

2018-2020 303(d) List Response to Comments

RIDEM released the draft 2018-2020 303(d) list with an announcement that was sent to individuals and organizations via email on September 24, 2020. A virtual public workshop to present the 2018-2020 Draft Integrated Lists including the 303(d) List was held on October 6, 2020 via Zoom with over 50 people in attendance. The public comment period ended on October 30, 2020. The following is the RIDEM response to the eleven emails received from nine individuals.

Dennis Bowman

President, Friends of Green Hill Pond

isodjb12@gmail.com 401-792-1116

Email Received Friday, October 9, 2020 3:57 PM

- I am the President of Friends of Green Hill Pond and only learned about your Water Quality assessments yesterday. Our organization is deeply committed to improving the water quality of Green Hill Pond. So, if possible, I would like to be added to your mailing list for future communications. Meanwhile, let me share two comments/questions you may find interesting and relevant to your work.

RESPONSE – Added to our contact list.

- In your 303d report, Green Hill Pond is designated as “fully supporting” Primary Contact Recreation —i.e. swimming. That was surprising given the last DEM bacteria monitoring report we received in 2018 (see below) showed that several monitoring stations regularly exceeded the state bacteria standard for swimming after rain events. I just wanted to confirm that DEM has now deemed Green Hill Pond safe for swimming. Also, may I ask for an updated 2020 monitoring results spreadsheet?

RESPONSE – No previous impairment of recreational use has been documented in Green Hill Pond. Green Hill Pond has been assessed as fully supporting recreational uses in biennial reports dating back to 2002. Enterococci data is the primary bacteria data for assessment of recreational use. Fecal coliform data is the primary data for assessment of shellfishing and can be used for assessment of recreational use in the absence of enterococci data.

The information sent by Mr. Bowman are fecal coliform data from the RI Shellfish Program that show the criteria for shellfish consumption. Fecal coliform shellfish consumption criteria are more stringent than the fecal coliform recreational criteria. Section 5.4.2.1 of the CALM describes how RIDEM assesses recreational use at non-designated beach waters. The data meet the recreational use criteria for non-designated beach waters.

The primary dataset used for the recreational assessment of Green Hill Pond was from Watershed Watch enterococci data collected in years 2012 to 2016. Watershed Watch stations met the recreational criteria.

The 2020 Shellfish Program data was sent to Mr. Bowman after 2020 sampling was completed in Green Hill Pond.

- In August, the Town of South Kingstown received a watershed grant to assess, design, and permit stormwater BMPs in the Green Hill Pond watershed. We worked closely with South Kingstown on this proposal and are providing some of the matching funds to provide a total of \$174,750 for this project. Although South Kingstown is the project leader, I want to make sure the appropriate people at DEM are involved in that process as it gears up. Whom would you suggest be involved at the Office of Water Resources?

RESPONSE – The appropriate contact person at RIDEM has been in touch with Mr. Bowman.

Philip Dercole

c.dercole@cox.net

Email Received Wednesday, October 7, 2020 2:04 PM

- In the Consolidated Assessment and Listing Methodology For Section 305 (b) and 303 (d) Integrated Water Quality Monitoring and Assessment Reporting there is no mention of the three Warwick Water bodies that were impaired in 2007 (see attached). My comment is after 13 years have these water bodies been on a previous Delisting Document or are they still impaired? Maybe following up on the Recommendations originally made would be helpful.

RESPONSE – Mr. Dercole is referring to a 2007 TMDL that includes Warwick Pond, Gorton Pond, and Sand Pond. These three waterbodies have not been on a previous delisting document. Assessments including review of current data are conducted on all waterbodies, and these waters have been appropriately placed in Category 4A – Waterbody Impairments having Approved TMDLs. We note that the three ponds (Warwick Pond, Gorton Pond, and Sand Pond) all show improvements but are still not improved enough to justify delisting the impairments from the waterbodies. RIDEM will continue to evaluate all available data in the next biennial cycle.

- If that answer to our first comment is no then we will make our next one. The Water Monitoring Strategy sounds really good, but as noted in our previous comment when these water bodies are added to the 305 and 303 lists and a TMDL Study follows that seems to be the end. There seems to be something missing, like maybe identifying possible causes of impairments and Mandating Solutions With Completion Dates. As noted making recommendations to Municipalities, Residents or Others does not work.

