

Virginia Department of Environmental Quality
Draft 2018 Water Quality Integrated Report
Public Comment – Response Document

Comments received
January 22, 2019 to February 21, 2019

Table of Contents

Comments from EPA Region III.....	2
DEQ Response.....	6
Comments from Virginia Association of Municipal Wastewater Agencies (VAMWA)	13
DEQ Response.....	16
Comments from the Chesapeake Bay Foundation.....	17
DEQ Response.....	21
Comments from John Burke, Montgomery County, VA.....	22
DEQ Response.....	24
Comments from Earthjustice, Potomac Riverkeeper Network and Potomac River Smallmouth Club.....	25
DEQ Response.....	36

Comments from EPA Region III



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Ms. Sandra Mueller
Office of Water Monitoring and Assessment
Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218-1105

FEB 21 2019

Dear Ms. Mueller:

Thank you for the opportunity to review the Virginia Department of Environmental Quality's (VADEQ) *Draft 2018 305(b)/303(d) Water Quality Assessment Integrated Report (IR)*. The U.S. Environmental Protection Agency (EPA) is providing comments related to specific impaired waterbody segments and category descriptions in the enclosure. EPA has also outlined additional general comments below.

EPA acknowledges that VADEQ has undertaken monitoring and taken other steps towards developing a field method to measure and assess filamentous algae in response to public concerns regarding whether there is excess algae in the Shenandoah River. EPA anticipates VADEQ will continue efforts to develop and finalize a benthic chlorophyll a impairment threshold to evaluate algal impacts to applicable designated uses.

EPA encourages VADEQ to evaluate whether any surface waters are not meeting public water supply use and/or any applicable narrative criteria due to negative drinking water impacts from elevated nutrient levels (e.g., nitrates) and/or associated taste and odor issues. States have discretion to list waters as impaired for public water supply use where additional treatment beyond conventional treatment is required. EPA encourages VADEQ to consider implementing this practice, as it further supports drinking water source protection. EPA also suggests that VADEQ contact drinking water utilities that withdraw surface water as potential sources of water quality monitoring data.

EPA appreciates the continued cooperation from VADEQ staff in evaluating the water quality issues in the Commonwealth. If you have any questions, please feel free to contact Irene Shandruk at shandruk.irene@epa.gov or (215) 814-2166.

Sincerely,

A handwritten signature in blue ink that reads "Evelyn S. MacKnight".

Evelyn S. MacKnight, Associate Director
Office of Standards, Assessment and TMDLs

Enclosure

2018 Impaired Waters – 303(d) List (IR Appendix 1a)

- 1) A09R-02-BEN Broad Run 2008 river miles changed from 1.42 to 3.69. Please explain.
- 2) A09R-03-BAC Broad Run river miles changed from 1.42 to 3.69. Please explain.
- 3) A27R-01-BAC Aquia Creek was removed. Please explain.
- 4) A33R-07-BAC XMC-Lodge Creek, UT removed. Please explain.
- 5) B35R-02-BAC Quail Run Fecal Coliform and E. coli 5.12 river miles (listed 2004 and 2008) was removed. Correct?
- 6) G10R-04-BAC Unnamed tributary to Mill Creek was removed. Please explain.
- 7) G14R-02-BAC Carbell Swamp-Lower was removed. Please explain.
- 8) I33R-01-BAC Cedar Grove Branch was removed. Please explain.
- 9) I36R-06-BAC South River was removed. Please explain.
- 10) I37R-03-BAC Poague Run was removed. Please explain.
- 11) E20R-03-PH Massaponax Creek was removed. Please explain.
- 12) E23R-04-DO Hoskins Creek was removed. Please explain.
- 13) L19R-01-HG Roanoke (Staunton) River, Cub Creek, Kerr Reservoir river miles changed from 102.09 to 97.39. Please explain.
- 14) L21R-02-BEN Bore Auger Creek river miles changed from 9.56 to 5.73. Please explain.
- 15) L26R-01-BEN Little Otter River was removed. Please explain.
- 16) L26R-02-BEN Johns Creek was removed. Please explain.
- 17) L26R-03-BEN Wells Creek was removed. Please explain.
- 18) L76R-01-BAC Little Buffalo Creek was removed. Please explain.
- 19) K13R-04-BAC Flat Swamp was removed. Please explain.
- 20) K21R-03-HG Stony Creek river miles changed from 8.35 to 2.60. Please explain.
- 21) K30R-04-BAC Nottoway River-Upper was removed. Please explain.
- 22) K36R-06-BAC Blackwater River-Lower Middle was removed. Please explain.
- 23) K38R-04-BAC: 2016 303(d) names this "Unsegmented river in K38R" but 2018 it is named Jones Swamp. Also, river miles changed from 1.80 to 3.80. Please explain.
- 24) Q03R-03-BAC Pawpaw Creek and Jacobs Fork river miles changed from 6.57 to 4.23. Please explain.
- 25) Q09R-01-BAC Russel Fork, segment listed in 2016 with river miles 4.12 was removed but there was a segment listed in 2018 with river miles 4.55. Please explain.
- 26) Q13R-07-BEN Bear Pen Branch was removed. Please explain.
- 27) C07E-38-SF Bennett Creek-Upper (DSS_06-IR) was removed. Please explain.
- 28) C11E-15-SF Matchotank Creek-Upper was removed. Please explain.
- 29) F10R-01-BAC Little River was removed. Please explain.
- 30) F10R-02-BAC Little River was removed. Please explain.
- 31) F10R-03-BAC Long Creek was removed. Please explain.
- 32) F13R-14-PH Mehixen Creek and tributary XIV river miles changed from 6.44 to 2.05. Please explain.
- 33) F14E-05-EBEN Pamunkey River estuary square miles changed from 5.272 to 0.113. Please explain.
- 34) F15R-02-DO Lewis Run was removed. Please explain.
- 35) N33R-01-BAC in 2016 IR is called Laurel Creek, but in 2018 IR is called Dry Fork. Which is correct?

Attachment 1: EPA comments on VA draft 2018 Integrated Report

Other

36) VA's description of category 5R reads: ***Va. Category 5R - the Water Quality Standard is not attained and the water is impaired, and implementation of an EPA-approved restoration plan is expected to result in attainment. A status update will be provided each 303(d) cycle to evaluate progress.***

It should be changed to read: ***Va. Category 5R - the Water Quality Standard is not attained and the water is impaired, and implementation of an EPA-accepted restoration plan is expected to result in attainment. A status update will be provided each 303(d) cycle to evaluate progress.***

DEQ Response to EPA Region III

1-35)

