Science and Technical Advisory Committee
Partnership for the Delaware Estuary: A National Estuary Program
www.DelawareEstuary.org

Annual Joint Meeting of the Science and Technical Advisory Committee (STAC) and the Monitoring Advisory and Coordination Committee (MACC)

Meeting Minutes (Meeting No. 49)

Monday, June 17, 2019
10:00 A.M. to 3:00 P.M.
Delaware River Basin Commission – Goddard Conference Room
25 Cosey Rd., West Trenton, NJ 08628

STAC Attendees:

David Bushek (Rutgers)
Gregory Breese (USFWS)
Jeff Fischer (USGS)
*Dorina Frizzera (Getting to Resilience, LLC)
Kevin Hess (PADEP)
Danielle Kreeger (Science Advisor, PDE)
Kristin Regan (EPA)
*Allison Rogerson (DNREC)
Pete Rowe (NJ Sea Grant)
Namsoo Suk (DRBC)
*David Wolanski (DNREC)
Metthea Yepsen (NJDEP)

MACC Attendees & Others:

Eric Bind (NJDOH)
Jake Bransky (DRBC)
Kurt Cheng (PDE)
LeeAnn Haaf (PDE)
Meg McGuire (Delaware Currents)
Ron MacGillivray (DRBC)
Eric Vowinkel (Rutgers)
*Kuo-Liang Lai (EPA)
Elizabeth Wason (ANS/Drexel)
Li Zheng (DRBC)
*Sheila Eyler (USFWS)*Bob Schuster (NJDEP)
Matt Fritch (PWD)
Jack Gibs (retired USGS)
*Eric Ernst (NJDEP)
Heather Heckathorn (USGS)
John Kushwara (EPA)
Leslie McGeorge (NJDEP)
Elaine Panuccio (DRBC)
Andrew Weber (NPS)
*Andy Thuman (HDR)
William Richardson (EPA)
John Yagecic (DRBC)

**Participated by phone and GoToMeeting*

1.) Call to Order & Introductions

- **E. Panuccio** called the STAC/MACC meeting to order at 10:00 am.
  - Attendees introduced themselves.

2.) STAC Business

- **D. Bushek** motioned to accept STAC minutes contingent on edits provided within one week.

- **M. Yepsen** seconded motion
- All pass

3.) Resolution 2019-2 to continue the Monitoring Advisory and Coordination Committee(MACC)

- MACC resolution overview. Further discussion will occur at a separate meeting.
  - **L. McGeorge** asked for confirmation that MACC incorporates different freshwater environments.
  - **J. Yagecic** confirmed this statement.
- Expiration of Resolution 2014-4 discussed and how DRBC will discuss filling vacancies on the MACC at the standalone MACC meeting in autumn.
- Link to the updated resolution was shared via email during lunch hour.

4.) STAC-MACC Member Updates

- **M. Yepsen**
  - NJDEP Division of Science and Research has contract with Penn State University to add New Jersey wetlands to their database using data collected along Delaware Bay. Also, future to include non-tidal wetlands
  - New Jersey working to expand tidal wetland monitoring support.
  - Diatom identification guide for tidal wetlands.

- **M. Fritch**
  - Bacteria sampling in the Delaware (wet weather data) onshore sampling
  - Sampling surface waters for PFAS near intakes
  - Working with USGS on ChlA by Ben Franklin Bridge and Pennypack

- **L. McGeorge**
  - Rotating monitoring basin emphasis currently in Raritan
  - HAB response program for past 3 years. Beach closures and state parks already. Report anything you see so they can respond
  - HABs found on state lands including Spruce Run Reservoir and Swartswood Lake.
  - PFAS ongoing strategy development (expressed interest in working with DRBC).

- **D. Kreeger** discussed a STAC brief potentially on HABs and PFAS

- **H. Heckathorn**
  - National team maintaining next generation system. Installing stations for water temperature and specific conductance monitoring. Stations will be continuous long-term monitoring.