RESPONSE – As noted above, there are improvements in the data related to the listed impairments subject to the TMDL, and we will continue to assess all available data biennially as required under the federal Clean Water Act. The TMDL process identified

2018-2020 RIDEM 303(d) List Response to Comments

many sources to the ponds, including stormwater as a primarily focus of control to address phosphorus impairments in the ponds. As noted in the TMDL, the entities subject to requirements of Municipal Separate Storm Sewer Systems (MS4s) - Phase II under the RI General Permit must update their Storm Water Management Program Plans (SWMPPs) addressing six minimum measures for managing stormwater. Under the current MS4 general permit, the operator of a MS4 must address the TMDL provisions in their SWMPP within 180 days of the date of written notice.

James S. Latimer, Ph.D.
U.S. Environmental Protection Agency
Latimer.Jim@epa.gov
Comment during Meeting

- EPA's AED has changed its name to Atlantic Coastal Environmental Sciences Division (ACESD).

RESPONSE – Thank you, we will update our records.

Carol Lynn Trocki
Little Compton Conservation Commission
cltrocki@gmail.com
Email Received Tuesday, October 6, 2020 3:59 PM

- Thanks for your time presenting and answering questions today. I live and work as a conservation biologist in Little Compton and also serve on the Town's Conservation Commission. As you may know, as a community, we are primarily located in a fractured bedrock system and rely entirely on private wells and OWTS. The Conservation Commission has begun dipping our toes into a very basic well water monitoring program and is working to help the community generally get a little smarter about our water quality status.

Can you provide surface water quality data and references for the LC waterbodies included in the 2018-20 Assessment?

RESPONSE – We have provided Ms. Trocki a list of the Little Compton Waters and their assessments.

Steve Winnett

US EPA

winnett.steven@epa.gov

Email Received Tuesday, October 28, 2020 4:37 PM

- I suggested to Jane in a recent phone call that the map of the Narragansett segment in question be labeled clearly (name, ID number), and important geographic points in the map that are referenced in the text be labeled clearly.

RESPONSE – Assuming that this refers to the Upper Narragansett Bay segment, a map has been added to the delisting document that displays the two new Upper Narragansett Bay segments with relevant geographic points included.

- I suggest you insert page numbers.

RESPONSE – Complete.

- On file page 4-5, Orthophosphorus table, can you explain the significance of these data? Is there a standard to compare them against and if so, what is it? Are these numbers high or low? There is no information to indicate what they mean.

RESPONSE – The intent of including the ortho-phosphorus data was to show that the ortho-phosphorus data followed the same decreasing trend over time that was shown in the total phosphorus data. Since there is only one station in the Rhode Island section of the Blackstone River where total phosphorus data is collected every year, RIDEM included the ortho-phosphorus data was to show that the trend of decreasing phosphorus occurred throughout the Rhode Island reach of the Blackstone River.

The RI Water Quality Standards do not contain a numeric ortho-phosphorus standard, but under the narrative standard noted below, the attainment of dissolved oxygen and removal of phosphates from the WWTF discharges under stringent permitting is considered attainment of the narrative standard for phosphates.

“None in such concentration that would impair any usages specifically assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication, nor cause exceedance of the criterion above in a downstream lake, pond, or reservoir. New discharges of wastes containing phosphates will not be permitted into or immediately upstream of lakes or ponds. Phosphates shall be removed from existing discharges to the extent that such removal is or may become technically and reasonably feasible.”

Given the lack of available guidance in the United States, RIDEM looked to the European Union (EU) for what other countries may use as an ortho-phosphorus criterion or threshold for riverine waters. The United Kingdom has a recommendation to lower their current annual average reactive phosphorus criteria in good lowland waters to 40 or 69 µg/L depending on alkalinity from 50 or 120 µg/L. Ireland uses an annual average

of 35 µg/L or a 95th percentile of 75 µg/L for good waters. The table below shows that since 2017, the annual mean ortho-phosphorus concentrations at all stations in the Blackstone River is below the United Kingdom and Ireland’s criteria.

Blackstone River Annual Average Ortho-Phosphorus Concentrations (µg/L)¹

	2006	2007	2014	2015	2016	2017	2018	2019
Stateline	65.6	153.7	15.4	18.5	20.6	16.7	14.4	9.7
Bike Path (Route 116)	85.3	280.8	38	44.2	27.5	17.1	11.6	13.5
Roosevelt Street	NA	174.4	20	44	37	21	16	14
Slater Mill	55.1	158.7	26.5	30.7	21.8	14.7	11.6	9.6

¹Data collected at the Stateline, Bike Path (Route 116), and Slater Mill were collected by the Narragansett Bay commission. Data collected at Roosevelt Street were collected by the United States Geological Survey.