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
1	NRO	A09-02-BEN	Broad Run	2008 river miles changed from 1.42 to 3.69. Please explain.	No	The assessment is based on DEQ ambient water quality monitoring station 1aBRB015.38 at Route 621 and biological monitoring station 1aBRB015.43, upstream from Route 621, and Citizen monitoring station 1aBRB-NFBR1-SOS. In 2018, the segment was extended upstream to the perennial headwaters accounting for the stream hydrology and recognizing the similar land-uses in the headwaters.
2	NRO	A09-03-BAC	Broad Run	River miles changed from 1.42 to 3.69. Please explain.	No	The assessment is based on DEQ ambient water quality monitoring station 1aBRB015.38 at Route 621 and biological monitoring station 1aBRB015.43, upstream from Route 621, and Citizen monitoring station 1aBRB-NFBR1-SOS. In 2018, the segment was extended upstream to the perennial headwaters accounting for the stream hydrology and recognizing the similar land-uses in the headwaters.
3	NRO	A27R-01-BAC	Aquia Creek	Removed. Please explain.	Yes	Delist Package submitted with Draft 2018 IR: DELIST 2018 - E. coli - A27R-01-BAC, VAN-A27R-01 (CFL 2004) During the 2016 cycle, this segment was assessed as not supporting the recreation use because of excursions from the maximum E. coli bacteria criterion (4 of 32 samples - 12.5%) recorded at DEQ ambient water quality monitoring station 1aAUA014.51 at Route 641. Bacteria monitoring at this location for the 2018 cycle found that 3 of 32 samples (9.4%) exceed the maximum E. coli bacteria criterion. It has been determined that this segment should be delisted for E. coli based on an acceptable exceedance rate.
4	PRO	A33R-07-BAC	Lodge Creek, UT	Removed. Please explain.	No	TMDL Approved or established by EPA (4a). The CGC was not removed and remains impaired. The waterbody was simply renamed "XMC - Lodge Creek, UT" to add clarification. It was proposed for nesting (see Cause Comment Field.)

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
5	VRO	B35R-02-BAC	Quail Run	Fecal Coliform and E. coli 5.12 river miles (listed 2004 and 2008) was removed. Correct?	Yes	2018 Delist Statement Submitted with Draft 2018 IR: PARTIAL DELIST 2018 - Bacteria - 5.14 Miles - B35R-02-BAC (2004) This section of Quail Run was originally listed on the 303(d) list for exceeding the State's water quality standard for fecal coliform bacteria during the 2004 assessment period. During the 2004 assessment period 3 of 20 samples (15%) at station 1BQAL004.30 violated the State's water quality standard for fecal coliform bacteria. Data assessed during the 2018 assessment period show 0 exceedences of 6 samples (0.00%) for e-coli bacteria at station 1BQAL004.30. Table 9 Additionally, data pro-actively looking forward confirms continuing support (0 exceedences of 7 (0.00%) samples for e-coli) at this station. With this station indicating improvement in water quality below the 10.5% exceedence rate, the e-coli bacteria impairment on this portion of Quail Run should be shortened by 5.14 miles and this portion of Quail Run removed from the 303(d) list. The upstream remaining impairment length is 1.46 miles.
6	TRO	G10R-04-BAC	Unnamed tributary to Mill Creek	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
7	TRO	G14R-02-BAC	Carbell Swamp-Lower	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
8	VRO	I33R-01-BAC	Cedar Grove Branch	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
9	VRO	I36R-06-BAC	South River	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
10	VRO	I37R-03-BAC	Poague Run	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
11	NRO	E20R-03-PH	Massaponax Creek	Removed. Please explain.	Yes	Delist Package submitted with Draft 2018 IR: PARTIAL DELIST 2018 - pH - E20R-03-PH, 60115 (CFL 2006) During the 2012 through 2016 cycles, this segment was assessed as not supporting the aquatic life use because of excursions less than the lower limit of the pH criterion range (3 of 27 samples - 11.1%) at Route 1 (3-MAP007.97). Additional monitoring conducted at this location found a total of 0 of 23 samples (0.0%) less than the lower limit of the pH criterion range. It has been determined that this segment should be delisted for pH based on an acceptable excursion rate.
12	PRO	E23R-04-DO	Hoskins Creek	Removed. Please explain.	Yes	The Hoskins Creek watershed was reclassified as Class VII swampwater in Virginia's EPA-approved water quality standards regulations during the 2018 cycle. Per Virginia's Water Quality Standards (9VAC25-260-50), numeric dissolved oxygen standards only apply to Class VII waters when there is sufficient evidence the narrative criterion is not protective of aquatic life uses. To date, this Class VII water has not exhibited a need for a site-specific DO criterion, so the dissolved oxygen impairment has been removed.
13	BRRO	L19R-01-HG	Roanoke (Staunton) River, Cub Creek, Kerr Reservoir	Miles changed from 102.09 to 97.39. Please explain.	No	BRRO split off part of an AU to form VAW-L30R_ROA07A18 (4.71 miles) and did not appropriately report the CGC in the Draft Report. It is now fixed for the final.
14	BRRO	L21R-02-BEN	Bore Auger Creek	Miles changed from 9.56 to 5.73. Please explain.	Yes	Partial Delist. Please see delist package for Bore Auger Creek.
15	BRRO	L26R-01-BEN	Little Otter River	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
16	BRRO	L26R-02-BEN	Johns Creek	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
17	BRRO	L26R-03-BEN	Wells Creek	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
18	BRRO	L76R-01-BAC	Little Buffalo Creek	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
19	TRO	K13R-04-BAC	Flat Swamp	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
20	PRO	K21R-03-HG	Stony Creek	River miles changed from 8.35 to 2.60. Please explain.	No	Length should be 8.36. Two AUs were merged in the 2018 cycle.
21	TRO	K30R-04-BAC	Nottoway River-Upper	Removed. Please explain.	No	K30R-02-BAC submitted for delisting incorrect ID - CGC being delisted should be K30R-04-BAC.
22	TRO	K36R-06-BAC	Blackwater River-Lower Middle	Removed. Please explain.	No	2018 IR - Merged AU VAT-K36R_BLW04D14 into VAT-K36R_BLW04C12. VAT-K36R_BLW04D14 was associated with this CGC bacteria impairment. Now this segment is associated with VAT-K36R_BLW04C12 and CGC K36R-02-BAC.
23	TRO	K38R-04-BAC		2016 303 (d) names this "Unsegmented river in K38R" but 2018 it is names Jones Swamp. Also, river miles changed from 1.80 to 3.80. Please explain.	No	Error in the 2016 Fact Sheet, ADB held correct listing. The 2018 Fact Sheet is correct. This CGC has been associated with VAT-K38R_JNS01A14 since 2014. Segment was split from 84.25 miles in 2014. In 2012 this water was included in VAT-K38R_ZZZ01A00 Category 3A. Size was increased to better align with Jones Creek Water Quality Standards (June 5, 2017).
24	SWRO	Q03R-03-BAC	Pawpaw Creek and Jacobs Fork	River miles changed from 6.57 to 4.23. Please explain.	No	VAS-Q01R_JBF01A10 (2.34 miles) was split off this CGC and is now Q01R-02-BAC.

