Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Delaware River Basin Commission
25 Cosey Road
PO Box 7360
West Trenton, New Jersey
08628-0360
Phone: (609) 883-9500 Fax: (609) 883-9522
Web Site: http://www.drbc.net

Steven J. Tambini, P.E.
Executive Director

Minutes
Water Quality Advisory Committee
May 14, 2019

Members & Alternates:

NYS DEC
Sarah Rickard (remotely)
EPA
Kuo-Liang Lai
Wayne Jackson (remotely)
NJDEP
Frank Klapinski
Environmental
Maya van Rossum (Delaware Riverkeeper Network)
Regulated Community Industrial
Bart Ruiter (Chemours)
Kim Long (Exelon, remotely)

DNREC
Dave Wolanski (remotely)
PADEP
Tom Barron
Matthew Kundrat
Academia/Science
John Jackson
Local Watershed Organizations
Not in attendance
Regulated Community Municipal
Jay Cruz (PWD)
Bryan Lennon (Wilmington Public Works)
National Park Service
Don Hamilton (remotely)

Other Attendees:
Steve Domber (NJDEP)
Alice Baker (Penn Future)
John Yagecic (DRBC)
Namsoo Suk (DRBC)
Li Zheng (DRBC)
Elaine Panuccio (DRBC)
Jake Bransky (DRBC)
Helen Pang (NJDEP)
Ian Piro (DELCORA)
Daisy DePaz (DRBC)
Shane McAleer (DRBC)
Tom Amidon (DRBC)
Fanghui Chen (DRBC)
Greg Voigt (EPA)
Michelle Price-Fay (EPA, remotely)
Kelly Somers (EPA, remotely)
Rhonda Manning (PADEP, remotely)
Sheila Eyler (USFW)
Eric Vowinkel (Rutgers University)
Brenda Gotanda (Manko Gold Katcher & Fox)
Michael Dillon (Manko Gold Katcher & Fox)
Steve Seeberger (NJDEP)
Jean Malafronte (Greeley and Hansen)
Andy Thuman (HDR, remotely)
Marco Alebus (NJDEP)
Erik Silldorff (Delaware Riverkeeper Network)

The meeting was called to order at approximately 9:40 AM by Jay Cruz, temporarily filling in for Bart Ruiter.

ED_005486_00005585-00001

Meeting Minutes

Draft minutes from the July 18, 2018 meeting had been previously provided to members for review. One addition had been recommended by e-mail by Jay Cruz, which was subsequently added to the minutes. The slightly revised minutes were projected for the group.

Frank Klapinski moved that the revised July 18, 2018 minutes be approved, and John Jackson seconded the motion. The minutes were unanimously approved.

Approved minutes are posted on the DRBC web site at:
[HYPERLINK "https://www.nj.gov/drbc/library/documents/WQAC/071818/mtg-summary.pdf"]

Comments and Responses on Nutrient Criteria Development Plan

John Yagecic recounted the history of the development of Nutrient Criteria Plans by DRBC. The existing plan is posted on the DRBC web site at [HYPERLINK "https://www.nj.gov/drbc/library/documents/nutrients/del-river-estuary_nutrient-plan_dec2013.pdf"]

Yagecic noted that since the existing plan (2013) had been posted, most deadlines in the plan had been missed, leading EPA to require a new plan. In response to EPA, DRBC drafted a revised Nutrient Criteria Plan and submitted it to EPA in November 2017. The draft revised plan was also shared with the WQAC for review and comment, and several WQAC members provided comments. The context of the agenda item was to review the comments and DRBC's proposed responses.

In reviewing the history of the plans, Yagecic noted that the existing plan (2013) envisioned completing the existing use project and associated dissolved oxygen (DO) criteria first, followed by a second project for development of estuary nutrient criteria. Yagecic indicated that DRBC's current preference was to have all nutrient related criteria completed at the same time, including ammonia toxics criteria. The draft revised plan (2017) called for determination of ambient total nitrogen (TN) and total phosphorus (TP) values, as part of the eutrophication modeling, that were consistent with new DO criteria. Under the revised draft plan, TN and TP criteria would be tied to a DO endpoint.