NA – Data was not available for download.

- In addition, if data can be expressed in mg/l or ug/l, that is generally more understandable to most people than ppb since WQ criteria are usually in those units.

RESPONSE – The delisting document contains consistent units.

- For the phosphorus data tables that begin on file page 5, more information needs to be included to show what the significance of the data are. What is the standard if any, are they high or low, and are they in units that most people are familiar with or can connect to other water quality information with which they are likely to be familiar.

RESPONSE – Rhode Island has a narrative phosphorus criterion, which is written above in response to the previous comment. RIDEM uses many tools when evaluating narrative criteria. One component that RIDEM may use when evaluating compliance with the narrative phosphorus criterion is the 1986 EPA Quality Criteria for Water which recommends a “desired goal for the prevention of plant nuisances in streams or other flowing waters not discharging directly to lakes or impoundments is 100 ug/L total P (Mackenthun, 1973).” Average total phosphorus concentrations are presented by year in the delisting document. Since 2016, all averages are below the recommended EPA values.

- The same thing is true of the dissolved oxygen table. I noticed that the criteria is in a footnote. I suggest it be placed more prominently in the text. Most people won’t check the footnotes and it will aid in understanding the justification.

RESPONSE –The criteria are now footnoted at the first mention of dissolved oxygen data and do not span across two pages for easier reading.

2018-2020 RIDEM 303(d) List Response to Comments

- The same is true for the Narragansett fecal data. What is the standard, what do the numbers mean and how shall the results be interpreted? What is the significance of the number of wet and dry weather days?

RESPONSE – The SA Criteria has been added as a footnote. The significance of the wet and dry weather days is to show that the samples collected represent a variety of weather conditions.

Antonia Bryson

Richmond Town Representative, Wild and Scenic Rivers Stewardship Council

antoniabryson@gmail.com

Email Received Thursday, October 29, 2020 11:41 AM

- The Stewardship Council has reviewed the draft delisting document. According to the document, the sampling shows that the Wood River, which had been listed for exceedances of the State's water quality criteria for dissolved copper, no longer demonstrates exceedances. As that is the case, the Stewardship Council supports the proposed delisting of the Wood River.

RESPONSE – Thank you for your support of the Wood River delisting.

Topher Hamblett

Director of Advocacy, Save The Bay

thamblett@savebay.org

Email Received Friday, October 30, 2020 2:05 PM

- We submit that it is premature to remove the Blackstone River from the list of impaired waters for phosphorus. The Draft 2018-2020 Delisting Document: Waterbody Impairments Removed from the Impaired Waters Lists does not take into consideration water quality data collected by the Blackstone River Watershed Association. The sample locations include 75 sites, including 9 on the main stem in Massachusetts and Rhode Island. We spoke with members of BRWA's water quality team and learned that at least two major tributaries, Monastery Brook in Cumberland and Cherry Brook in Woonsocket, were rated poorly for orthophosphate in 2019 and 2020. Three main stem sample locations, at River Island Park, below Albion Dam, and Slater Mill have consistently been ranked poorly for orthophosphate from 2014 to 2017. There has been some improvement at two of those sites in 2018, however the site below Albion Dam continues to rate poorly for orthophosphate. We ask that RIDEM contact BRWA and consider the nutrient data collected from 2014 to 2019 prior to removing the Blackstone River from the list of impaired waters.

RESPONSE – RIDEM has reviewed the most recent BRWA water quality data and has provided a response to BRWA below regarding their data and its application in the assessment process. We also note that Monastery Brook in Cumberland and Cherry

Brook in Woonsocket have their own waterbody identification number and are assessed as their own riverine segments.

