



Delaware River Basin Commission

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Steven J. Tambini, P.E.
Executive Director

Minutes

Water Quality Advisory Committee

April 30, 2020

Members & Alternates:

NYS DEC

Sarah Rickard

EPA

Kuo-Liang Lai

Wayne Jackson

NJDEP

Frank Klapinski

Environmental

Maya van Rossum (DRN)

Regulated Community Industrial

Bart Ruitter (Chemours)

Kimberly Long (Exelon)

DNREC

David Wolanski

PADEP

Tom Barron

Academia/Science

John Jackson (Stroud)

Local Watershed Organizations

Gail Farmer (WVWA)

Regulated Community Municipal

Jay Cruz (PWD)

Bryan Lennon (Wilmington Public Works)

National Park Service

Richard Evans

Other Attendees:

Steve Tambini (DRBC)

John Yagecic (DRBC)

Namsoo Suk (DRBC)

Ron MacGillivray (DRBC)

Fanghui Chen (DRBC)

Elba Deck (DRBC)

Li Zheng (DRBC)

Elaine Panuccio (DRBC)

Jake Bransky (DRBC)

Pam Bush (DRBC)

Anthony Preucil (DRBC)

Kristen Bowman Kavanagh (DRBC)

Amy Shallcross (DRBC)

Tom Amidon (DRBC)

Kinman Leung (PWD)

Kelly Anderson (PWD)

Marc Cammarata (PWD)

Aaron Bitler (PWD)

Alison Aminto (PWD)

Matt Fritch (PWD)

Juliana Appiah (PWD)

Nick Tuttle (PWD)

Samantha Burke (PWD)

Bill Brown (PADEP)

Rhonda Manning (PADEP)

Matthew Kundrat (PADEP)

Summer Kunkel (PADEP)

Hoss Liaghat (PADEP)

Gary Walters (PADEP)

Rodney McAllister (PADEP)

Brian Chalfont (PADEP)

Rebecca Whiteash (PADEP)

Dustin Shull (PADEP)

Biswarup Guha (NJDEP)

Yaso Sivaganesh (NJDEP)

Steve Seeberger (NJDEP)

Helen Pang (NJDEP)

Marco Alebus (NJDEP)

Brenda Gotanda (Manko Gold Katcher & Fox)

Meg McGuire (Delaware Currents)

Eloise Gibby (Greeley and Hansen)

Erik Silldorff (DRN)

Paula Kulis (CDM Smith)

James Smullen (CDM Smith)

Eileen Althouse (CDM Smith)

Ramona McCullough (SciTek)

Alex Ridyard (PWD)
Irene Fitzgerald (DELCORA)
William Richardson (EPA)
Frank Borsuk (EPA)
Chris Day (EPA)
Emily Nering (EPA)
Katherine Bentley (EPA)
Greg Voigt (EPA)
Denise Hakowski (EPA)
Andy Thuman (HDR)
Christopher Main (DNREC)
Karl Russek (UPenn)
Swati Hegde (UPenn)
Rupika Ketu (UPenn)
Zach Villari (UPenn)
Kim Artita
Chloe Wang
Kris Hallinger

Sheila Eyler (USFW)
Steve Jandoli (American Littoral Society)
Michael Dillon (Manko Gold Katcher & Fox)
Abby Jones (Penn Future)
Andy Weber (NPS)
Julia Fine (Michael Baker)
Verna Harrison (Verna Harrison Associates)
Emily Baumbach (PDE)
Howard Neukrug (Water Center at UPenn)
Ellen Kohler (U. of Maryland)
Tim Dillingham (American Littoral Society)
Jessica Single (Ecotone)
Colleen Walters (River Network)
Ken Edwardson (NH Dept. Environmental Services)
Greg Wacik (USACE)
Melanie Murphy
Randall Detra
Tamara Mittman

12 additional participants were identified by phone number only.

The meeting was called to order at approximately 9:40 PM by Frank Klapinski, held with remote attendance only, using GoToMeeting and call-in capabilities.

Meeting Minutes

Draft minutes from the November 14, 2019 meeting had been previously provided to members for review. No comments were given.