Erik Silldorff objected stating that the Delaware Estuary nutrients were excessive and that considering only DO endpoints would not result in reductions to TN and TP. He indicated that this approach was essentially the same as a proposal in the early 2000's, which was not endorsed by the WQAC, to adopt existing conditions in the estuary as criteria. Yagecic stated that this proposal was different in that under the current effort load reduction would be required. Silldorff noted that the load to be reduced would primarily be ammonia. Since ammonia would all be oxidized to nitrate, either in the treatment plants or in the estuary, the actual TN load would remain the same.

Silldorff indicated that the new approach failed to utilize effort and input of a nutrient criteria subcommittee. Silldorff also objected that this approach failed to address other nutrient impacts not associated with DO and the advancing science identifying those impacts. Yagecic noted that this comment was made during the July 2018 meeting and that DRBC had issued a task order to the Academy of Natural Sciences of Drexel University (ANSDU) to review and

ED_005486_00005585-00002

prioritize non-DO nutrient endpoints. The task order was projected for the groups review. Both Erik Silldorff and John Jackson suggested that discussion be broadened to include scientists specifically working the area of estuary nutrient impacts.

The group discussed multiple options for addressing the disagreements. The group agreed that a special meeting of the WQAC should be scheduled focused specifically on Nutrient Criteria Development. DRBC will schedule the requested meeting in September 2019.

Brief update on Kleinfelder engineering evaluation and cost estimation work

John Yagecic provided a brief update on the status of the Kleinfelder contract. DRBC entered into a contract with Kleinfelder to provide an engineering evaluation and cost estimate for Tier 1 dischargers to achieve lower levels of effluent ammonia and total nitrogen. The contract will be at the halfway point in August 2019. A December 2018 progress report was shared with the WQAC. DRBC expects to be able to share additional detail regarding progress at an upcoming WQAC meeting.

Water Quality Assessment Report Modernization – Process for identifying thresholds

Jake Bransky presented DRBC efforts toward modernization of the Water Quality Assessment Report for 2020. A copy of the presentation is available on the DRBC web site at:
[HYPERLINK "https://www.nj.gov/drbc/library/documents/WQAC/051419/bransky_WQassess-report.pdf"]

DRBC is currently in the process of modernizing its Water Quality Assessment Report and the processes used to create it. The modernization will involve several aspects including automation of data retrieval, evaluation of thresholds for triggering excursions/exceedances, and potentially development of web-based interface for public access to the report. The presentation discussed the evaluation of thresholds for triggering excursions/exceedances. DRBC is performing this evaluation because its current methodology may be inappropriate for the modern data types used in the report (i.e., large continuous datasets). Several potential options exist for evaluating these types of datasets and DRBC will evaluate which method is most appropriate for the Delaware River assessment. DRBC will consult with the WQAC and EPA as it progresses through the modernization process.

Maya van Rossum recommended that DRBC allow an extended public comment period for both the methodology document and the assessment report. Bart Ruiter requested that DRBC provide a draft approach in June 2019 to the WQAC for feedback.

Update on Eutrophication Model Development

Namsoo Suk provided an update on the status of eutrophication model development. A copy of the slides is available on the DRBC web site at:
[HYPERLINK "https://www.nj.gov/drbc/library/documents/WQAC/051419/suk_model-update.pdf"]

Namsoo highlighted reports completed since the July 2018 WQAC meeting and posted on the Commission's web site, including:

ED_005486_00005585-00003

- Primary productivity measurements collected in May and July of 2018
- DO needs of sensitive estuary species

Namsoo recounted some adjustments made to the point discharge nutrient monitoring effort and described the ongoing monitoring efforts in support of that project. DRBC modelers are performing diagnostic simulations on the EFDC model and cross-checking the EFDC-WASP8 linkage.

At future WQAC meetings, DRBC will be requesting formation of workgroups/subcommittees to evaluate allocation policies and procedures, ammonia toxicity by individual dischargers (mixing zone evaluations), and methods to estimate ultimate CBOD for major point and non-point sources.