- Meshanticut Brook, Cranston. Meshanticut Pond should be included on the list of impaired waters. Meshanicut Brook is impaired for Enterococcus both upstream and downstream of Meshanticut Pond (RI0006017L-01). The brook is included in the impaired water list under 4A. The 12.8 acre pond is an impounded section of Meshanticut Brook created by a dam owned by the Department of Environmental Management. Since Meshanticut Brook is impaired upstream of the pond, Meshanticut Pond as well should be considered impaired for Enterococcus and included on DEM's impaired waters list. The pond is also listed as impaired for aquatic invasive species. DEM's Division of Water Resources in partnership with Save The Bay coordinated an invasive weed pull with the community of the lotus in 2019 and has conducted herbicide treatment of other aquatic invasive species. There is significant runoff from the watershed that discharges directly to Meshanticut Pond. The City of Cranston and Save The Bay have developed a conceptual plan of areas where stormwater could be infiltrated on both City and state land in the pond's watershed. Addressing stormwater management in the pond's watershed will help improve water quality of both the Meshanticut Pond impoundment and the downstream waters of Meshanticut Brook. The City and Save The Bay have met with DEM staff to discuss the conceptual plans. We recommend that DEM add Meshanticut Pond to the impaired waters list, so that addressing stormwater management in this area could become a greater priority for DEM and the City.

RESPONSE – RIDEM does not have data to determine whether Meshanticut Pond (RI0006017L-01) is impaired for enterococci. The 2019 RIDEM Water Monitoring Strategy details core monitoring programs for lakes and ponds, which includes reliance on a volunteer lake monitoring program coordinated through the University of Rhode Island's Watershed Watch program. Assessing unassessed lakes is included as a priority resource need.

RIDEM recognizes that the Meshanticut Brook & Tribs (RI0006017R-02) is impaired, but the exceedance of the recreational bacteria criteria in the upstream river or stream does not always lead to exceedance of recreational bacteria criteria in downstream lakes, ponds, or reservoirs.

- The Cove, Portsmouth. The Cove should be assessed for nitrogen. The northern half of the Cove in Portsmouth, water body ID RI0010031E-03A is listed on the Category 2 Waters as not assessed for fish and wildlife habitat. The southern half of the Cove, water body ID RI0010031E-03B is listed as a Category 4a Waters and has a completed TMDL for fecal coliform but has not been assessed for fish and wildlife habitat. According to historical eelgrass reports (Doherty, 1995) and (Kopp, 1995), eelgrass habitat was found in this 349 acre water body up until the 1990s and used to support a scallop fishery (personal communication with Russ Wallace Sr). Since eelgrass provides significant

habitat for fish and wildlife, we urge you to assess the Cove to determine if the cause of this impairment is nitrogen loading from the surrounding watershed. Doherty, A.M. 1995. Historical distributions of eelgrass (*Zostera marina*) in Narragansett Bay, Rhode Island, 1850–1995. Narragansett Bay Estuary Program Report NBEP-95-121. Providence, RI. 64 pp. Kopp, B.S., A.M. Doherty, and S.W. Nixon. 1995. A Guide to Site-selection for Eelgrass Restoration Projects in Narragansett Bay, Rhode Island. Rhode Island Aqua Fund, Providence, RI. <http://nbep.org/publications/NBEP-95-113.pdf>

RESPONSE – RIDEM does not have data to determine whether The Cove, Portsmouth is impaired for nitrogen. The 2019 RIDEM Water Monitoring Strategy identifies the need to build capacity to monitor coastal embayments. Establishing a rotating assessment of coastal embayments is included as a priority resource need.

Almy Pond. Although Almy Pond has a completed TMDL for phosphorus, bacteria levels in Almy Pond should be fully assessed to assess if Almy Pond is impaired by bacteria and if impaired, identify the type of bacteria and locations of exceedances. Enterococcus monitoring conducted by the Department of Health in 2020 and the Spouting Rock Association in 2019, documented exceedances of enterococcus from the outlet of Almy Pond. Due to the drought this summer, the DOH Beach Monitoring program was only able to collect one sample from the outlet where it discharges to the beach on the south side of Ocean Avenue. Additional bacteria monitoring should be conducted within Almy Pond to assist in determining the source of the bacteria.

RESPONSE – RIDEM used 2012 to 2016 data collected by Watershed Watch volunteers within the pond to assess Almy Pond for recreational use. While this dataset included some high enterococci values, Almy Pond met the non-designated beach recreational criteria and is therefore assessed as fully supporting for recreational use.

Peter Coffin

Coordinator, Blackstone River Coalition

peter.coffin@zaptheblackstone.org

Email Received Friday, October 30, 2020 3:47 PM

- As Coordinator of the Blackstone River Coalition I am very concerned that the State is considering de-listing the Blackstone River for its impairments due to Phosphorous.