Jay Cruz moved that the November 14, 2019 minutes be approved, and Kimberly Long seconded the motion. The minutes were unanimously approved.

Approved minutes are posted on the DRBC web site at:

<https://www.state.nj.us/drbc/library/documents/WQAC/111419/minutes.pdf>

New WQAC Member

In April 2020, Gail Farmer was appointed Local Watershed Organizations representative to the WQAC. Ms. Farmer is Executive Director of Wissahickon Trails, (previously known as the Wissahickon Valley Watershed Association). Ms. Farmer's organization has been working in partnership with municipalities and residents to protect and steward the land and waterways of the Wissahickon watershed since 1957. In her role as Executive Director, Ms. Farmer worked closely with municipal leaders to improve the water quality of the Wissahickon and its tributaries, and to implement on-the-ground water quality improvement projects.

Monitoring Program Impacts of Covid-19

John Yagecic indicated that several DRBC monitoring programs are temporarily suspended due to Covid-19 including the Delaware Estuary Water Quality Monitoring Program (Boatrun) and

nutrient monitoring at tributaries including the Delaware at Trenton and the Schuylkill. Redirected lab capacity and travel limitations are contributing to the suspension. Chris Main of the DNREC Lab indicated that they are hoping to perform a monitoring run at the end of May. Gary Walters of PADEP indicated that PA monitoring programs are impacted by PA stay at home orders through May 8th. Sara Rickard of NYDEC stated that NY's lake monitoring program would commence as planned the following week and that other monitoring programs would start in June and July. Frank Klapinski of NJDEP indicated that routine freshwater sampling is suspended except for freshwater harmful algal bloom (HAB) response, and that marine water monitoring has been suspended with no certain resumption date. NJ's Bureau of Fresh Water and Biological Monitoring (BFBM) is working on development of plans for resuming monitoring when appropriate.

DRBC Approach to Highest DO Attainability

Dr. Namsoo Suk presented DRBC's approach to determining the Highest Attainable dissolved oxygen (DO) in the Delaware Estuary. Dr. Suk's presentation is posted on the DRBC web site at: https://www.state.nj.us/drbc/library/documents/WQAC/043020/suk_AttainabilityAnalysis_DesUseStudy.pdf

Hoss Liaghat of PADEP asked how DRBC would consider the impact of non-tidal flow at Trenton on DO. Dr. Suk indicated that flows at Trenton are included in the eutrophication model. Richard Evans of the National Park Service and Maya van Rossum asked how natural resource and economic benefits would be estimated? John Yagecic responded that the University of Delaware (UDEL) would be developing an estimate of benefits of improved DO as the 2nd portion of a Delaware Watershed Research Fund (DWRf) grant. The first project under that grant is the Kleinfelder cost estimation project underway. Richard Evans requested that UDEL give a presentation at a fall WQAC meeting, including proposed methods. Maya van Rossum questioned whether it was DRBC's intent to protect existing use only by raising the water quality criteria to 3.7 mg/L DO which is what is generally now already being achieved? Namsoo Suk indicated that DRBC expected the outcome of the highest attainable DO determination to be a number higher than 3.7 mg/L and that the 3.7 value was being achieved with no additional load reductions. DRBC's intention was not to signal that an existing use will be defined but to present a range of potential alternative dissolved oxygen conditions that would be evaluated as part of the analysis of attainability underway in accordance with paragraph 6 of Resolution No. 2017-4. Dr. Suk reviewed the status of the 7 projects specified in Resolution 2017-4 in response to a question from Denise Hakowski of EPA. John Jackson asked how the 3.7 mg/L existing DO condition number was determined and also commented that people are going to be watching how DRBC determines DO criteria, and may be used as an example for future efforts. John Yagecic indicated that it was the 1st percentile value of instantaneous DO measurements at the USGS monitor at the Ben Franklin Bridge for a multi-year time span, and that DRBC had also determined the 5th, 10th, 25th, and 50th percentiles. John Jackson indicated that DRBC would need to look at frequency and duration of DO, not just percentile. Greg Voight of EPA indicated that EPA technical support would be available. Erik Silldorff of DRN indicated that DRBC would need to consider differences in DO in different years when Atlantic Sturgeon recruitment was successful and when it was not. Denise Hakowski stated that once DRBC determines the "HADO" that should not be the only consideration when then determining the Highest Attainable Use (HAU), and then ultimately the appropriate designated use. Jason Cruz asked if DRBC was planning to respond to comments submitted on the Academy of Natural Sciences' DO

needs of sensitive species report. John Yagecic indicated that a response was under development.