- **J. Fischer**
    - Added 30 new stream gauges in the basin
    - Neversink, Little Lehigh, White Clay Creek
    - Trying to predict flows on non-gauge sites
    - Test site at Ben Franklin to test various parameters.
    - Looking to add Delaware Memorial Bridge as well

- **P. Rowe**
    - Red Knots, aquaculture, HSCs more data from Daphne Munroe funded through New Jersey Sea Grant.
    - NJSG received roughly 40 pre-proposals with 20 going-to-full proposals.
    - Some included research in Delaware Estuary.
    - Some about Red Knots and aquaculture.
    - National Sea Grant aquaculture competition.
        - 4 proposals within Delaware Estuary.
        - Should have updates within a week or two.

- **D. Bushek**
    - East Coast wide program to see how shellfish and aquaculture move up and down coast. Trying to prevent spread of disease from region to region. Working with New Jersey Bureau of Shellfisheries.
    - One component is the database to inform regulators and industry.
    - One component is to look at protocols, BMPs, etc.

- **A. Rogerson**
    - Updating state Wetland map with a new map and report highlighting wetland change soon.
    - Continuing to monitor wetlands in northern Delaware this year.

5.) DRBC Enhanced Monitoring Activities for Estuary Eutrophication Model Development

- **E. Panuccio** presented on Tributary Nutrient Monitoring in support of model development.
    - Lab results available from 2018.
        - Data from portal ready for download here: https://www.waterqualitydata.us/portal/#organization=DRBC&project=Tributary%20Nutrient%20Monitoring&startDateLo=01-01-2018&startDateHi=12-31-2018&mimeType=csv
    - 25 total sites
    - Target sample times at slack tide at sites located at or below the head-of-tide.

    - Most nutrient parameters analyzed at all sites with some parameters limited due to cost.
    - Dropped CBOD-20 at 30 degrees and switched to CBOD-20 standard method in 2018. In 2019, CBOD-20 was completed dropped and switch to CBOD-5.
    - SKN added to all sites in 2019
    - 2019 monthly monitoring is on schedule starting from March (sampling period for this project ends in October).

- **E. Panuccio** presented on bi-weekly monitoring at Delaware River at Calhoun Street Bridge and Schuylkill River at East Falls Bridge in support of model development.
    - **Lab results available from 2018.**
        - Data from portal ready for download here: https://www.waterqualitydata.us/portal/#organization=DRBC&project=Delaware%20at%20Trenton%20and%20Schuylkill&startDateLo=01-01-2018&startDateHi=12-31-2018&mimeType=csv
    - Dropped CBOD-20 at 30 degrees and switched to CBOD-20 standard method in 2018. In 2019, CBOD-20 was completed dropped and switch to CBOD-5.
    - SKN added.
    - On target with sampling in 2019, starting in January.

- **L. McGeorge** STORET has been changed to Water Quality Exchange (WQX) and available through Water Quality Portal.

- **J. Branksy** presented on light extinction sampling.
    - Sub-model within Eutrophication model (Repeat of 2018 project).
    - Sampling parameters are PAR, TSS, CDOM, ChlA, turbidity, secchi depth, DO, temperature, conductivity, pH (2018) and included color and DOC in 2019. Sampling from Trenton – Wilmington.
    - 15 samples in each of Zones 2, 3, 4, and 5 (60 total samples). Samples are surface (1 meter depth) only.
    - Range of tidal stages covered.
    - 3 sampling events scheduled for 2019. July, August, September.

- Group suggested considering depth and tide stage for sampling.

- **J. Branksy** presented on primary productivity sampling to support eutrophication model.
    - Bottom and surface sample at each site. Samples sent to Tom Fisher at University of Maryland.
    - One event completed with another one scheduled for July.
    - Eutrophication model project may be done completely by 2023.
- **D. Kreeger** asked if eutrophication model includes any biological sinks (e.g. grazers) on ChlA.

