Delaware Center for the Inland Bays
Scientific and Technical Advisory Committee
July 30, 2021, 9:00 a.m. to noon - Zoom Meeting

Attendees:

STAC Members
Jennifer Volk, Chair
Doug Janiec, Vice Chair
Scott Andres, DGS
Rob Gano, DNREC
Mi-Ling Li, UD
Chris Main, DNREC
Tyler Monteith, DNREC
Ashley Norton, DNREC
Bhanu Paudel, DNREC
Suni Shah-Walter, UD
Roger Shepherd
Kelly Somers, USEPA
Kari St. Laurent, DNREC
Ashley Tabibian, DNREC
Rich Watson
Ed Whereat, UD

CIB Staff
Marianne Walch, STAC Liaison
Bob Collins
Zach Garmoe
Nivette Pérez-Pérez
Michelle Schmidt

Others
Ferry Akbar Buchanan, USEPA
Mike Bott, DNREC
Jonathan Cohen, UD
John Grandy
Taylor Hoffman, UD
Aimee Isaac
Mike Mensinger, DNREC
Caitlyn Mitchell, DNREC
Rachael Philos, DNERR
Bill Richardson, USEPA
Alison Rogerson, DNREC
Sophia Schmidt, Del. Public Media
Justin Shawler, DNREC
David Wolanski, DNREC

The meeting was called to order by Jenn Volk at 9:01 a.m.

Announcements

- Jenn announced that Christian Schwarz has accepted a new position in Belgium and will leave the country and STAC at the end of August.
- 'Decked Out!' Fundraiser, Sept. 30th, to be held at the Big Chill Beach Club. Tickets now on sale through the CIB website. Also looking for sponsorships.
- Marianne Walch noted that we are looking for potential meeting spaces when in-person STAC meetings recommence. The DNREC field facility may not be available. The DNERR facility in Dover was suggested as a possibility.
- Doug Janiec announced RAE's Living Shorelines Tech Transfer Workshop, Oct. 19-20 in Cape May. He noted that some CIB projects would be presented there.

Old Business

Marianne gave an update on the State of the Bays report. The schedule for report production has been revised to accommodate other CIB priorities, and report release is now due to be in February. Analyses for most indicators is complete or nearly complete, and staff are working to finalize technical reports to send out for external review by STAC and other experts. Marianne will schedule two to three subgroup meetings between now and October. The final report draft should be complete by October. A portion of the October 29th STAC meeting will be devoted to discussing and approving the State of the Bays report.

New Business

The first half of the meeting was devoted to discussion of how DNREC uses water quality monitoring data to identify impaired waters and how both the State and EPA use the biannual integrated 303(d)/305(b) reports. These presentations continued the discussions began at the last STAC meeting when CIB presented continuous water quality data collected from the Indian River.

DNREC's Process to Develop the 303(d)/305(b) Report – Dave Wolanski, DNREC Division of Watershed Stewardship

Link to presentation

Dave gave an overview of the process used by DNREC to create the Integrated Report that combine the 305(b) Report and the 303(d) List, both required under the Clean Water Act. Total Maximum Daily Loads (TMDLs) must be developed for waters not meeting their designated uses.

Methodologies are updated in the summer/fall before even numbered years – starting now on methodologies for the 2022 report. Comments are invited from the public before data are analyzed. Methods haven't been changed much in recent years. Primary data source is the Delaware Water Quality Portal (http://demac.udel.edu/waterquality/), plus USGS continuous data. Citizen Monitoring Program data are reported in an appendix. DNREC invites data submissions, but they rarely receive any. The station roll up/ segment roll up process was explained. When a segment includes multiple stations, the worst station rules the determination. Draft results are published for public comment, and DNREC is happy to share the data used.

Jenn asked about frequency of changes in segment listings. Dave responded that the history of changes for each segment is now included in the reports. They do sometimes go back and forth. DNREC now uses EPA's ATTAINS (https://www.epa.gov/waterdata/attains) database exclusively to store information. The listing of segments still needing TMDLs currently is driven by habitat and biology listings that DNREC is trying to work through. It was noted that listings in the Inland Bays are driven entirely by nonpoint source issues, so tracking is important for driving implementation strategies for the Comprehensive Conservation and Management Plan and Pollution Control Strategy.

Dave prefers comments and data submissions as early as possible. CIB will be submitting continuous WQ data. Scott Andres noted that CIB is working to place all data in the Water Quality Exchange (WQX) and available through the WQ Portal.

Overview of the Integrated Reporting Process – Bill Richardson, EPA Region 3 TMDL Section

Link to presentation

Bill provided a general overview of the regulatory and reporting process the EPA uses to implement the Clean Water Act Sections 305(b) and 303(d). The program is based on the WQ standards that each state develops. It is a state-driven process. EPA provides guidance. The 303(d) program is a bridge between the WQ data and goals and implementation programs. EPA wants to see the states

use all available data as long as Quality Assurance criteria are met. He noted that celebrating successes through identification of unimpaired waters is just as important – often the focus is only on the impairments. EPA's regulatory authority is limited to the 303(d) impaired waters.