While it is true that the main stem of the River is less burdened with nutrients due to the significant improvements in the various sewage treatment plants, the levels have still not gotten low enough to justify de-listing. The loading of phosphorous from non-point sources continues to grow as development continues in the watershed. This is evident in the noxious weeds that crowd the impoundments, impacting the local fisheries and making paddling awkward at Valley Falls pond and elsewhere.

The High loading of nutrients is exacerbated by the historic sediments sitting behind all the dams. The dams themselves make the problem of eutrophication even worse by slowing down the flows and increasing the time of travel.

Please do not de-list the Blackstone for Phosphorous; but let us work together with local stakeholders to develop plans to control phosphorous and its impacts on a great urban resource.

RESPONSE – Please see the responses below regarding further examination of the phosphorus data of the Blackstone River, including the summary of the technical guidance and funding occurring in Valley Falls Pond to remove water chestnut, an aquatic invasive species. Regarding the comment on time of travel from the dams along the Blackstone River exacerbating eutrophication, we would expect to find increased chlorophyll in the continuous data taken in the slower sections of the impounded areas where the equipment was deployed. While not presented in the delisting document, chlorophyll data taken behind the dam with the dissolved oxygen equipment always remained below 10 µg/L. Chlorophyll ranged from 0.1 µg/L to 5.3 µg/L at Albion and from 0.4 µg/L to 8.9 µg/L at Central Falls Landing.

While this study did not take sediment samples, we recognize that the sediments behind the dams likely have retained historical phosphorus inputs. The phosphorus data throughout the river, including stations above and below dams, does not show any sharp increases across multiple years and flow conditions suggests that sediment and associated phosphorus is not highly mobile. Future alterations of dams should consider release of historical phosphorus from the sediments.

The installation of RIDEM's dissolved oxygen monitoring equipment was specifically behind dams at the two locations where computer modeling predicted the lowest oxygen levels in the Rhode Island reaches of the Blackstone River. These two locations of greatest predicted dissolved oxygen sag met all criteria, including when looking at continuous data approaching low flow conditions. RIDEM is only proposing to delist the parts of the Blackstone River located in Rhode Island. We also note that other impairments remain listed for the Blackstone River, and further work with many levels of partnership are still needed to preserve, protect, and restore the Blackstone River.

Nick Wentzell

Vice President, Blackstone River Watershed Council / Friends of the Blackstone
Field Coordinator, Blackstone River Coalition's Water Quality Monitoring Program
nick.wentzell@yahoo.com

Email Received Friday, October 30, 2020 3:55 PM

- Based on available data collected by the BRC's Water Quality Monitoring Program, the BRWC/FOB supports RIDEM decision to delist Dissolved Oxygen impairment for the Blackstone River (RI0001003R-01A and RI0001003R-01B).

RESPONSE – DEM appreciates the support of BRC on the delisting of dissolved oxygen.

- BRWC/FOB does not support the delisting of phosphorus for the Blackstone River (RI0001003R-01A and RI0001003R-01B) due to alarming rates of phosphorus in recent years along the main stem of the Blackstone, as well as in the Blackstone Tributaries. We are seeing elevated levels of phosphorus in tributaries including Cherry Brook and Monastery Brook.

Based on data collected by the BRC’s Water Quality Monitoring Program, the BRWC/FOB firmly believes the delisting of total phosphorus is premature. Available data indicates that nutrient readings along the Blackstone Rivers main stem in Rhode Island for the last decade have read in poor quantities.

All data from the BRC’s Water Quality Monitoring Program is summarized in an annual report card, denoting findings as excellent, good, fair, poor, or not enough data. Attached you will find the annual report cards from 2004-2018. Figure 1 below shows the grading of nutrients at the 3 main stem Blackstone River sites from 2004 to 2018.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
BR @ River Island Park	N/A	N/A	N/A	N/A	Poor	Fair	Poor	Poor	Poor	Good	Poor	Poor	Poor	Poor	Good
BR @ Albion Dam	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	N/A	Poor	Poor	Poor
BR @ Slater Mill	N/A	N/A	N/A	N/A	Poor	N/A	Fair	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Good

Figure 1: Blackstone River Main Stem Nutrients Results 2004-2018

The nutrients category includes seasonal averages of both nitrates and orthophosphates, but the overall site grades are assigned primarily on the phosphorus average, due to phosphorus being the limiting nutrient in fresh water. If the average phosphorus grade falls into orange (fair) or yellow (good) category, but more than one monitoring event has a phosphorus red (poor) rating (excluding wet weather events), the site is given an overall grade of red (poor). Annual report card for 2019 is not yet available.