- **J. Yagecic** said yes, included as a loss term nonspecific to an individual species or mechanism. It is an aggregate of system processes.
- **J. Gibs** mentioned a report on biological sinks and wetland dynamics in the Delaware Estuary crediting D. Wolanski.

- **E. Panuccio** (for **N. Suk**) presented on ultimate BOD
  - Monitoring from May-October.
  - Monitoring every 2 weeks at Delaware River at Trenton and Schuylkill with monthly monitoring at other sites (Rancocas Creek, Neshaminy Creek, and Brandywine Creek).

- **J. Yagecic** presented on boat run.
  - Monitoring is over 50 years old.
  - Collects samples at 22 stations once a month.
  - Recently transitioned from April – October to nearly year-round.
  - Run was missing high ammonia concentrations.
  - Winter weather makes year-round sampling challenging.
  - All data available on DRBC website.
  - Parameters are nutrients / nutrient related.
  - Adding algal species identifications along with Academy of Natural Sciences.
  - DO has a clear improvement from 1960s – Current.

- **E. Panuccio** presented on point discharge monitoring
  - 71 facilities included in round 1 monitoring between 2011-2015.
    - 32 facilities moved onto round 2 monitoring for 2018-2019 period (12 Tier 1 facilities monitor weekly and 20 Tier 2 facilities monitor monthly).
  - Facilities are tiered and most are typical large entities within basin (facility list by tiers and required parameter list included on PowerPoint).
  - Most facilities are on track for monitoring.
  - Streamlined parameters after Eutrophication Expert Panel meeting in March of 2019.

6.) Other DRBC Monitoring Efforts

- **J. Bransky** presented on microplastic study.
  - Study is funded through a NFWF grant.
  - Water column sampling in July and October.
  - Working with Temple WET Center.
  - Two year project
    - 1 year sampling /analysis
    - 2 year cleanups in watersheds

- **D. Kreeger** - What is major goal of DRBC with microplastics?
    - To gain understanding to ask future questions.
- Discussion regarding microplastics vs. macroplastics and relative impacts.
- DRBC is responding in part to public demand and interest.
- The project is designed to fill gaps on knowledge, since other projects often focus on extreme ends.
- Tying water quality to littering and plastic pollutants.
- Potential to regulate more? Kelly O'Day raised issue to DRBC.
    - Trash TMDLs currently in Denver
- Methods and sampling are still being developed.
    - **L. McGeorge** expressed interested in joining DRBC's microplastics sampling efforts for method development purposes.
- Filter-feeding physiology can respond to plastics and concentrations of plastic that could be harmful is unknown.
- **B. Watson** – **K. St. Laurent** looking at biological endpoints of plastics in Delaware.

- **J. Bransky** presented on freshwater mussel caging near Lehigh River.
    - Cage mussels up and down stream of Lehigh in the mainstem Delaware.
        - Lower water quality in this area in addition to different biological communities downstream and upstream of the Lehigh.
    - 12 cages upstream and 12 downstream.
    - Mussels will be monitored for growth and survival.
        - Will freeze a subset of samples for future in case further studies are needed when funding is available.

- **J. Yagecic** presented on bacteria monitoring
    - All Delaware River is designated contact recreation everywhere except Zone 3 and upper part of 4 (secondary contact).
    - CSOs have always been an issue but Philadelphia has been making some progress with Green City initiative. Primary contact already regularly occurring.
    - Near-shore monitoring Zone 3 and upper 4 five times per month from May – September.
    - Fecal Coliform, Enterococci, E. Coli
- **D. Kreeger** asked if rain events are captured or if targeting anything specific?
    - **J. Yagecic** explained that sampling is based on availability. We are capturing events and possibly looking towards something like a CSOcast monitoring program to inform public.
    - Might there be an effect after 72 hours vs. 48 hours?
    - Discussion on water quality considerations vs. public safety concerns with regard to the Delaware River being an active shipping channel with very strong currents.