Status Update on Water Quality Assessment Report

Jake Bransky presented on the status of the Commission's 2020 Water Quality Assessment Report. The presentation is posted on the DRBC web site at:

https://www.state.nj.us/drbc/library/documents/WQAC/043020/bransky_update-wq-assess-rpt.pdf

John Jackson asked if DRBC would be filling in missing data. Mr. Bransky indicated DRBC would not fill in missing data and would only make comparisons of available data to criteria. Jason Cruz asked if DRBC would be utilizing 1% of observed values as a threshold for whether uses are being met. DRBC responded affirmatively.

Eutrophication model development

Tom Amidon updated the group on the status of development of the eutrophication model. Erik Silldorff asked if the light extinction specification method could be shared with the group.

Namsoo Suk indicated that some additional work remained, but the specification method would be shared at some point in the future.

Brief Status Updates of ongoing efforts

DRBC staff members shared brief status updates on ongoing efforts. John Yagecic indicated that a draft version of the Kleinfelder report on Evaluation and Cost Estimating of Nutrient Treatment Practices and Technologies was expected in July 2020. Jake Bransky indicated that the Delaware Estuary microplastics study was impacted by Covid-19 and by modifications to sampling and analysis methods and that a time extension may be requested. Elaine Panuccio updated the group on efforts to evaluate chloride data collected under DRBC's Special Protection Waters (SPW) program and indicated that the evaluation would be presented at a future WQAC meeting. Additionally, an RFP application for addressing Non-Point Source Pollution was submitted to NJDEP in February for expanded chloride monitoring and potential trackdown studies in the SPW area.

Developments in Recreational Use Considerations

DRBC Executive Director Steve Tambini addressed the WQAC regarding recreational use efforts and DRBC priorities. Mr. Tambini reminded the group that approximately 26 miles of the estuary are designated as secondary contact recreation in Zone 3 and upper Zone 4, from the Tacony-Palmyra Bridge to the Commodore Barry Bridge. The secondary contact use accommodates limited contact and has less stringent corresponding bacteria criteria. Mr. Tambini stated that DRBC supports the fishable, swimmable Clean Water Act goals and works to manage water quality for the 13.3 million people who rely on basin waters for drinking water.

Mr. Tambini noted the increased interest in recreational use of the Delaware Estuary in recent years. He noted that water quality has improved over time but that CSO discharges still occur and other hazards such as ship traffic and submerged structures exist. Mr. Tambini indicated that DRBC has been looking at bacteria levels via monitoring. Recent DRBC Estuary Water Quality Monitoring (boat run) data from center channel indicated concentrations appeared to be near meeting the water quality standard, however, near shore data is less promising.

Mr. Tambini indicated that on March 2, 2020 Delaware Riverkeeper Network (DRN) sent a petition to the Commission urging recognition and adoption of existing primary contact use in zones 3 and upper zone 4, currently only the subject of secondary contact use. DRN provided a link to the petition. DRBC has created a link in its document library.

https://www.state.nj.us/drbc/library/documents/WQAC/043020/DRN_Petition_PrimaryContactRecreation_030220.pdf

Maya van Rossum made clear that the petition was submitted by multiple organizations: Delaware Riverkeeper Network, Clean Air Council, PennFuture, Environment New Jersey, PennEnvironment, River Network Bartram's Garden, Glen Foerd on the Delaware, Darby Creek Valley Association and Clean Water Action.