The BRWC/FOB recognizes the improvements to WWTF infrastructure and regulation, particularly in Grafton and Woonsocket since 2017 that has led to decreased total phosphorus concentration and loads in WWTF effluent. We feel as though more time is needed to adequately gage the success of these systems. We are additionally concerned with historic and non-point source pollution leading to higher levels of phosphorus.

RESPONSE – The delisting document contains statistics for total phosphorus data collected by USGS at Roosevelt Street between 2014 and 2019 as well as data from 2007. The data show that phosphorus levels have decreased significantly since 2007, which corresponds with the large phosphorus reductions from the wastewater treatment facilities. Annual and seasonal total phosphorus annual averages since 2016 are below 100 µg/L, a level mentioned in the 1986 EPA Quality Criteria for Water as a recommended target for total phosphorus.

Since total phosphorus data is limited to one station in the Blackstone River, RIDEM also evaluated ortho-phosphorus data collected by the Narragansett Bay Commission to demonstrate phosphorus trends at other stations in the Blackstone River. This data collected at three NBC stations (two upstream and one downstream of the USGS Roosevelt Street station), showed the same decreasing trends as the total phosphorus data. In 2007, the seasonal average ortho-phosphorus at Roosevelt Street was above 100 µg/L, while, in recent years, the seasonal average is 75 – 80% lower than the 2007 average.

After receiving these comments, RIDEM worked with the BRWC to acquire their 2019 and 2020 ortho-phosphorus data, the monitoring location descriptions, volunteer manual, and instructions on how ortho-phosphorus data is analyzed. RIDEM was also able to locate the Blackstone River Coalition's 2004 QA Plan in its files.

RIDEM compared the BRWC 2019 and 2020 ortho-phosphorus data to data collected from other organizations including the previously discussed USGS and NBC data. Additionally, RIDEM had data collected by its ARM dry weather sampling program three times from three sites in 2019, which was not available at the time of the initial delisting proposal. RIDEM could not conduct a trend analysis on the BRWC data because, due to database issues, BRWC was not able to readily access raw data older than 2019.

The comparison between datasets showed that the RIDEM, USGS, and NBC data is much lower (average of about 50-60%) than the BRWC data¹. RIDEM believes this may be attributed to the method being used. BRWC is using a Hach DR/890 colorimeter to test for ortho-phosphorus. In Table 5 of its 2004 QA Plan, the method detection limit for ortho-phosphorus is 0.05 mg/L (50 µg/L as PO₄³⁻) with a precision of ±0.05 (50 µg/L as PO₄³⁻) and a potential range of 0 to 2.5 mg/L (0 to 2500 µg/L as PO₄³⁻). The current 8048 method document² on the Hach website sites a range of 0.02 to 2.5 mg/L PO₄³⁻ (20 to 2500 µg/L as PO₄³⁻ or 6.5 to 815.2 µg/L as P). RIDEM, NBC, and USGS results ranged from 5 to 27 µg/L as P in 2019 and from 11.4 to 44.1 µg/L as P in 2020, while BRWC results ranged from 20 to 53 µg/L as P in 2019 and 10.0 to 96.7 µg/L as P in 2020. RIDEM believes that the BRWC data may be higher due to the precision range of its test. Statistics on the data are presented in the tables below.

¹ Based on the unit information available in the BRWC QA Plan, RIDEM converted the BRWC data to µg/L as P to be directly comparable to the data from other organizations. Since the molecular weight of PO₄ is three times as heavy as the molecular weight of P, results reported in the form of PO₄ as PO₄ versus those being reported in the form of PO₄ as P are three times higher. All data comparisons occurred after the data was converted into a form where it was directly comparable.

² <https://www.hach.com/asset-get.download-en.jsa?id=7639983836>

2019 Blackstone River Seasonal (Apr – Nov) Average Ortho-Phosphorus (µg/L as P)

Station	Organization	Average	Min	Max
Stateline	NBC	12.8	7.0	18.2
BSN11 Woonsocket (USGS 01112500)	DEM ARM	8.3	7.2	10.1
BSN 27 River's Edge Recreational Complex	DEM ARM	8.2	6.9	10.1
River Island Park (Woonsocket)	BRWC	32.9	20.0	53.3
Below Albion Dam (Inflow Pipe) *	BRWC	32.1	16.7	50.0
Bikepath (Route 116)	NBC	12.3	5.2	19.3
BSN12 GW Hwy. (Rt. 116)	DEM ARM	8.3	6.5	10.8
Roosevelt Street	USGS	16.5	7.0	27.0
Slater Mill	BRWC	27.1	13.3	50.0
Slater Mill / Dam	NBC	11.0	7.3	15.2

Stations shaded in green are near each other.

