoir (acres)** **River (miles)**

Impaired area ID: VAW-N18R-01

Escherichia coli / 5A

Total impaired size by water type:

2.75

Recreation

Sources:

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

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the

impairment.



2012 Impaired Waters

Category 4 & 5 by 2012 Impaired Area ID*

New River Basin

Cause Group Code: **N18R-03-BAC - Plum Creek**

Location:	The upstream limit is the headwaters of Plum Creek extending downstream to its mouth on the New River.
City/County	Montgomery Co.
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 5A

This 2004 303(d) Listed water extends for 4.51 miles on Plum Creek. The original Listing basis is two of nine fecal coliform observations exceeding the former 400 cfu/100 ml instantaneous criterion. 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].

9-PLM000.60 (Rt. 11 just above the mouth of Plum Creek) There are no additional data beyond the 2010 IR. Both the 2012 and 2010 assessments find Escherichia coli (E.coli) exceeds the WQS 235 cfu/100 ml instantaneous criterion in four of 12 observations. Values in excess of the instantaneous criterion range from 240 to 1020 cfu/100 ml. Fecal coliform (FC) exceeds the former WQS 400 cfu/100 ml instantaneous criterion in two of 11 observations in 2006 and 2008. Values in excess of the former standard are 1100 and 1500 cfu/100 ml.

9PLM-2-NCNR (Plum Cr. Rd. Bridge Off Rt. 11) The 2012 assessment finds full support from E.coli results where no exceedances are recorded from 11 samples. This station is located near the headwaters of Plum Cr. The maximum E.coli result is 225 cfu/100 ml.

Additional data needed to determine the listing status (impaired/not impaired) of these waters in subsequent assessment cycles.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAW-N18R_PLM01A00	Plum Creek	Plum Creek mainstem from its confluence with the New River upstream to the second Rt. 11 crossing of Plum Creek; end of the WQS public water supply (PWS) designation @37°07'44" / 80°30'22".	5A	Escherichia coli	2010	2016	1.72
VAW-N18R_PLM02A02	Plum Creek	Plum Creek mainstem from the second Rt. 11 crossing of Plum Creek; end of the WQS public water supply (PWS) designation @37°07'44" / 80°30'22" upstream to its headwaters.	5A	Escherichia coli	2010	2016	2.85

Plum Creek

Estuary (sq. miles) **Reservoir (acres)** **River (miles)**

Impaired area ID: VAW-N18R-01

Escherichia coli / 5A

Total impaired size by water type:

4.57

Recreation

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

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.



2012 Impaired Waters

Category 4 & 5 by 2012 Impaired Area ID*

New River Basin

Cause Group Code: **N29R-01-PCB - New River, Claytor Lake, Peak Creek, Reed Creek and Stony Creek**

Location:	The impairment begins at the I-77 bridge crossing the New River and extends downstream to the VA/WV State Line and includes the tributaries Peak Creek and Reed Creek and Stony Creek as described below.
City/County	Giles Co., Montgomery Co., Pulaski Co., Radford City, Wythe Co.
Use(s):	Fish Consumption
Cause(s) / VA Category:	PCB in Fish Tissue / 5A

The Virginia Department of Health (VDH) issued a fish consumption advisory on August 6, 2001 for polychlorinated biphenyls (PCBs) for the lower portion of the New River (Rt. 114 Bridge downstream to the VA / WV State Line - 52.0 miles) based on fish tissue collections from Carp. An Advisory extension to Claytor dam was issued 8/06/2003 (11.47 miles) recommends that no carp be consumed in these waters and no more than two meals per month of flathead and channel catfish. The VDH PCB Fish Consumption Advisory was further extended upstream on the New River (13 miles) to the I-77 Bridge to include the lower portions of Peak Creek (4.02 miles), Reed Creek (16.35 miles) and Claytor Lake (4,287 acres) on 12/02/2004. The VDH advises consumption should not exceed two meals per month for carp and smallmouth bass. The VDH level of concern is 50 parts per billion (ppb) in fish tissue.

There are eight fish tissue collection sites within the 2010 data window reporting exceedances of the WQS based 20 ppb fish tissue value (TV) (VDH 50 ppb). These data 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/>. The VDH Advisory information is also available via the web at <http://www.vdh.virginia.gov/Epidemiology/PublicHealthToxicology/Advisories/>.

9-SNC000.20- 2004 fish tissue finds with application of the new WQS TV for PCB (20 ppb) the addition of 3 species exceeding the new TV criterion. Rock Bass (size 16-20 cm) at 25.21, SM Bass (size 28.6-30.5 cm) at 22.13 and White sucker (1 fish) at 30.08 ppb. Stony Creek is therefore a 2010 addition based on the new WQS PCB tissue value of 20 ppb.

Station 9-RDC009.00 exceeded the DEQ screening value for PCBs in a carp sample.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAW-N18R_NEW01A00	New River	New River mainstem from the Watershed boundary, Crab Creek mouth, upstream to approximately one mile downstream of the Rt. 11 Bridge; end of the WQS public water supply (PWS) section.	5A	PCB in Fish Tissue	2006	2018	3.26
VAW-N18R_NEW02A00	New River	New River mainstem from approximately one mile downstream of the Rt. 11 Bridge upstream to the Radford City intake.	5A	PCB in Fish Tissue	2006	2018	3.72
VAW-N18R_NEW03A00	New River	New River mainstem from the City of Radford water intake upstream to the confluence of Little River.	5A	PCB in Fish Tissue	2006	2018	2.11
VAW-N18R_NEW04A00	New River	New River mainstem waters from the mouth of Little River upstream to Claytor Dam.	5A	PCB in Fish Tissue	2006	2018	0.65

New River, Claytor Lake, Peak Creek, Reed Creek and Stony Creek

Estuary (sq. miles) Reservoir (acres) River (miles)

PCB in Fish Tissue / 5A

Total impaired size by water type:

9.74

Impaired area ID: VAW-N18R-01

Fish Consumption

Sources:

- Source Unknown

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.