Additional DO data review

This topic was divided into two parts, with a first presentation by John Yagecic, and a second presentation by Jay Cruz, both providing some additional evaluation of existing DO data. Both presentations are available on the DRBC web site at:
[HYPERLINK "https://www.nj.gov/drbc/library/documents/WQAC/051419/yagecic_DO_data-review.pdf"] and
[HYPERLINK "https://www.nj.gov/drbc/library/documents/WQAC/051419/cruz_PWD-DOanalysis.pdf"]

Yagecic's presentation evaluated the percent of DO Saturation by day-of-year at USGS monitors, the proportion exceedances at different candidate criteria values, the proportion exceedances by day-of-year for different candidate criteria values, and the impact of flow on DO at fixed temperature bands, all under existing conditions. Results showed that a candidate criteria value of 6 mg/L (as one example) would violate criteria approximately 22% of the time under existing conditions (or meet criteria approximately 78% of the time). Further analysis showed that violations would occur primarily in late summer, with violations exceeding 70% in mid-August. Yagecic indicated that plots showing DO at varying flows within narrow temperature bands did not indicate a relationship between flow and DO, but several members noted that some relationship was apparent at the lowest flows. Members recommended limiting the x-axis to <10,000 CFS to highlight flow impacts. Yagecic agree to revise the plots as recommended and show at a future meeting.

Jay Cruz presented an analysis of the frequency of attainment of various levels of DO using USGS station data from 2000-2018.The existing criteria have been consistently met in zones 2-4 for the past ten years. Short periods of non-attainment (approximately 1 percent of the time) occurred in 2002, 2005 and 2007. Provisional USGS data that are posted to the website are subject to revision until after they have been reviewed and approved. It is important to ensure that only approved data are used for water quality analysis. Cruz suggested that the committee should work toward a shared consensus regarding the characterization of historical DO data. Plots of DO saturation vs water temperature were also presented. Atmospheric reaeration and photosynthesis were suggested to be the primary mechanisms that increase the DO saturation while biochemical oxygen demand and sediment oxygen demand were identified as the primary factors that decrease DO saturation. There was almost no relation between water temperature and DO at Trenton, while stations farther downstream exhibited a negative relationship between DO saturation and temperature. The slope of the negative linear relationship between

ED_005486_00005585-00004

DO Saturation and temperature is strongest at the Ben Franklin station and appears to begin leveling back out as one moves downstream toward Reedy Island. When plotted by year and/or animated, these plots can often show hysteresis, with higher DO in the spring and lower DO in the winter relative to the overall linear relationship.

A series of alternative criteria were also investigated to see what the hypothetical attainment of these alternative criteria would have been given the historic observed DO data. "Attainment" of the 5mg/L daily average and 4mg/L daily minimum criteria was greater than 90% every year for the past ten years with the exception of 2012. The daily average of 5mg/L appears to be more difficult to meet than the daily minimum of 4mg/L. Historical "attainment" was also investigated with artificial DO subsidies (adding DO incrementally) as hypothetical "what-if" scenarios. It was emphasized that these DO subsidies were not intended to reflect any specific real-world scenario or project. Even adding as much as 1mg/L of DO subsidy was found to be inadequate to achieve 100% "attainment" of the 5mg/L daily average and 4mg/L daily minimum, particularly in the mid-2000s.

PWD DO Partnership Status

Jean Malafronte of Greeley and Hansen discussed the status of the PWD DO Partnership. Greeley and Hansen was selected to facilitate the Partnership on behalf of PWD. The focus of the partnership would be collaboration on DO improvements, understanding the aquatic science especially as relates to nutrients, and evaluating technology changes and early action. An initial meeting was held on April 10, 2019 that focused on DRBC's process. The next meeting is scheduled for June 2019.

John Yagecic indicated that the DO Early Action Workgroup was interested in working with the DO Partnership for efficiency. The DO Early Action Workgroup had initially intended to set up individual meetings with each of the Tier 1 facilities. Instead, the DO Early Action Workgroup is seeking to participate in portions of 2 meetings of the DO Partnership. The DO Early Action Workgroup is seeking to describe their charge and expectations during a meeting with the DO Partnership in the near term, followed by a 2nd meeting in the longer term during which facilities would report back on their early action strategies. Yagecic indicated that this change was in response to a recommendation by PWD. Jean Malafronte suggested sending an e-mail request which would be presented to the DO Partnership at the June meeting.

Biomonitoring next steps, workgroup

Jake Bransky described next steps for DRBC's biomonitoring program. DRBC is in the process of updating its biomonitoring program. As part of this process, DRBC contracted the Academy of Natural Sciences to review the program and provide recommendations for changes. DRBC would like to form a workgroup to solicit feedback on whether to accept the recommendations provided by the Academy or to continue with the current biomonitoring protocols.

Adjournment

Jay Cruz moved to adjourn the meeting and Tom Barron seconded the motion. The motion passed and the meeting was adjourned at 2:49 PM.

ED_005486_00005585-00005