The petition asserts and documents that primary contact activities are currently taking place in zones 3 and upper Zone 4. Maya van Rossum expressed surprise that given the level of discussion that the petitioners were not invited to give a presentation on the submission and offered to make such a presentation at the next WQAC meeting.

The Commission will respond to the petition.

Mr. Tambini noted that the recreation use study is included in DRBC's Water Resources Program (WRP) for FY2020-2022. The WRP provides detail on DRBC's plans and initiatives. Mr. Tambini noted that DRBC must prioritize given limited resources. Mr. Tambini indicated that the WQAC advises the Commissioners and invited the WQAC to weigh in on water quality priorities for DRBC.

Mr. Tambini asserted that groups were encouraging primary contact recreation in order to support this petition request when water quality may not be suitable to support that activity.

Maya van Rossum affirmatively stated that this assertion is false. Ms. van Rossum made clear that the petitioning organizations were simply documenting recreational activities and uses that were taking place and asking those engaged in such activities to share information regarding their uses. Abby Jones of Penn Future also strongly disagreed with the assertion that the petitioning organizations were encouraging primary contact recreation and confirmed that the petition and petitioners were simply collecting data documenting ongoing existing uses. Ms. Jones made clear that Penn Future and other petitioners were requesting that whenever people do participate in river recreation, that they document the activity.

Ms. van Rossum reiterated that DRBC had not asked her to make a presentation at this WQAC but recommended that DRN, PennFuture and other petitioners be invited to make a presentation on this topic at the next WQAC.

Results of 2019 DRBC Bacterial Monitoring in Delaware Estuary

John Yagecic presented results of shore-based bacterial monitoring in 2019. The presentation is posted on the DRBC web site at:

https://www.state.nj.us/drbc/library/documents/WQAC/043020/yagecic_RecUse_DelawareEstuary.pdf

In 2019 DRBC performed additional shore-based monitoring, focusing on areas where some form of recreation was expected to be more likely. Results were compared to existing DRBC and EPA nationally recommended criteria (no EPA recreational criteria for fecal coliform, so DRBC criteria utilized for that bacteria). Assessments by geometric mean on a system-wide basis appeared generally unfavorable. Assessments by geometric mean on a site-by-site basis yielded mixed results. Assessment by statistical threshold value (STV) on a site-by-site basis appeared more favorable.

DRBC also performed an analysis to determine which real-time explanatory variables might correspond to observed differences in bacterial concentrations. Sample site and 6-day cumulative rainfall total both appeared to correspond to observed bacterial concentration differences. Mr. Yagecic noted RiverCast on the Schuylkill and other estimated systems use real-time parameters to estimate bacterial concentrations and communicate risk to the public.

Kelly Anderson of PWD pointed out that RiverCast is a forecasting system for the non-tidal section of the Schuylkill River in Philadelphia, which is already classified for contact recreation. The non-tidal Schuylkill is not comparable to the tidal Delaware because of the Fairmount Dam. Yagecic concurred that RiverCast could not just be transported to the tidal Delaware but noted that other statistical bacteria models had been developed in a variety of water bodies.

Ellen Kohler of University of Maryland asked if DRBC was coordinated with public health agencies on hazards beyond water quality. DRBC is not currently coordinating with public health agencies on this topic.

John Jackson of Stroud asked if DRBC had an estimate of the hydraulic residence time from the top of Zone 3 to the bottom of Zone 4. Namsoo Suk indicated that an estimate would be available from the 1-D model, but results can be quite variable depending on the flow at Trenton. John Jackson cautioned that recreational contact is not just the main stem and estuary but also includes tidal and non-tidal tributaries. Jackson also cautioned DRBC to be careful about messaging. DRBC will need to define goals very narrowly as the public may assume that if the Delaware River is safe for primary recreation, that the tributaries to the Delaware are also safe, and vice versa.

David Wolanski of DNREC asked if DRBC had CSO discharge information. Yagecic indicated that DRBC did have recent CSO discharge information associated with the eutrophication model development, and that PWD operates a very useful web tool called CSO Cast.

Maya van Rossum with DRN asked, in the chat, if the 2019 bacteria data was available on DRBC's website. It was noted that it currently is not, but that all data is available via the National Water Quality Portal and uploaded via EPA's Water Quality Exchange Network (WQX).

