



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

July 28, 2020

Members & Alternates:

NYS DEC

Sarah Rickard

EPA

Kuo-Liang Lai
Wayne Jackson

NJDEP

Frank Klapinski

Environmental

Maya van Rossum (DRN)

Regulated Community Industrial

Kimberly Long (Exelon)

DNREC

David Wolanski

PADEP

Tom Barron

Academia/Science

John Jackson (Stroud)

Local Watershed Organizations

Not represented

Regulated Community Municipal

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)

Samantha O'Connor (PWD)

Sean McKelvey (PWD)

Nick Tuttle (PWD)

Thomas Magge (PADEP)

Alex Ridyard (PWD)

Irene Fitzgerald (DELCORA)

Frank Borsuk (EPA)

Emily Nering (EPA)

Bill Brown (PADEP)

Rhonda Manning (PADEP)

Matthew Kundrat (PADEP)

Summer Kunkel (PADEP)

Matt Shank (PADEP)

Hoss Liaghat (PADEP)

Gary Walters (PADEP)

Rodney McAllister (PADEP)

Brian Chalfant (PADEP)

Rebecca Whiteash (PADEP)

Michael Lookenbill (PADEP)

Heidi Biggs (PADEP)

Michelle Moses (PADEP)

Biswarup Guha (NJDEP)

Crystal Blauer (NJDEP)

Steve Seeberger (NJDEP)

Deborah Kratzer (NJDEP)

Jack Pflaumer (NJDEP)

Helen Pang (NJDEP)

Marco Alebus (NJDEP)

Katherine Baer (River Network)

Brenda Gotanda (Manko Gold Katcher & Fox)

Meg McGuire (Delaware Currents)

Eloise Gibby (Greeley and Hansen)

Katherine Bentley (EPA)	Erik Silldorff (DRN)
Kelly Somers (EPA)	Faith Zerbe (DRN)
Brent Gaylord (EPA)	Eileen Althouse (CDM Smith)
Greg Voigt (EPA)	Sheila Eyster (USFW)
Michelle Price-Fay (EPA)	Steve Jandoli (American Littoral Society)
Denise Hakowski (EPA)	Michael Dillon (Manko Gold Katcher & Fox)
Andy Thuman (HDR)	Abby Jones (Penn Future)
Christopher Main (DNREC)	Verna Harrison (Verna Harrison Associates)
Joe Duris (USGS)	Verna Pelrine (Verna Harrison Associates)
Curtis Schreffler (USGS)	Doug O'Malley (Environment New Jersey)
Josh Furgeson	Jack Byerly (Clean Air Council)
Steven Unger	Melissa Muroff (Delaware County)
Ellis Foley	Tim Dillingham (American Littoral Society)
Michael Warren	Colleen Walters (River Network)
Randall Detra	Greg Wacik (USACE)
Molly Altz	Melanie Murphy (PWD)
	M. Walker (Clean Air Council)

8 additional participants were identified by phone number only.

Welcome and Call to Order

The meeting was called to order at approximately 9:35 PM by Frank Klapinski, held with remote attendance only, using GoToMeeting and call-in capabilities.

Review of WQAC Minutes from April 30, 2020

Draft minutes from the meeting on April 30, 2020 were provided by email previously. John Yagecic indicated that one additional change had been made to switch the names of 2 EPA attendees to clarify who was the EPA representative and who was also attending. Jon Jackson motioned to accept the minutes as amended. Kim Long seconded the motion. There were no objections and the motion passed. The final minutes are available on the DRBC web site at <https://www.state.nj.us/drbc/library/documents/WQAC/043020/minutes.pdf>

Update on Monitoring Program Impacts of Covid-19

John Yagecic indicated that DRBC monitoring programs had paused due to Covid-19. Bacterial monitoring resumed but was shifted from boat-based to resumption of shore-based monitoring initiated in 2019. Resumption of nutrient monitoring from tributaries including the Delaware at Trenton and the Schuylkill at Philadelphia was anticipated for August 2020. Other programs, including the estuary water quality monitoring program, were working their way through approvals for resumption.