    - Even without achieving the goal, working towards swimmable, fishable, and access is commendable.
    - **M. Fritch** CSOcast uses rain data to model discharge and CSO activity.
- **J. Gibs** mentioned the value of paired turbidity data along with bacteria samples.
    - **J. Yagecic** confirmed measurement of turbidity moving forward with project.

- **G. Breese** discussed red knot and horseshoe crab monitoring
    - Red Knot monitoring in Delaware Bay
    - Horseshoe crab harvest regulations is linked to Red Knot population estimates.
    - In 2019, most Red Knots stayed along New Jersey side as opposed to moving to Delaware side. Seems as though birds gained weight and moved along on time.
    - Red Knots and HSC populations have generally been stable with potentially some slight increase in HSCs.
    - Adjustments in population in response to regulation could take up to 20 years to observe.
    - There could be interactions with shoreline adjustments and movement of available beach habitat.

Break for Lunch 12:10 pm – 1:-00 pm

7.) PDE Updates

- **D. Kreeger** (for A. Padeletti) presented on monitoring needs assessment
    - PDE continues to put together STAC/MACC meeting, State of Estuary report, and Monitoring Workshop (new).
    - Inventory critical monitoring in region and flag gaps and ID priorities with a focus on estuary.
    - Had a monitoring workshop that helped identify ways to improve the database.
    - PDE website contains monitoring workshop and report.
    - NOAA has interest in building monitoring database into ERMA GIS interactive map
    - Database has 641 projects to date.

- **K. Cheng** reported on PDE's freshwater mussel recovery program at PDE involving juvenile and adult mussels.
    - Free released adults generally have washed downstream but some sites retain mussels well
    - PDE is experimenting with different parameters related to juvenile mussel monitoring
    - Stocking density and maintenance are important.
    - Juvenile mussels may be a useful resource for monitoring water quality in future

- **L. Haaf** provided an overview of the Mid-Atlantic Coastal Wetlands Assessment.

- Data, methods, and other tools are all available on PDE website.
- MACWA.org is also available and still being improved.
- Data and methods are shared.
- Seaspatial.com/wetlands offers mapped site and watershed scores to allow stressors to be assessed spatially.

- **D. Kreeger** (for Josh Moody) summarized PDE's living shoreline monitoring program.
  - Living shorelines are a significant part of the CCMP.
  - Installed 15 shorelines at 8 locations.
  - PDE helped develop monitoring frameworks for Delaware and New Jersey.
    - Frameworks are goal-based to suit interests of diverse land-owners and stakeholders.
  - Wetland restoration decision support tool can standardize site-assessment to guide restoration decision making.

- **D. Kreeger** discussed 2000-2018 Delaware Bay Seston Monitoring Project.
  - Oysters feed on various particles in the water.
  - Typical water quality monitoring incorporates turbidity and ChlA that may not capture entire story for oyster diet.
  - Seston proximate biochemistry indicates a food "poor" condition overall.
    - **D. Bushek** noted that oysters may be food limited at very specific stations but generally demonstrate good growth and condition.
  - Bioavailable seston from 2000-2018 has generally declined potentially due to increased erosion of wetlands adding mud/detritus to the water.
  - Estuary Turbidity Maximum could be a main source of limited productivity in Delaware Bay due to shading within water.
  - If there is interest, there are method of determining the source of sediment within the bay.
- Group briefly discusses marsh processes including "marsh cannibalism"

8.) Roundtable Discussion

- **B. Schuster** would like to offer out techniques for microbial source tracking tests to deal with recreational water use around CSOs, specifically Male Specific Coliphage viral indicator (more specific towards viruses).
- **J. Yagecic** was puzzled why lab capacity to detect HABs at EPA's low thresholds is very limited or nonexistent.
- **P. Rowe** asked if monitoring programs are up to date on new methods and technologies.
  - PDE counts on the STAC to share and inform on these types of questions and sharing new technologies.
- **D. Kreeger** suggested adding "new technology sharing" to agenda next year.

- **D. Kreeger** motioned to adjourn
    - **P. Rowe** seconded

Adjourned at 2:50 pm