Results of 2019 PWD Bacterial Monitoring in Delaware Estuary

Jay Cruz of Philadelphia Water Department presented results of bacterial monitoring performed in 2019. The presentation is posted on the DRBC web site at:

https://www.state.nj.us/drbc/library/documents/WQAC/043020/cruz_PWD2019estuary-bacteria-monitoring.pdf

PWD performed monitoring on 20 sample dates from June through September of 2019. Representative samples were collected from shore recreation areas under a variety of weather and water quality conditions. Sample dates were pre-selected approximately 2 months in advance. Samples were collected Monday through Thursday using a sampling pole. PWD collected samples at ten sites, including Delaware estuary sites as well as sites on the tidal Schuylkill River and Darby Creek in the Heinz Wildlife refuge. A total of 200 samples were processed with 600 analytical tests completed.

Mr. Cruz noted that E. coli results often exceeded fecal coliform results for the same sample; this should not happen since E. coli is a subset of fecal coliform. Right censored (“>” greater than) bacteria data are common in boat run and shore data and contribute uncertainty to results and computed geometric means.

Mr. Cruz noted that relatively large within-zone differences in bacterial densities were observed and that calculation of statistics such as geometric mean is confounded by right-censored and progressively right censored data. A 10X dilution appears necessary for wet weather samples but stronger (e.g., 100X) dilution raises issues of sample aliquot representativeness. Mr. Cruz indicated that recreation decisions are potentially confounded by three bacterial indicators. Gary Walters of PADEP asked what the flow conditions were in 2019. Cruz indicated that flows were high in 2019 but not as high as 2018. Yagecic stated there was a very wet period in the early part of the summer and a dry period in the later part of the summer. Ellen Kohler asked if PWD planned to repeat this monitoring in 2020. Cruz said that no additional monitoring was planned for 2020, but PWD would combine data sets and look at CSO discharges.

John Jackson asked if PWD had compared Rivercast predictions with downstream data. Mr. Cruz indicated they had not. Jackson asked what the right-censored data handling methodology was for bacteria. Cruz indicated analysts could make estimates based on assumptions about the underlying data distribution and recommended the `elnormCensored` function in the `EnvStats R` package. Erik Silldorff noted that Dennis Helsel has developed methods for high-proportion censored data using cumulative distribution functions but that many questions remain.

Recreational Use Group Discussion

Frank Klapinski inquired about PWD’s CSO long term control plan. Jay Cruz said that PWD is at year ten of a twenty-five year plan with an emphasis on green infrastructure to reduce CSO overflow. Reducing impervious surface will reduce CSO discharge with a goal to remove 85% of pollutant mass. Cruz noted that PWD has provided bacteria and CSO data to DRBC & PADEP. Dave Wolanski noted that from a personal perspective, 50 years after the CWA it may be worth having the recreational designated use even as an aspirational goal, especially if CSO and nonpoint source control efforts can use that goal to leverage funding. Frank Klapinski asked the WQAC for any feedback regarding prioritization of tasks under DRBC’s Water Resources Program. Maya van Rossum suggested that the topic should be addressed at the next meeting, when there is an actual agenda item, the petition is presented so there is full and fair understanding, and the group has had time to meaningfully consider the question.

Erik Silldorff commented that near-shore and center-channel bacteria concentrations are both relevant regarding primary contact. Recreators may enter the water near-shore, but may be

actively recreating far from shore. Cross-section analyses of river bacteria concentrations would be beneficial.

Denise Hakowski of EPA3 mentioned that there are tools in the Water Quality Standards toolbox, including variances, that could be considered. Ms. Hakowski indicated that with CSO Long Term Control Plans still being implemented, it would be premature to consider a modified use.

John Jackson reminded the group that more uses of the river could create more resources to improve river, so aspirational goals may be good.

Adjournment

John Jackson moved to adjourn, and Jay Cruz seconded the motion. The motion passed unanimously, and the meeting adjourned at approximately 3:30 PM.