Delaware Center for the Inland Bays
Scientific and Technical Advisory Committee
October 29, 2021, 9:00 a.m. to noon - Zoom Meeting

Attendees:

STAC Members
Jennifer Volk, Chair
Doug Janiec, Vice Chair
Scott Andres, DGS
Mike Bott, DNREC
Chris Brosch, DDA
Rob Gano, DNREC
Andrew Homsey, UD
Deb Jaisi, UD
Chris Main, DNREC
Hassan Mirsajadi, DNREC
Ashley Norton, DNREC
Bhanu Paudel, DNREC
Kelly Somers, USEPA
Kari St. Laurent, DNREC
Rich Watson
Andrew Wozniak, UD
Ed Whereat, UD

CIB Staff
Marianne Walch, STAC Liaison
Zach Garmoe
Michelle Schmidt
Aviah Stillman
Lisa Swanger

Others
Susan Anderheggen
Ferry Akbar Buchanan, USEPA
Anne Lara
Laura Lockard, DNREC
Cathy Magliocchetti, USEPA
Keri Maull, DNREC
Ian McMullen, DNREC
Jim Palmieri
William Payne
Rachael Philos, DNERR
Alison Rogerson, DNREC
Yuriy Sakhno, UD
Ken Silverstein
Ted Spickler, Citizens Climate Lobby
Pamela Tyranski

The meeting was called to order by Jenn Volk at 9:00 a.m. with roll call and introductions.

Announcements

- Tyler Monteith has left his DNREC position and will no longer be serving on STAC. Mike Bott has now officially joined the committee.
- Call for biannual renewal of STAC memberships will be going out soon. If you wish to remain on STAC, please answer that call. And send an updated CV. Others interested in joining STAC were invited to apply.
- Michelle Schmidt announced the release of the new, revised CCMP and press event on 11/19. The document can be viewed at https://www.inlandbays.org/wp-content/uploads/CIB-CCMP-FINAL.pdf.
- Marianne invited STAC members to contribute to the Center's Annual Appeal.

Old Business

Wastewater Subcommittee

Link to presentation

Michelle Schmidt introduced the Center's new Watershed Assistant, Aviah Stillman. Aviah will be leading the Center's wastewater planning effort, which will require input from a STAC Wastewater Subcommittee. Key members have been contacted, but anyone interested in this topic is welcome to join the subcommittee. The purpose, objectives, and long-term goals of the subcommittee were presented and summarized. A question was raised as to whether biosolids would be included in the wastewater budget.

Continuous Water Quality Monitoring

Link to presentation

The CIB will be submitting 2020 continuous WQ data from the upper Indian River station (Wharton's Bluff) to the DNREC Watershed Assessment Section for use in developing the current 305(b)/303(d) report. Andrew McGowan summarized results of his analysis of that data using the state's methodology for continuous DO data and compared the results to analyses done previously by CIB. For this station (the only one with qualifying data for this current 305(b) report), the state's methodology using daily DO averages would conclude that the upper Indian River is not impaired, although the data clearly show periods of very low DO and the diel cycling results in the highs and lows cancelling one another out. However, the 'minimum threshold' criteria used by the state does indicate impairment.

Comments on methodology are due November 1, so there may not be enough time to provide extensive review for this round. For this particular data submission it doesn't matter, as current methodologies provide an accurate conclusion about that station. However, for the next submission in two years, more data and more stations will be available. It will be important for CIB staff and STAC to work with DNREC and EPA between now and then to ensure that analytical methodologies used for continuous data are appropriate.

Suggestions/comments from STAC members:

- Standardize time period for analyses – this would depend upon the resource(s) that we are trying to protect.
- Are there nonimpaired references for comparison?
- Bill Richardson at EPA may be able to provide insight on the time period of interest and also information on how other states and regional partners address this.

State of the Bays Report Update

Link to presentation

Marianne provided an update on the revised timeline for the report development. Current plan is to release the final report in April or May. A STAC subcommittee meeting will be held in a few weeks specifically to provide input on the water quality indicators. Marianne will also be sending out a survey to help finalize the reviewer list for each group of indicators. The final draft of the report is set to be approved by STAC at the February 16th meeting.