Recreational Use Petition, Information, and Data

Members of the Delaware Riverkeeper Network, PennFuture, Clean Air Council, Environment New Jersey, and River Network made a presentation entitled "Safe & Healthy Delaware River: A Petition to DRBC & States" available on the DRBC web site at https://www.nj.gov/drbc/library/documents/WQAC/072820/DRN_Petition_RecUse.pdf

Maya van Rossum of Delaware Riverkeeper Network (DRN) introduced the petition and the other speakers.

Abby Jones of PennFuture reviewed the Clean Water Act, noting the national “fishable and swimmable” goal. She highlighted the three protective elements of water quality standards, 1) designated protected water uses, 2) water quality criteria, and 3) antidegradation protections. Ms. Jones indicated that all surface waters have both a “designated use” and an “existing use.” Existing Uses are those uses actually attained in the waterbody after November 28, 1975 whether or not they are included in the water quality standards. Ms. Jones indicated that existing uses “shall be maintained and protected” and that antidegradation protections mean they cannot be degraded. Ms. Jones reviewed DRBC’s role in setting water quality standards for the mainstem Delaware and the current designated recreational contact uses including recreation – secondary contact is Zones 3 and upper 4. She stated that the petition urges the DRBC and its member states to recognize the existing use of Primary Contact Recreation.

Jack Byerly of Clean Air Council highlighted recreational activities occurring in Zones 3 and upper 4 including kayaking, stand-up paddleboarding, and paddleboard yoga. Mr. Byerly stated that kayaking, canoeing, stand-up paddleboarding, jet skiing, water skiing, and wakeboarding would all be considered primary contact recreation. He highlighted that different organizations that were associated with recreational activities in Zones 3 and upper 4 including the Independence Seaport Museum, Aqua Vida, UrbanPromise’s Urban Boatworks and Urban Trekkers, the Center for Aquatic Sciences at Adventure Aquarium, and the Upstream Alliance.

Doug O’Malley of Environment New Jersey reviewed DRBC Rules of Practice and Procedure indicating that the Commission may receive and consider proposals for changes and additions to the Comprehensive Plan which may be submitted by any agency of the signatory parties, or any interested person, organization, or group. Mr. O’Malley highlighted past involvement of DRN and other groups in helping shape policy, including the establishment of DRBC’s Special Protection Waters program. He also reviewed assertions of the petition.

Colleen Walters of River Network highlighted that 48 organizations had signed on to the petition, representing over 1400 individuals. Ms. Walters reviewed written testimonials of people who had participated in recreational activities in Zones 3 and upper 4. Ms. Walters shows a video of recreational activities in this part of the river.

Additional Recreational Use Discussion

Kelly Anderson of PWD recommended that canoeing and kayaking as “primary contact” activity should be evaluated or further discussed within the Committee. She noted that there are different interpretations of the risk evaluations that determine whether significant contact /immersion in the water occurs during certain types paddling/ rowing activities mentioned throughout the presentation. K.L. Lai of EPA noted the CWA provisions at Section 131.10(i) that ambient water quality standards reflective of existing water quality conditions should be met as expeditiously as possible.

Dave Wolanski of Delaware stated that for the State of Delaware, “Secondary Contact Recreation” means a water-based form of recreation, the practice of which has a low probability for total body immersion or ingestion of water (examples include but are not limited to wading, boating, and fishing).

K.L. Lai stated that for utilities that serve disadvantaged communities such as those located in environmental justice areas, the CWSRF programs can provide some loan forgiveness, lower interest rates below the State average, and extend repayment periods to make the project affordable to the community.

Bryon Lennon of Wilmington Public Works asked if DRBC was likely to pursue a similar approach to that used for the aquatic life designated use. John Yagecic of DRBC stated that it was unclear to what extent recreational participants were aware of the water quality conditions, and that at least some would make different decisions if they were informed of the bacterial concentrations relative to criteria.