Nationwide, nearly 90,000 segments or assessment units are listed in ATTAINS as impaired, many for multiple pollutants. Top causes of impairment, in order, are pathogens, sediment, nutrients, metals, mercury, and DO. Bill explained TMDLs and the process to develop source allocations. Point sources are regulated through the National Pollution Discharge Elimination System program. Nonpoint sources are more of a challenge, managed primarily by the states. Resources for controlling nonpoint pollutants are inadequate. EPA provides states flexibility in how they develop TMDLs and manage their programs and priorities, emphasizing quality and results. He explained how the 303(d) links to other CWA programs: NPDES, 319 grants, NEPs, ATTAINS (How's My Waterway?).

Bill commended the CIB on its efforts to collect and provide continuous WQ data. EPA is working with states to provide more guidance on use of continuous data in assessments.

Jenn asked if there is any federal pressure or oversight to ensure that TMDLs are implemented within a timeline, similar to the Chesapeake program. Bill replied that EPA has no regulatory authority over nonpoint sources, and this is a weakness of the program. The Chesapeake's executive order provides that authority and funding uniquely. There is much more funding available for control of agricultural sources. The advocacy role of organizations like CIB is important.

The second half of the STAC meeting was devoted to monitoring of microplastics. Marianne noted that this could be a component of recommendations when the Inland Bays Environmental Monitoring Plan is next updated.

Microplastics Research in Delaware Bay/Inland Bays – Jon Cohen and Taylor Hoffman, Univ. of DE

Link to presentation

Over the past five years, Jon's lab at UD has been studying microplastics in the Delaware Bay, tidal creeks, and more recently the Inland Bays. The presentation covered background information about the plastics issue (production, use, fate). There has been an exponential increase in plastics production, and the length of use of the material is short. Microplastics (5mm or less) are the most abundant marine debris, and are everywhere on earth.

Taylor, a grad student in Jon's lab, discussed recent microplastic and microparticle sampling she conducted in the Inland Bays. Microparticles (suspected microplastics) were quantified using net-based digestion and Nile Red fluorescence approaches, and the polymer composition of microparticles was analyzed by FTIR to confirm and quantify microplastics. Mean Inland Bays microparticle concentrations were greater than in Delaware Bay but less than Delaware Bay tidal creeks. Fibers dominated. The Nile Red approach could be used by citizen scientists to locate relative microplastic hotspots.

Jon concluded the presentation with discussion of computer simulations and GPS drifters to examine transport of microplastics within Delaware Bay. More plastic is found upstream. Microplastics follow major currents and tidal movement and appear to be trapped within the estuarine turbidity maximum. Copepods and crab larvae are being used to assess ecological risk for microplastics exposure. This will be expanded to fish and shellfish.

Developing a Preliminary Conceptual Ecological Risk Assessment and Science Strategy for Microplastics in the Potomac River – Kelly Somers, EPA Region 3

Link to presentation

Kelly's presentation described the Chesapeake Bay Program Plastic Pollution Action Team (PPAT) was formed and tasked by the Chesapeake Bay Management Board with overseeing the development of ecological risk assessments (ERAs) looking at the effects of microplastics on Chesapeake Bay resources. (Jon Cohen also was part of this team). EPA contracted with Tetra Tech and collaborated with the PPAT and the Chesapeake STAC to develop: (1) a preliminary conceptual ecological risk assessment (using the Potomac River estuary as the model); (2) uniform size classifications and concentration units across common sampling media (water, sediment, organisms, SAV, shorelines); and (3) a science strategy and monitoring document to address microplastics. Young-of-year Striped Bass were chosen as the biological endpoint for the ERA.

All of the reports are available on the CBP website. A recent Bay Journal article also summarizes the work of the PPAT.

In response to questions about how a citizen science program to monitor microplastics could work, Kelly mentioned that it could be interesting to compare macro-litter data collected from the CIB's Inland Bays Cleanup events with microplastics data. Jon and Taylor responded that there are two citizen science models for microplastics monitoring: the Nile Red/coffee filter approach they used; collecting samples, filtering and sending to a lab. This could perhaps be a component of the Citizen Monitoring Program. Contamination of samples is a concern, but the citizen science approach is most useful for macro-scale mapping. Ed Whereat asked if the technique could be used on older, archived filters (5-10 years old). Jon replied, yes, as long as they were dried at temps below the melting point of the plastics. BMPs for managing plastic inputs to the Bays were also discussed.

The meeting was adjourned at 12:05 p.m. The next full STAC meeting is on October 29th.

Meeting notes submitted by Marianne Walch, STAC Liaison. Reviewed and approved by the STAC Chair and Vice Chair.