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
25	SWRO	Q09R-01-BAC	Russel Fork	Segment listed in 2016 with river miles 4.12 was removed but there was a segment listed in 2018 with river miles 4.55. Please explain.	Yes	VAS-Q10R_RSS02A00 2018 Delist Statement submitted with Draft 2018 IR: DELIST 2018 - E.coli - Q09R-01-BAC (2016) AWQM station at 6ARSS026.98; no impairments were detected; this is same location as 6ARSS-RT722-MRRP. At 6ARSS-BRTLY-MRRP, Level III bacteria detected no WQS exceedence.VAS-Q09R_SLV01A08 (1.62 miles) and VAS-Q10R_LPP01A18 (2.93 miles) were added to this CGC.
26	SWRO	Q13R-07-BEN	Bear Pen Branch	Removed. Please explain.	Yes	2018 Delist Statement submitted with Draft 2018 IR: DELIST 2018 - Benthic Macroinvertebrates - Q13R-07-BEN (2010) VSCI at 6ABEP000.08: 03/08/2016 61.78 11/22/2016 77.89
27	TRO	C07E-38-SF	Bennett Creek-Upper (DSS_06-IR)	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
28	TRO	C11E-15-SF	Matchotank Creek-Upper	Removed. Please explain.	Yes	2018 Delist Statement Submitted with Draft 2018 IR: The shellfish use is now supporting based on an OPEN SF designation for GA # 080-169. The shellfish use is delisted in the 2018 IR.The DSS shellfish direct harvesting condemnation # 080-169 A (effective 20071219) was previously restricted. Previous Use ID (2006 IR) as TMDL ID: VAT-C11E-15. No TMDL. TMDL due date is 2018.
29	NRO	F10R-01-BAC	Little River	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
30	NRO	F10R-02-BAC	Little River	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
31	NRO	F10R-03-BAC	Long Creek	Removed. Please explain.	No	TMDL Approved or established by EPA (4a)
32	PRO	F13R-14-PH	Mehixen Creek and tributary XIV	River miles changed from 6.44 to 2.05. Please explain.	Yes	<p>As stated in the fact sheet: "During the 2012 cycle, Mehixen Creek and its tributary XIV were impaired of the Aquatic Life Use due to pH violation rates of 4/11 at stations 8-MHX001.50 and 8-XIV000.88, which are both located at Rt. 652.</p> <p>A Natural Conditions Assessment was completed during the 2014 cycle. The exceedances were attributed to natural swampwater conditions and the report recommends that the watershed be reclassified as Class VII swampwater. However, the slopes and nutrients were slightly above the current protocol, so the watershed remained Category 5C.</p> <p>Additional monitoring was conducted in the 2018 cycle at 8-MHX001.50. The exceedance rate was acceptable (1/11); therefore, the Mehixen Creek mainstem will be partially delisted. XIV will remain impaired until monitoring at 8-XIV000.88 can be conducted."</p>
33	PRO	F14E-05-EBEN	Pamunkey River	Estuary square miles changed from 5.272 to 0.113. Please explain.	Yes	<p>As stated in the fact sheet: "The oligohaline Pamunkey River mainstem initially failed the Chesapeake Bay Index of Biologic Integrity during the 2010 cycle. The impairment continued during the 2014 cycle.</p> <p>In addition, a 2012 weight-of-evidence analysis at estuarine probabilistic monitoring station 8-PMK017.90 showed benthic alteration probably caused by metals in sediment (Category 5A).</p> <p>The mainstem met the B-IBI criteria in the 2018 cycle. However, due to the 2012 WOE sample the portion of the mainstem around the station will remain listed. Continued monitoring is recommended. The remaining Pamunkey mainstem will be partially delisted."</p>

No.	Region	Cause Group Code	Water Name	EPA Comment	Waterbody Delist Submitted?	Regional Response
34	NRO	F15R-02-DO	Lewis Run	Removed. Please explain.	Yes	<p>Delist Package submitted with Draft 2018 IR: DELIST 2018 - Dissolved Oxygen - F15R-02-DO, VAN-F15R-02 (CFL 2012)</p> <p>During the 2014 cycle, this segment was assessed as not supporting the aquatic life use due to sufficient excursions less than the minimum dissolved oxygen criterion (6 of 33 samples - 18.2%) at NPS station 8LWS-01-NPS. During the 2016 cycle, additional monitoring resulted in this segment being assessed as not supporting the aquatic life use due to sufficient excursions less than the minimum dissolved oxygen criterion (7 of 52 samples - 13.5%) at NPS station 8LWS-01-NPS. During the 2016 cycle, there were also dissolved oxygen data collected for this segment at NPS station 8LWS-03-NPS (2 of 51 samples - 3.9%). Pooling the 2016 cycle data for the segment would have resulted in a total of 9 out of 103 samples (8.7%) less than the minimum dissolved oxygen criterion. This segment qualified for delisting for the dissolved oxygen parameter during the 2016 cycle due to an acceptable exceedance rate, but was erroneously excluded. During the 2018 cycle, dissolved oxygen sampling at stations 8LWS-01-NPS and 8LWS-03-NPS resulted in a pooled total of 6 out of 87 samples (6.9%) less than the minimum dissolved oxygen criterion. It has been determined that this segment should be delisted for dissolved oxygen based on an acceptable excursion rate.</p>
35	SWRO	N33R-01-BAC	Dry Fork	2016 IR is called Laurel Creek, but in 2018 IR is called Dry Fork. Which is correct?	Yes	<p>This CGC consisted of VAS-N33R_LAC01A00, VAS-N33R_LAC01A04 and VAS-N33R_DYF01A12. Both Laurel Creek segments were submitted with the Draft 2018 IR package so name changed to Dry Fork.</p>

36) The definition of category 5R was updated in the final version of the 2018 IR to: **Va. Category 5R** – the Water Quality Standard is not attained and the water is impaired, and implementation of an EPA-accepted restoration plan is expected to result in attainment. A status update will be provided each 303(d) cycle to evaluate process.

Comments from Virginia Association of Municipal Wastewater Agencies (VAMWA)



VIRGINIA ASSOCIATION OF MUNICIPAL WASTEWATER AGENCIES, INC.

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February 21, 2019

By Email

Ms. Jutta Schneider
Water Planning Division Director

Ms. Sandra E. Mueller
Office of Water Monitoring and Assessment

Ms. Amanda B. Shaver
Office of Water Monitoring and Assessment

Virginia Department of Environmental Quality
1111 East Main Street
Suite 1400
Richmond, Virginia 23219

Re: 2018 Water Quality Assessment Integrated Report

Ms. Schneider, Ms. Mueller, Ms. Gray:

This is submitted on behalf of the Virginia Association of Municipal Wastewater Agencies and its Water Quality Committee.

We appreciate the opportunity to review the Department's draft 2018 Water Quality Assessment Integrated Report. We generally support the draft and the manner in which it addresses assessment and listings. In particular, we continue to agree for the most part with the manner in which the Department is developing the assessment program for recreational uses on the Shenandoah River, including the continued listing as Category 3C of the several sites under review on the North and South Forks. We do continue to have concerns about assessment methodology and the 2018 guidance, particularly as to spatial representativeness as our earlier comments on the assessment guidance stated.

As always, we appreciate the Department's efforts on these issues.