There was a general discussion about whether or not the use was an existing use if water quality was not supporting the use.

Bryon Lennon stated that the recreational water quality was tied to CSO management and that investments needed to address CSO management would be separate from and in addition to the investments needed for highest attainable DO. Kelly Anderson informed the group that there are 194 combined sewer outfalls that can influence water quality in this segment. When the sewer system is overwhelmed by heavy rains, these outfalls allow the mix of excess stormwater and untreated wastewater to be released into the tidal Delaware River and its tributaries. There are also numerous municipal and industrial wastewater discharge outfalls that can influence water quality in this segment.

Bryon Lennon suggested using the hydrodynamic modeler to help interpret the event-based impact on bacterial concentrations. Joe Duris of USGS described the Fluidion real-time bacterial monitor currently under evaluation by USGS.

Results of 2020 Water Quality Assessment Report

Jake Bransky presented draft results from the 2020 DRBC Water Quality Assessment Report. The presentation is available on DRBC's web site at https://www.nj.gov/drbc/library/documents/WQAC/072820/Bransky_WQ_AssessRpt_draft-results.pdf

A brief overview of background information and assessment methodology was provided. Results of the 2020 report were reviewed. Results from the assessment indicated a mixture of both supporting and not-supporting uses depending on location and use. Recommendations for future actions include defining the linkage between atmospheric and meteorological drivers of temperature exceedances, defining natural conditions for the application of pH criteria, evaluating how to integrate enhanced bacterial monitoring data into contact recreation assessment, and additional monitoring of pesticides in zones 2-6 due to high readings in single sample. Clarification on deadlines for comments was provided via Q&A.

Evaluation of SPW chloride data

Elaine Panuccio presented a recent evaluation of available Special Protection Waters chloride data for Boundary Control Point (BCP) locations to determine if concentrations of chloride can be explained by some known explanatory variable(s). The presentation is available on DRBC's website at

https://www.nj.gov/drbc/library/documents/WQAC/072820/Panuccio_Chloride_SPWdata.pdf

Evidence of measurable change of chloride and specific conductance concentrations across most sites had been indicated in the Lower Delaware No Measurable Change Assessment (2009-2011), which corroborates the global concern of freshwater salinization issues. Human activities contribute to increasing and compounding salinity and chloride concentrations, such as: road deicing, increasing impervious surfaces, agriculture, wastewater, water softeners, and other factors. Some risks of increased chlorides and salinity include toxicity to wildlife at certain thresholds, changes to infrastructure, and mobilization of metals. Other unknown and/or combined effects are likely. Various sources that cover freshwater salinization, such as reports, webinars, and news articles were identified to highlight the prevalence of this issue. Panuccio continued to describe the CART (Classification and Regression Tree) analyses and the data that were utilized for the evaluation. Using R Statistical Programming, chloride data were analyzed as a function of urban area, population, and road density for each BCP site. The program for the CART analyses selects an algorithm that determines the explanatory variable that most efficiently splits the chloride data into 2 groups, with this iteration repeated until all splits in data are completed. For the SPW Chloride CART analyses, it is clear that road density/urban area influences median chloride concentration(s), but there are questions that remain. Further assessments will be completed to assess forested area, agricultural land area, impacts from point-dischargers, precipitation, and seasonal effects. Future monitoring and future actions/mitigation efforts were discussed by the group, which included alternatives to chloride-based deicers and DOT improvement plans regarding application of deicers, in addition to discussions about DRBC's plans for a chloride study in SPW tributaries in 2021 and USGS's NextGen new and enhanced stream gages in the SPW watershed.