*The Albion Dam inflow pipe may be a dam bypass.

2020 Blackstone River Seasonal (April – November) Average Ortho-Phosphorus (µg/L)

Station	Organization	Average	Min	Max
Stateline	NBC	30.9	18.4	44.1
River Island Park (Woonsocket)	BRWC	51.0	10.0	73.3
Below Albion Dam (Inflow Pipe) *	BRWC	39.2	10.0	86.7
Bikepath (Route 116)	NBC	27.0	23.5	30.7
Roosevelt Street	USGS	19.1	12.5	24.0
Slater Mill	BRWC	44.6	23.3	96.7
Slater Mill / Dam	NBC	16.3	11.4	21.0

Stations shaded in green are near each other.

NBC has limited 2020 sampling (3-4 samples for the April to November season).

*The Albion Dam inflow pipe may be a dam bypass.

Unfortunately, there are no national or local guidelines regarding acceptable limits for ortho-phosphorus. In Table 12 of its 2004 QA Plan, the Blackstone River Coalition's acceptable range of ortho-phosphorus was to be determined based on a range of typical levels determined by looking at a previous year's data since neither Rhode Island nor Massachusetts had criteria. In a November 2020 email, the BRWC reports that levels greater than 0.3 mg/L (300 µg/L) trigger a poor rating. As shown in the delisting document, seasonal average ortho-phosphorus have remained below 55 µg/L as P since at least 2014 with no seasonal average greater than 20 µg/L as P since the Woonsocket WWTF met its permit limit in 2017.

Watershed groups are instrumental in bridging data gaps and implementing restoration and protection of water quality. Even with the proposed delistings, the Blackstone River still has several water quality impairments. Both Blackstone River segments will remain impaired for Aquatic Life use (dissolved cadmium, dissolved lead, and total iron), Primary and Secondary Contact use (enterococcus, fecal coliform), and Fish Consumption use (mercury in fish tissue and PCBs in fish tissue). The upstream Blackstone River (RI0001003R-01A) segment will also remain impaired for Aquatic Life

use (non-native aquatic plants). Solutions to these impairments will need to address many non-point source reductions and storm water improvements. Removing the phosphorus and dissolved oxygen impairments, does not equate to complete delisting of the Blackstone, and further work with many levels of partnership are still needed to preserve, protect, and restore the Blackstone River.

The BRWC/FOB report card is a great way to communicate with the public the gradient of nutrient conditions within the Blackstone River. Based on the 2004 QA Plan, it may be useful for BRWC to refine its trigger points for poor nutrient water quality in the Blackstone River. RIDEM is willing to work with the BRWC on development of trigger refinement.

RIDEM did not analyze additional data for Cherry Brook and Monastery Brook as part of its response to this comment because the instream Blackstone River data do not show that these tributaries are causing an impairment to the main stem of the Blackstone River. Cherry Brook is impaired for Aquatic Life use based on benthic macro-invertebrate sampling requiring a TMDL, which will necessitate further evaluation of the causes of aquatic life impairment. Both Monastery Brook and Cherry Brook are impaired for Primary and Secondary Contact Recreation uses.

Given BRWC's extensive network of volunteers and stations, RIDEM looks forward to working with BRWC to refine their data analysis and reporting for future assessment cycles. The station locations provided to RIDEM include several locations where few or no other entity is collecting data on a routine basis. The addition of BRWC's data to the assessment process would enhance knowledge of conditions in the Blackstone River watershed.

- While Valley Falls Pond is not subject to delisting in any category, the BRWC/FOB urges RIDEM to perform a TMDL for total phosphorus sooner than the currently scheduled 2024. Valley Falls Pond is directly fed by and discharges into the Blackstone River in the pristine habitat of Lonsdale Marsh.