Sincerely,

Sharon G. Foley, PE
Vice-President

Letter – Ms. Schneider, Ms. Mueller, Ms. Shaver
Virginia Department of Environmental Quality
February 21, 2018
Page 2

cc: VAMWA Board
VAMWA Water Quality Committee
Clifton F. Bell, PE, PG
Christopher D. Pomeroy, Esq.

DEQ Response to VAWMA

Thank you for your review of Virginia's Draft 2018 Integrated Report.

Comments from the Chesapeake Bay Foundation



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

February 21, 2019

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Dear Ms. Mueller,

On behalf of the Chesapeake Bay Foundation (CBF), I submit the following comments regarding the 2018 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report. First, I'd like to express our appreciation for the tremendous effort that Virginia Department of Environmental Quality (DEQ) staff, Virginia's citizen monitoring groups and our industrial and municipal partners have put into monitoring, analyzing, and reporting upon the health of our state's waters. The 2018 report includes assessments of more than 22,000 miles of Virginia streams, which provide critical information for improving water quality.

This report reveals continued examples of increased attainment of dissolved oxygen standards in the Chesapeake Bay and its tributaries following Virginia's substantial effort in implementing nutrient and sediment pollution reductions to Chesapeake Bay. Still, substantive water quality issues remain, emphasizing the importance of continuing to accelerate pollutant reductions and watershed planning. We commend DEQ for their work with developing the Phase III Watershed Implementation Plans; these water quality assessment results underscore the importance of this initiative.

Submerged Aquatic Vegetation Criteria

Submerged Aquatic Vegetation (SAV) assessments indicate continued progress for this critical natural resource. However, we again urge DEQ to clarify through text or footnote that several (five) SAV criteria are based upon outdated estimates of attainability. In this draft, the Polyhaline James River is provided as a rare example of achieving SAV standards in a Virginia tributary, yet this segment's standard is based not on historical records but rather an antiquated estimate of what is "attainable." This is contrary to how the majority (87/92) of standards in the Chesapeake Bay watershed were derived. Clarification of this basis is, however, not mentioned anywhere in the report, and thus provides a misleading understanding of the importance and context of this result. We appreciate DEQ's response to our comments on the 2016 report about this issue and the recommendation to provide this suggestion through the triennial review process (which we communicated). However,

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there is no reason this report cannot clarify this detail, so the public has a clearer understanding regarding how to interpret these results. In fact, failing to do so is in conflict with the primary objective of this report, to educate and inform citizens and public officials about Virginia's overall water quality.

2018 draft integrated report: CHAPTER 4.6 Page 151, reads:

Full attainment of the SWSAV use is present in areas of each of the major estuaries (James, York, Rappahannock and Potomac), but the majority of segments continue to fail SAV acreage goals. As found in previous reporting periods, only nine segments met their respective goals: the Chickahominy (CHKOH), the middle and lower James (JMSOH and JMSPH, respectively), tidal fresh portions of the Mattaponi and Pamunkey (MPNTF and PMKTF), and tidal fresh and oligohaline portions of the Rappahannock and Potomac embayments (RPPTF, RPPOH, POTTF, and POTOH).

DEQ response to CBF Comments on 2016 Draft integrated report:

The SAV restoration goals for the Bay segments are published in Virginia's Water Quality Standards and are thus considered water quality criteria. The review and modification of water quality criteria to reflect best available science happens approximately every three years in a process known as Triennial Review. CBF is encouraged to bring this issue to DEQ's attention during the next Triennial Review, which is anticipated to begin in 2020.

The Importance of stormwater monitoring at VPDES outfalls

The report largely acknowledges the non-point source challenges facing water quality in the Commonwealth inclusive of industrial and agricultural activities. However, the report fails to mention the water quality monitoring data DEQ holds collected from stormwater outfalls associated with such permitted facilities. During this assessment period, the Commonwealth has required nutrient and sediment data collection for industrial stormwater general permits, which have shown to be highly variable, with some instances of extreme pollutant loading.¹ However, these data sets are ignored by the report. We encourage DEQ to include a summary of these results and ensure future monitoring requirements associated with stormwater and agricultural permits are consistent with the state's QA/QC protocols such that resulting data can be utilized to provide valuable insights for understanding Virginia's water quality conditions. While we understand most permit monitoring data has been required to verify compliance, the resulting data resources developed through this process should be utilized such that the department can better guide restoration efforts and communicate the most significant problems contributing to the degradation of water quality. Even if permittee monitoring data (particularly precipitation-based monitoring) does not qualify for listing decisions, this data should

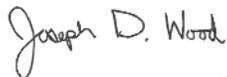
¹ CBF Industrial Stormwater Comments

be used to investigate probable stressors for existing benthic impairments and other summary analyses.

Permit based data provides insights about non-point source pollution that is complimentary to ambient surface water data and should not be ignored. This data specifically contributes to primary objective number three² and primary objective number four³ of this report. We urge DEQ to utilize this data in integrated reporting analyses and to continue requiring collection of this data at industrial sites, and finally to expand monitoring requirements to large scale facilities (i.e. poultry facilities) which produce stormwater discharges to surface waters.

Thank you for your consideration of our comments on this important report and all the work you do to help improve Virginia's water quality. If you have any questions regarding these comments, please feel free to contact me at 804-258-1577 or at jwood@cbf.org.

Sincerely,

A handwritten signature in black ink that reads "Joseph D. Wood". The signature is written in a cursive, slightly slanted style.

Joseph D. Wood, Ph.D.
Virginia Staff Scientist
Chesapeake Bay Foundation

² To determine the causes of non-attainment of designated uses in the State's waters.

³ To determine the nature and recognizable extent of point and nonpoint source impacts in accordance with state and federal guidelines.

DEQ Response to the Chesapeake Bay Foundation

Submerged Aquatic Vegetation Criteria

DEQ does not consider the Integrated Report to be an appropriate venue for discussing the development process of any specific water quality criterion or goal. Once a criterion or goal is approved by the Virginia State Water Control Board and EPA and it is incorporated into the Water Quality Standards regulation, it is assumed to be just as valid as any other WQS criterion or goal in the context of water quality assessments.

The Importance of stormwater monitoring at VPDES outfalls

In order to be considered for use in the 305(b)/303(d) Assessment, any non-agency data must be submitted through our QA/QC data officer. An approved QAPP and Data Use Authorization Form must be submitted with the data to be considered for inclusion in the assessment.

Any targeted monitoring (capturing storm events) will not be used for listing decisions, but could be used to investigate probable stressors for existing benthic impairments, per Assessment Guidance Memo GM18-2001.

Comments from John Burke, Montgomery County, VA

Good morning Sandra,

Page 261 of the full report lists BRRO-Roanoke Community Involvement. Please include that office's staff participation in annual Stormwater Education Days for the 750-800 students in the sixth grade class of the Montgomery County Public School system. This is a continuing MS4 Public Participation event involving Montgomery County, Blacksburg, Christiansburg, and Virginia Tech's MS4 staff and many volunteers. A total of three days each year provides the opportunity for the students from the four County middle schools to attend. Ms. Mary Dail and Ms. Lucy Baker and the principal participants, along with other DEQ staff.