Estuary Salinity Modeling

Dr. Fanghui Chen made a presentation on application of the Delaware Estuary hydrodynamic model to sea level rise scenarios available at

https://www.nj.gov/drbc/library/documents/WQAC/072820/chen_Model_SLRsimulations.pdf

The 3-dimensional model was developed using the Environmental Fluid Dynamics Code (EFDC) platform. The model was refined and calibrated over a representative range of hydrologic conditions including years 1964-1965, 2001-2002, 2011-2013, and 2017-2019. Simulations were performed for different sea level rise, hydrology, and additional flow using a dry year (2002) augmented with additional release flow.

Dr. Chen evaluated increases in sea level of 0, 0.3, 0.5, 1.0, and 1.6 meters and the resultant location of the salt front during a 4-month low flow period. Dr. Chen also evaluated the results of mitigation involving adding additional release flow of 500 and 1000 CFS over a period of two months.

Results showed that sea level rise of 1.0 m or greater would push the salt front above RM 92.5. Under these conditions, significant amounts of water would be needed to keep the salt front below RM 100 based on 2002 hydrology.

PWD requested that upon completion, the model calibration report be shared with interested stakeholders, including the Regulated Flow Advisory Committee (RFAC). DRBC concurred that this was its intent.

Freshwater Salinization

Dr. John Jackson of Stroud Water Research Center presented on general status of freshwater salinization and on specific research performed at Stroud. Dr. Jackson reviewed closely related water quality parameters including salinity, total dissolved solids, conductivity, various salts, and chloride. He also reviewed the ions that make up common salts and sources of salts in surface waters.

Reviews of road salt use time series show that salt use increased from the 1940s through passage of the Clean Water Act in 1972 and appears to have increased again in the mid-1990s. Interlandi and Crockett (2003) showed that both sodium and chloride doubled in the Schuylkill River in the period from 1970 to 2000.

Stroud research demonstrated that salt is more toxic in a soft water system than in a moderately hard system. Their research also confirmed that temperature dramatically impacts toxicity of salt such that LC50 concentration is much lower at warmer temperatures than at colder temperatures. Toxicity increases with an increase in duration, decreases with an increase in hardness, and increases with temperature.

Salt applications increased to protect public safety and increase accessibility after snowfall events. Salt application reduced accidents and lost productivity associated with snowfall. Concerns however include drinking water health impacts and taste, infrastructure corrosion, and aquatic life toxicity. Increased salt use reflects the best of intentions and public demand, and negative impacts will not be easily resolved.

Aquatic Life Use status

Dr. Namsuk Suk updated the group on the status of DRBC's Aquatic Life Use efforts. Dr. Suk's slides are available at https://www.nj.gov/drbc/library/documents/WQAC/072820/Suk_StatusUpdate_AquaticLifeUse.pdf

Dr. Suk recounted the studies called for by [Resolution 2017-4](#). Dr. Suk indicated that the 2-year point source discharger effluent monitoring was completed in spring 2020 with the exception of one facility. In addition, DRBC's intensive nutrient monitoring for model calibration was performed in 2018 and 2019. Supplemental data collection efforts initiated in 2020 included estuary ambient monitoring, nutrients and algal speciation, light extinction special monitoring, bi-weekly Trenton and Schuylkill monitoring, and monthly tributary monitoring.

After the December 2019 Expert Panel meeting, DRBC developed and implemented methods to calculate point source loads (concentrations) for the 2018-2019 period, estimate atmospheric deposition, and establish the sediment diagenesis model framework. In addition, the DRBC modelling team developed and applied regression methods to specify flows and concentrations for 124 estuary sub watersheds.

Between March and May 2020, DRBC held six 2.5-hour remote meetings with partial or full panel to assess vertical resolution options for the hydrodynamic model, initiate calibration of the 2D and 3D hydrodynamic models, optimize EFDC-WASP linkage time steps, develop a site-specific formulation for light extinction, enhance the formulation for re-aeration, develop Pre- and Post- processors, and finalize the 18 -state variable calculation methods for point sources, NPS and ambient data. DRBC expects to have a Joint Meeting between WQAC and Expert Panel in Fall 2020.

Adjourn

The meeting was adjourned at approximately 2 PM.