RESPONSE – While the Phosphorus TMDL for Valley Falls Pond is scheduled for 2024, RIDEM has been working with the City of Central Falls to develop a plan to manage the extensive water chestnut, which is an aquatic invasive species. Since 2017 when RIDEM became aware of the water chestnut in Valley Falls Pond, the RIDEM Office of Water Resources has provided technical assistance and guidance, including participating in meetings with interested residents. RIDEM awarded a planning grant to the City which allowed it to retain a consultant to complete an assessment of Valley Falls Pond and recommend actions to control water chestnut and improve conditions. RIDEM assisted in the review of the report, which was recently finalized. RIDEM is currently in discussions with the City aimed at developing a new grant agreement to provide some funding for initial implementation of a treatment program as outlined in the report. RIDEM continues to inspect the status of water chestnut at the pond as part of its

seasonal surveillance of aquatic invasive plants that occurs each summer. This work will greatly advance the restoration of Valley Falls Pond and provide much needed background information and data for future phosphorus TMDL development.

Steve Winnett

US EPA

winnett.steven@epa.gov

Email Received Wednesday, November 4, 2020 11:19 AM

- As our legal staff reviewed the delisting requests associated with the 2018/2020 list, they had a question about the Blackstone analysis. They wanted to know what happened to the chlorophyll a data that's mentioned in the first paragraph of the delisting justification, copied below? There is no other mention of chlorophyll a in the document. Is there any data or modeling that shows those levels came down and are now acceptable?

"RIDEM listed the Blackstone River as impaired for dissolved oxygen in 1996 with a nutrient listing added in 1998. In 2008, the nutrient listing was changed to total phosphorus due to the links between total phosphorus and elevated chlorophyll a that caused some low dissolved oxygen swings in impoundments.

RESPONSE – No chlorophyll data is presented in the delisting document because there has never been a chlorophyll listing in the Blackstone River. The linkage to chlorophyll was referenced in the document only to provide historical context of the change in impairment cause from nutrients to total phosphorus and ammonia in 2008. But, as mentioned in the delisting document, equipment was deployed in the two model-predicted dissolved oxygen "sag points" in the river. The oxygen data was presented in the delisting document. The RIDEM equipment setup includes collects chlorophyll data. All chlorophyll data always remained below 10 µg/L. Chlorophyll ranged from 0.1 µg/L to 5.3 µg/L at Albion and from 0.4 µg/L to 8.9 µg/L at Central Falls Landing.

Steve Winnett

US EPA

winnett.steven@epa.gov

Email Received Wednesday, November 4, 2020 1:42 PM

- We have some additional questions about the Blackstone delisting. Referencing the delisting document, on page 3, there are tables that present ortho-phosphorus and phosphorus concentrations. We need more information about the statistics: are these averages, medians, highs or lows? In addition, it would be helpful to see the spread of the data. Also, what are the criteria against which the data are being evaluated?

RESPONSE – See previous response in reply to EPA email received on October 28, 2020.

- RIDEM is delisting these waters for phosphorus, in addition to DO. What is the standard against which you're evaluating the phosphorus data to show compliance? Is it the gold book value of 100 ug/l, or are you interpreting the narrative criteria for flowing waters in association with meeting the DO criteria? Please explain the rationale for the phosphorus delisting associated with these data. It's not clear in the presentation.

RESPONSE – See previous response in reply to the same question asked in the EPA email received on October 28, 2020.

- For the DO concentration and DO saturation tables, can you make it clearer that these data are the lowest of the monthly values measured during the period indicated? It's also important to show what the criteria are against which the data are to be evaluated in the explanation of the data above the tables, or in the table themselves. It says, "All readings are above the instantaneous, daily average, and 7-day mean warm water criteria." What are they? Otherwise, we don't know until we examine the graphs below.

RESPONSE – The title on the DO concentration table already contains the word "minimum" and "minimum" will be added to the percent saturation table. The dissolved oxygen criteria footnote has been moved to the first reference of meeting dissolved oxygen criteria.

- It would also be very helpful to have a map that shows where the Roosevelt Street sampling location is.

You sent us two maps back in May, one showing the Albion and Central Landing sampling sites and one showing the locations of the two impaired (to be delisted) segments, along with the locations of the WWTFs. We suggest that including that information (along with the Roosevelt Street location) in at least one map is important to making the case for delisting clearly. We needed it to evaluate the justification.

RESPONSE – The delisting document contains two maps showing the waterbody segments, WWTF locations, and water quality stations whose data is included in the delisting document.