Thank you for the opportunity to comment and for the webinar presentation,
John

John W Burke
Stormwater Specialist
Montgomery County VA
burkejw@montgomerycountyva.gov
540-394-2090 x54133

DEQ Response to Mr. Burke

Thank you for the feedback. The event information has been added to Chapter 7.9 in the Final version of the 2018 Integrated Report.

**Comments from Earthjustice, Potomac Riverkeeper Network and Potomac River
Smallmouth Club**



Potomac River Smallmouth Club

February 21, 2019

Submitted via email to Sandra.Mueller@deq.virginia.gov

Sandra Mueller
Virginia Department of Environmental Quality
Office of Water Monitoring and Assessment
P.O. Box 1105
Richmond, VA 23218-1105

Re: Draft 2018 Virginia 305(b)/303(d) Water Quality Assessment Integrated Report

Dear Ms. Mueller,

Earthjustice, Potomac Riverkeeper Network, and Potomac River Smallmouth Club urge the Department of Environmental Quality (“DEQ”) to fulfill its duty to identify the North Fork, South Fork, and main stem of the Shenandoah River (collectively, “Shenandoah River”) as impaired (Category 5) due to widespread algae blooms fueled by uncontrolled or poorly-controlled pollutants including nitrogen, phosphorus, and sediment, as required by section 303(d) of the Clean Water Act, 33 U.S.C. § 1313(d). In order to do so, the Department must evaluate all existing and readily available water quality-related data and information concerning algae in the Shenandoah River, as required by EPA regulations.

Unfortunately, the Draft 2018 Integrated Report makes clear that DEQ has again declined to assess and list the Shenandoah River using the information already available to DEQ, which demonstrates that the consistent presence of excessive algae in different locations throughout the River interferes with the growth and survival of healthy aquatic life, and interferes with or diminishes recreational uses including swimming, wading, floating, canoeing, aesthetic enjoyment, and fishing. That information further demonstrates beyond any reasonable doubt that existing effluent limits are not stringent enough to fully implement Virginia’s narrative water quality standards or designated uses relating to algae in the Shenandoah River. In light of this data and information, DEQ has a duty to identify the Shenandoah River on the list required by the Clean Water Act, 33 U.S.C. § 1313(d)(1)(A).

Most of the data and information already available to DEQ through our previous submissions falls within the proposed assessment period for the Draft 2018 Integrated Report, *i.e.* data collected from January 1, 2011 through December 31, 2016. *See* Draft 2018 Integrated Report at ES-i. We therefore re-submit the Technical Review we submitted with our comments on the 2014 and 2016 Draft Integrated Reports.

For additional context we have also attached documentation of excessive algae and its impacts on the Shenandoah River's recreation-related designated uses and water quality standards, submitted to DEQ in July and August, 2018, along with a copy of our comments on the 2018 Water Quality Assessment Guidance Manual (submitted to DEQ in April 2018). These submissions demonstrate that the problem of excess algae in the Shenandoah River is ongoing, and that DEQ's ongoing efforts toward identifying a listing threshold are not designed to capture the available and relevant information on how excessive algae causes nonattainment of the applicable water quality standards in the Shenandoah River.

I. Virginia's Mandatory Duty To Assess The Evidence Presented And Identify The Shenandoah River As Impaired

The Clean Water Act requires that "[e]ach State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) and section 1311(b)(1)(B) of [the Act] are not stringent enough to implement any water quality standard applicable to such waters." 33 U.S.C. § 1313(d)(1)(A). Designated uses are water quality standards by definition. *Id.* § 1313(c)(2)(A). Accordingly, when evidence demonstrates that water quality standards or designated uses are not being attained despite the application of technology-based effluent limitations, the state "shall identify those waters" in its Integrated Report.

EPA regulations that govern each state's listing process further require that "[e]ach State shall assemble and evaluate all existing and readily available water quality-related data and information to develop the [impaired waters] list..." including, "[a]t a minimum... all of the existing and readily available data and information about the following categories of ... (iii) [w]aters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions." 40 C.F.R. § 130.7(b)(5)

A. Relevant Virginia water quality standards

The water quality standards that are applicable to the Shenandoah River and relevant to excess algal growth include the following:

A. All state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish.

9 Va. Admin. Code § 25-260-10.A. (emphasis added).

A. State waters, including wetlands, shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life.

Specific substances to be controlled include, but are not limited to: floating debris, oil, scum, and other floating materials; toxic substances (including

those which bioaccumulate); substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits; and substances which nourish undesirable or nuisance aquatic plant life. Effluents which tend to raise the temperature of the receiving water will also be controlled. * * *

9 Va. Admin. Code § 25-260-20 (emphasis added).

When the Virginia Water Control Board enacted these water quality standards in 1981, its statement of basis and purpose made clear that the Board intended both narrative and numeric limits to be given force and effect:

Water quality standards consist of narrative statements that describe water quality requirements in general terms, and of numeric limits for specific physical, chemical, biological or radiological characteristics of water. These narrative statements and numeric limits describe water quality necessary to meet and maintain reasonable and beneficial uses such as swimming and other water based recreation, public water supply and the propagation and growth of aquatic life. Standards include general as well as specific descriptions, since not all requirements for water quality protection can be numerically defined.¹

The Court of Appeals of Virginia has confirmed that the requirement to protect designated uses has independent force and effect in addition to the requirement to implement other water quality standards. *See State Water Control Bd. v. Captain's Cove Util. Co., Inc.*, 2735-07-1, 2008 WL 2963851 (Va. Ct. App. Aug. 5, 2008) (reinstating water pollution control board's denial of discharge permit on basis that the discharge would impair recreational uses). The court noted that "9 VAC 25-260-20 is written in the disjunctive, prohibiting substances in state waters that either contravene established standards or interfere directly or indirectly with designated uses of such water." *Id.* (emphasis in original).

The available evidence demonstrates that Virginia's existing effluent limitations are insufficient to support the recreational designated use and ensure attainment of related water quality standards for the North Fork, South Fork, and main stem of the Shenandoah River. Our enclosed 2014 Technical Review sets forth extensive evidence of impairment including:

- Over one hundred and twenty citizen complaints identifying algae blooms by location and date, and describing impairment of recreational uses including primary contact recreation, boating, wading, fishing, and general aesthetic enjoyment;**
- More than 1,000 photographs and videos, including information on location and date, showing excessive growth of algae;**

¹ Attachment C, Commonwealth of Virginia State Water Control Board, Water Quality Standards (eff. Dec. 12, 1981) (excerpt). The current water quality standards at 9 Va. Admin Code Ch. 260 are derived from this 1981 enactment.

- Data from a summer 2012 quantitative survey of stream transects for algae conditions in the Shenandoah River; and
- Satellite images in which spectral reflective signatures of several substances in the North Fork Shenandoah River are shown, indicating high concentrations of chlorophyll and phycocyanin (the pigment in blue-green algae or cyanobacteria).

In addition, the images contained in Attachments A and H provide evidence that these conditions have persisted through today. Collectively this evidence provides an overwhelming basis for finding that excess nutrients are present in quantities that, in combination with other environmental factors, cause frequent widespread algae blooms that interfere with attainment of Virginia's recreational designated use and related water quality standards.

B. EPA guidance on water quality assessment and listing decisions

In its 2014 guidance on Integrated Reporting the U.S. Environmental Protection Agency (EPA) provided important information that is relevant in this context.² Among other things, EPA confirmed that visual assessments provide a valid basis for listing a waterbody as impaired:

A State can determine whether a waterbody is attaining its applicable narrative nutrient or other relevant narrative criteria and designated uses by using results of visual assessments. For example, field observations of excessive algal growth, macrophyte proliferation, adverse impacts on native vegetation (e.g., eelgrass), presence or duration of harmful algal blooms, unsightly green slimes or water column color, and/or objectionable odors may be a basis to include a waterbody on the State's Section 303(d) list for failing to meet one or more applicable narrative criteria and designated uses.

In addition, EPA affirmed that a state must list waters as impaired if their designated uses are threatened, even if the precise causes are not fully known:

[I]f a designated use is not supported and the segment currently fails to meet an applicable water quality standard or is "threatened," it must be included on the State's Section 303(d) list even if the specific pollutant causing the water quality standard exceedance is not known at the time.

EPA's Guidance for 2016 integrated reporting points back to and extends this direction to Virginia and other states for the Integrated Report process now underway, stating in particular that, "[f]or States without nutrient-related assessment methodologies, there is

² Attachment D, U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Memorandum, Information Concerning 2014 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions; also available online at: https://www.epa.gov/sites/production/files/2015-10/documents/final_2014_memo_document.pdf (last visited Sept. 5, 2017).

still a requirement to assemble and evaluate all existing and readily available water quality-related data and information against all applicable numeric and narrative [water quality standards] to develop the CWA 303(d) list.”³ This guidance is consistent with EPA regulations requiring that Virginia “shall assemble and evaluate all existing and readily available water quality-related data and information to develop the [impaired waters] list...” 40 C.F.R. § 130.7(b)(5).

C. Relevant assessment approaches in other states

Relevant listing approaches in other states provide workable methods for assessing how excess algal growth prevents attainment of water quality standards. For example, Vermont considers water bodies to be impaired when “[a]n on-going record of public complaint concerning the algal conditions in the water has been established.”⁴ Montana’s approach is similar: “Some circumstances related to excess nutrient pollution are severe enough that a rigorous data collection effort is not required. Photo documentation will suffice.”⁵ These approaches are appropriate for assessing nonattainment of Virginia’s water quality standards, since the designated use and the general criteria prohibiting “undesirable or nuisance” both implicate visual impacts of algae.

The Technical Review re-submitted in support of these comments (Attachment B) provides additional background demonstrating the validity of visual assessments and user reports in assessing nonattainment of water quality standards for recreational and aesthetic uses.

II. DEQ’s Previous Rationale For Declining To Assess The Available Evidence Or To List These Streams Are Not Legally Or Technically Valid

DEQ rejected requests to list these waters as impaired in its 2010, 2012, 2014, and 2016 Integrated Reports, citing several technical and legal interpretations that lack merit. In September 2014 EPA approved Virginia’s 2012 Integrated Report, but expressly rejected several of DEQ’s reasons for deciding not assess the evidence and make a determination as to whether these waters are attaining or not attaining the applicable water quality standards.⁶ After DEQ again declined to evaluate the evidence or make an impairment

³ Attachment E, EPA, Office of Wetlands, Oceans, and Watersheds, Information Concerning 2016 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions at 10 (Aug. 13, 2015), also available at: https://www.epa.gov/sites/production/files/2015-10/documents/2016-ir-memo-and-cover-memo-8_13_2015.pdf (last visited Sept. 5, 2017) (emphasis added).

⁴ Attachment F, Vermont Surface Water Assessment and Listing Methodology at 23 (March 2016); also available online at: http://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/WSMD_assessmethod_2016.pdf (last visited Sept. 5, 2017) (in addition: “For cyanobacteria (blue-green algae), regular, reliable monitoring indicates that cyanobacteria routinely exceed guidelines established by the Vermont Department of Health for recreation. Invasive non-native aquatic species are not applicable in this category.”)

⁵ Attachment G, Montana Dept. of Environmental Quality, Assessment Methodology for Determining Wadeable Stream Impairment Due to Excess Nitrogen and Phosphorus Levels (Dec. 2011); also available online at: https://www.deq.idaho.gov/media/937622-assessment_methodology_determining_wadeable_stream_impairment_excess_nitrogen_phosphorus_levels.pdf (last visited Sept. 5, 2017).

⁶ Letter and enclosures from Jon M. Capacasa, EPA Region 3 Water Protection Division, to Melanie Davenport, Div of Water Quality Programs at 5-7, VDEQ (Sept. 23, 2014).

determination in its 2014 Integrated Report, EPA again approved the Integrated Report, while at the same time expressly rejecting the bulk of the reasons DEQ offered for taking no action.⁷

Among other things, EPA in its approval of the 2014 Integrated Report stated that “the lack of a formalized methodology by itself is not a basis for a state to avoid evaluating data or information when developing its section 303(d) list.”⁸ EPA also stated that, because “the *Virginia 2014 Assessment Guidance* does not address the types of information submitted by [Shenandoah Riverkeeper] nor provide guidance as to how citizens can submit photographs, testimonials and other similar types of data,” the “lack of a State-approved [quality assurance project plan] alone should not be used to summarily reject data or assume that data is of low quality regardless of the actual quality controls that were employed.”⁹ EPA nonetheless approved the 2014 Integrated Report, reasoning that Virginia’s water quality standards present “unique challenges,” making it “challenging to identify impairments in a manner that is consistently repeatable.”¹⁰ This rationale is inconsistent with EPA’s regulations and guidance on implementing CWA § 303(d).

EPA similarly approved the 2016 Integrated Report, reasoning that it was sufficient for DEQ to identify 25 non-contiguous river miles in Virginia’s “Category 3C,” despite the fact that 3C by definition only applies when the state decides *not* to make an impairment determination under CWA § 303(d).¹¹ EPA also cited DEQ’s “commitments affirmed in an April 18, 2016 letter to EPA,” including the commitment to “[p]ropose numeric impairment threshold and assessment methods in VADEQ’s Draft 2018 Water Quality Assessment Guidance Manual”—commitments DEQ has still not fulfilled. Because EPA’s approval rationale is contrary to its own regulations and guidance, we challenged EPA’s approval of the 2014 and 2016 Integrated Reports in the U.S. District Court for the District of Columbia (Case No. 17-1023).

Notwithstanding that pending lawsuit, Virginia’s legal obligations under the Clean Water Act remain the same, as EPA stated in its guidance for the 2016 Integrated Report process: “[f]or States without nutrient-related assessment methodologies, there is still a requirement to assemble and evaluate all existing and readily available water quality-related data and information against all applicable numeric and narrative [water quality standards] to develop the CWA 303(d) list.”¹²

⁷ Letter and Enclosures from Jon Capacasa, EPA Region III Water Protection Div., to Jutta Schneider, Virginia Department of Environmental Quality (“DEQ”) Water Planning Div. at 6-8 (May 19, 2016).

⁸ 2014 Integrated Report Approval at 8.

⁹ *Id.* at 8-9.

¹⁰ *Id.* at 7.

¹¹ Letter and Enclosures from Catharine McManus, EPA Region III Water Protection Div., to Jutta Schneider, Virginia DEQ Water Planning Div. at 9-10 (March 6, 2018).

¹² Attachment D at 10.

III. DEQ's Protracted Study Of Possible Monitoring Or Assessment Methods Does Not Free Virginia From Its Duty To Evaluate Available Evidence And Make A Determination Of Attainment Or Nonattainment

For the current Integrated Report it appears that DEQ is, yet again, intent on refusing to assess the available evidence of impairment, and instead relying on its ongoing efforts to develop a listing threshold or assessment method (or both) as an excuse for refusing to assess the evidence that is currently available and that shows that the recreational use and related water quality standards in the North Fork, South Fork, and main stem of the Shenandoah River are not being met due to the presence and growth of excessive algae.¹³

DEQ's approach to sampling and evaluating data for the Shenandoah River does not provide an adequate picture of the nature and extent of algal blooms and other forms of nuisance aquatic plant life, nor does it give DEQ staff sufficient guidance on how to fully and properly assess the impacts of algae blooms on the designated uses and water quality standards for the Shenandoah River.¹⁴ Among other shortcomings, DEQ proposes using Surber sampling to measure wet-wrung biomass of filamentous algae and benthic *chlorophyll a*. But the sampling methods proposed are only compatible with capturing samples in depths less than one-half meter, an approach that overlooks algae growth in deeper water. DEQ also proposes using a *chlorophyll a* standard of 150 mg/m² as a threshold for algal biomass, without explaining how that standard captures all types and levels of algae growth that impact different aspects of the applicable water quality standards for aquatic life and recreation.

DEQ's preferred methodologies reflect a reactive rather than proactive approach that employs river-user complaints only as a trigger for additional DEQ sampling, rather than as a basis for determining impairment. Its preferred monitoring method concentrates on areas that are easily visible and convenient to access from boat ramps, rather than the actual locations where algae blooms have been photographed and pinpointed in river-user algae complaints—locations that shift over time, unlike DEQ's sampling locations.

The proposed approach also appears to give outsized weight to "good" years that are actually anomalous when viewed in context. Taking 2018 as an example, data collected by the USGS show that, with the exception of a few days in April and a few days in May, the entire watershed ran higher than the 88-year median for the entire algal growing season.¹⁵

¹³ Draft 2016 Integrated Report, Chapter 4.3, River Basin Summary at 63-64; Shenandoah River Algae, Development of Field Monitoring Methods (Dec. 2, 2016), http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityAssessments/ShenAlgae/VADEQ_Shenandoah_monitoring_public.pdf?ver=2016-12-02-134505-757 (last visited Sept. 5, 2017); Shenandoah River Monitoring Plan, Algal Field Methods Development (June 2016), available at http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityAssessments/ShenAlgae/Shenandoah_Algal_Mo_n_Plan.pdf (last visited Sept. 5, 2017); VA DEQ Shenandoah Algae webpage on "Shenandoah Algae," <http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments/ShenandoahAlgae.aspx> (last visited Sept. 5, 2017).

¹⁴ See Attachment I, Letter from Potomac Riverkeeper Network and Shenandoah Riverkeeper to Amanda Gray, Virginia DEQ, re. Comments on DEQ Draft Water Quality Assessment Guidance Manual (April 19, 2018).

¹⁵ Attachment J, U.S. Geological Service data from flow monitoring gauges for the Shenandoah River at Front Royal, VA, Strasburg, VA, and Millville, WV (retrieved on Feb. 20, 2019)

In short, DEQ's current and proposed future approach to evaluating algae impairment is designed to produce false negatives.

DEQ's justification for this approach – its desire for “a protocol that might be used on a consistent basis” – disregards the need for a protocol that is both consistent and effective at capturing algae outbreaks and their effects on recreational and aquatic life uses.¹⁶ DEQ's claim that “the high volume of algae in these shallow sections that would constitute a greater nuisance to recreational activities” lacks any factual basis, and is contrary to available information, including our public comments, showing that recreational uses occur in deeper waters. While DEQ claims that it cannot collect samples on algae where blooms actually arise because DEQ has “limited resources and property access issues,” that rationale does not apply to existing and readily-available data and information gathered and submitted by our organization, or by our members and others in the public, who regularly recreate at sites not reached by DEQ's staff. Finally, to the extent DEQ believes that the photographic evidence is inadequate if it doesn't distinguish between types of algae or between algae and underwater grasses, that position is contrary to Virginia water quality standards. The applicable standards do not distinguish between different types of algae, or between excessive growth of algae and excessive growth of native grasses; all of this excessive growth stems from related root problems including over-nutritification, and all of it impedes the Shenandoah River's ability to support a balanced array of aquatic life and robust recreational use.

While we appreciate DEQ's efforts to finally take this issue seriously, and while DEQ is free to propose regulations interpreting the designated use and narrative water quality standards, we note that those measures are not in currently place, DEQ's efforts to put them in place are far behind the schedule to which DEQ committed in 2016, and there is no legal obligation or assurance that they will be in place any time soon. In the meantime, DEQ's refusal to assess our evidence and make a determination of attainment or non-attainment is unlawful, as it frustrates and undermines the Virginia Water Control Board's authority to establish the water quality standards and designated use that the Board established in 1981.

IV. General Comments on the Draft Integrated Report

In the Executive Summary, DEQ provides a brief description of its long term trend analysis of particular waterbodies over a 20-year period (1996-2016).¹⁷ According to DEQ, it conducts a trend analysis every six years to “help understand whether a particular waterbody has gotten better or worse over the past 20 years.” *Id.* We note, however, that the trend analysis contained in the Draft Integrated Report only describes trends at the river basin level, using a certain number of fixed monitoring stations, and does not provide detailed data from specific monitoring stations. Instead, it generally determines whether there is a statistically significant trend upward or downward, denoting improving or degrading water quality, or the absence of a trend.¹⁸ We recommend that DEQ include the

¹⁶ DEQ, Draft 2018 Water Quality Assessment Guidance Public Comment – Response Document.

¹⁷ Draft IR, Executive Summary at i.

¹⁸ Draft IR, Ch. 4.7 at 163.

locations and sampling parameters for its fixed monitoring stations in the final 2018 Integrated Report, in order to provide the public and other interested stakeholders the ability to drill down and review water quality trends at particular sampling locations. The draft Integrated Report states that the Shenandoah River Basin has 18 sampling locations, but does not delineate exactly where they are, e.g. whether they are on the main stem, South or North Fork of the river, or in tributaries.¹⁹

We also note our concern regarding the long term trend analysis' acknowledgment of degrading water quality in the Shenandoah Basin due to nitrogen levels in the river. Increasing trends in nitrogen levels at 3 Shenandoah monitoring locations indicate degrading water quality, while 9 of the Shenandoah stations indicate no trend, and 6 indicate improving water quality, as measured by nitrogen levels. Draft IR Table 4.7-9 at 176. Given the history of algal blooms, fish kills and other verifiable pollution impacts to the entire Shenandoah River over at least the last fifteen years, DEQ's determination that 9 monitoring stations do not show a trend either way is of small comfort. On the contrary, this generally indicates that water quality, as measured by nitrogen levels, is not improving in these areas of the river basin as viewed from a 20-year trend perspective. This lack of improvement should be of significant concern to DEQ. Instead, the agency concludes its discussion of long term trends in Ch. 4.7 by stating that the long term trends in levels of nitrogen and other parameters symbolize a success story for state water quality as a whole.²⁰ While this may statistically be accurate based on the sample set used by DEQ, it is nearly irrelevant to local communities and public advocates who work to improve water quality at the local and river watershed level, and see local water quality trending in the wrong direction.

DEQ's process of reviewing monitoring data and regularly assessing whether state waterbodies are meeting their designated uses is intended to – and should – lead towards regulatory measures, such as impairment determinations and development and implementation of TMDLs that will lead to improved water quality, not merely management of existing impairments.

On a related note, we are also extremely concerned about the apparent lack of progress made by DEQ towards increasing the percentage of rivers in Virginia that have undergone water quality assessments. Table A in the Executive Summary notes that 78% of the state's river miles have not been assessed.²¹ Of the 21% of rivers that have been assessed, 15%, or over 2/3 of those are found to be impaired.²² The Draft Integrated Report fails to address this alarming metric, except to note that a change in the scale of mapping streams that occurred after 2014 resulted in an increase in the total number of river miles subject to assessment.²³ We find it hard to reconcile this statistic with the conclusion drawn elsewhere in the Draft Integrated Report that overall water quality trends show a success story for Virginia waterbodies. If a large majority of Virginia rivers' and streams' water

¹⁹ Draft IR, Ch. 4,7-1 at 166.

²⁰ *Id.* at 188.

²¹ Draft IR, Executive Summary at ii.

²² *Id.*

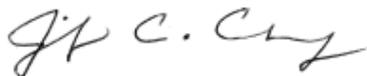
²³ *Id.*

quality has not been assessed, how can DEQ assert that overall trends are moving in the right direction? And while it may be true that much of the major river segments have been assessed, this fails to acknowledge that water quality in small headwater and feeder streams and freshwater wetlands is critically important to assess and protect or restore, both for local and downstream water uses. Relying on water quality assessment of 15% of the state's rivers and streams is simply not sufficient, and should not be acceptable to DEQ long term. We strongly urge DEQ to revise the final 2018 Integrated Report to more consistently address water quality trends, in light of the state's admission that only a small fraction of the state's rivers and streams have been assessed.

V. Conclusion

As in prior years, we have provided material evidence demonstrating that the North Fork, South Fork, and mainstem of the Shenandoah River are impaired by excessive algal growth, and that consequently those waters are failing to support their designated use for recreation, notwithstanding DEQ's ongoing efforts toward establishing a listing threshold or formal monitoring or assessment method. We therefore call on DEQ to fulfill its duty under the Clean Water Act to now list the North Fork, South Fork, and mainstem of the Shenandoah River as impaired in the final 2018 Integrated Report.

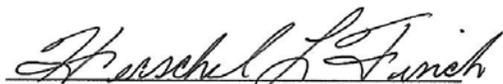
Sincerely,



Jennifer C. Chavez
Staff Attorney, Earthjustice



Phillip Musegaas
Vice President, Potomac Riverkeeper Network



Herschel L. Finch
Potomac River Smallmouth Club

CC: Bill Richardson
Office of Standards, Assessment and TMDLs
U.S. EPA Region 3
Via email to Richardson.William@epa.gov

General Comments on the Shenandoah:

DEQ Response:

Thank you for providing comments on the 2018 IR and the characterization of the Shenandoah River. The quantitative monitoring and assessment protocols for evaluating algal impacts to the recreation use in five segments of the Shenandoah River are outlined in the 2018 Water Quality Assessment Guidance Manual. As you are aware, DEQ tested various monitoring methods during the 2016 season; however, the 2017 season was the first that focused on the newly proposed quantitative monitoring metrics. To collect a sufficient dataset for the proposed assessment process (e.g., a minimum of two years of data collected during the growing season), DEQ staff again conducted quantitative monitoring in the five Shenandoah River segments during the 2018 growing season. Given that the 2017 and 2018 data will fall within the assessment window of the 2020 IR, and assuming DEQ, EPA Region 3, and Region 3 states can identify a meaningful nuisance threshold based on Virginia's work completed to date, the 2017 and 2018 data may be assessed in Virginia's 2020 IR. For the 2018 IR, the five priority segments of the Shenandoah River remain listed as Category 3C. This determination was based on the agency's review of photographic evidence previously submitted by the SRK, and indicates an observed effect but with insufficient data to determine whether the recreation use is supported.

Response to comment IV, general comments in IR:

Trend Comments: "We recommend that DEQ include the locations and sampling parameters for its fixed monitoring stations in the final 2018 Integrated Report, in order to provide the public and other interested stakeholders the ability to drill down and review water quality trends at particular sampling locations."

DEQ Response:

As per the agency's annual monitoring plan, (located at the following website <https://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityMonitoring/AnnualWaterQualityMonitoringPlan.aspx>), trend station parameters include nutrients, bacteria, and suspended sediment. The annual monitoring plan website also includes a link to the DEQ mapping application, which shows the locations of the agency's monitoring stations (including trend stations). Thank you for the suggestion on making the data more accessible to the public. DEQ is currently working with agency staff to determine the best way to display trend data. Future updates may be included on the agency's website or in forthcoming IRs.

Comment on TMDLs and regulatory action:

DEQ Response: As of 2018, Virginia has developed nearly 1,000 TMDLs to address water quality impairments. TMDL studies are developed using a watershed based approach in addition to having significant interface with state regulatory programs, such as water permitting to assign Waste Load Allocations (WLAs) to applicable facilities.

Comment on unassessed river miles: “we are also extremely concerned about the apparent lack of progress made by DEQ towards increasing the percentage of rivers in Virginia that have undergone water quality assessments.”

DEQ Response: As mentioned in the 2018 IR, the large percentage of unassessed rivers is due to the agency moving to the 1:24,000 resolution of the National Hydrography Dataset (NHD), which captures a high percentage of first order streams. These headwater streams comprise a majority of Virginia’s rivers and streams, but due to limited resources, smaller order streams are not generally monitored as part of the agency’s monitoring network (though the probabilistic monitoring program does capture first and second order streams each year). DEQ recognizes that headwater streams contribute to the water quality in navigable water bodies and their input is characterized as part of the TMDL process, which considers pollutant sources from the entire watershed contributing to the impaired reach. Unless additional resources are secured, DEQ’s monitoring strategy will continue to focus on sampling the base of the watershed, and will capture pollutant inputs from headwater streams as part of the TMDL process.3939