New Business

Tracing the sources of phosphorus along the salinity gradient in Love Creek Watershed using multi-isotope proxies - Deb Jaisi, Univ. of Delaware CANR

Link to presentation

Understanding of the phosphorus (P) load sources in watersheds is limited, largely due to lack of appropriate methods. Deb discussed multi-isotope proxies that his lab is applying to track P sources and evaluate their relative contributions in Love Creek, a tributary of Rehoboth Bay. Comparative analyses of concentrations and isotopes of carbon, nitrogen, and phosphorus in waters and their potential land sources (agricultural soils, forest soils, septic wastes, and plant debris) revealed that plant debris and soils from forests are dominant sources of P in the freshwater region of the creek. The contribution of terrestrial P sources gradually decreased along the salinity gradient, and agricultural soil sources gradually dominated in the saline water portion of the creek. Overall, these results provide improved insights into potential sources and biogeochemical processes in the Love Creek estuary.

Chris Brosch noted that the chemical association and combining knowledge of physical processes would suggest that farm soils (clays) are getting stuck at the tidal portion of the creek, and lighter colloids and detritus dominate the nontidal section because of their ability to be flushed out of the tidal section. Deb did not completely agree. Scott Andres said that another part of the study that looked at the impact of storm events was not funded. Deb replied that all samples were collected during base flow. However, sampling right after a storm would provide better data because the inputs would be fresh. Scott felt that farm soils would have been detected in the nontidal segment after a storm; riparian signatures dominate during base flow (Jenn Volk's graduate research, 2003).

Living shoreline project on the Lewes-Rehoboth Canal: lessons learned – Alison Rogerson, DNREC Wetlands Monitoring and Assessment Program

Link to presentation

Alison shared monitoring results from a multi-year living shoreline demonstration project constructed on the Lewes-Rehoboth Canal. The design and drive for the most recent phase of the project was rooted in monitoring done there as a control site to a 2014 project. Immediate beneficial changes were observed, including vigorous plant growth and excellent recruitment of oysters. This project was also a good example of partner collaboration and community involvement.

Delaware Inland Bays Watershed Status and Trends – Andrew Homsey, Bridgette Kegelman, and Kat Warner, Univ. of DE Water Resources Center

Link to presentation

Andrew provided a summary of analyses completed to update a number of watershed condition indicators for the State of the Bays report. These included land use/land cover (LULC), impervious surface coverage, and tidal marsh acreage and condition. Details and figures for each can be viewed inn the linked presentation. Each of the analyses encountered challenges associated with differences in the datasets used each time they are updated. As imagery improves and new datasets such as the National Wetlands Inventory (NWI) become available, collection and interpretation of newer data may differ from previous years and therefore not be directly comparable. Thus we are faced with challenges in comparing data over time to discover trends, and decisions must be made as to how best to present the newer data. In general we have elected to used the best data and reanalyze older datasets with the updated methods.

E.g., the availability of the NWI has meant that LULC areas previously interpreted as upland forest are now known to be freshwater wetlands. Historic LULC data was re-analyzed with the NWI data

overlaid so that all years since 1992 were comparable. Going forward, this higher-accuracy data for wetlands will be used. Data will not exactly match that shown in the 2016 State of the Bays report, but trends will be consistent. Developed/developing lands continue to increase over time, with a corresponding loss of agricultural lands and upland forest. Significant development is expected in upcoming years based on proposed projects.

USGS 2016 impervious surface data also is not consistent with that from previous years. Other datasets were used to derive an estimate of the actual percentage increase in IC between 2011 and 2016, and this can then be applied to the existing NOAA that was previously used to provide a new 2016 %cover point. IC has not increased greatly between 2011 and 2016, but a higher increase may be seen in the next dataset (2021) as the many proposed projects in the watershed are constructed.

The tidal marsh analyses looked at NWI, aerial imagery, and LULC data within a 300-m buffer along Inland Bay shorelines. It assessed overall acreage of tidal marsh and 'condition' as measure by area of fractured pooling (or interior open water). Overall, the areal coverage of salt marsh has not changed much since 1992. However, the condition as indicated by fractured pooling has steadily deteriorated. Messaging this may be challenging since the perception is that wetlands are being lost. Doug Janiec noted that many jump to the conclusion that wetland loss is totally a result of human activity (e.g., development and infrastructure). However, within the Inland Bays, and especially within tidal areas, shoreline erosion and associated SLR are some of the biggest contributors. Loss at marsh edges may not have been detectable with the 60m grid used for analysis, but cumulatively could be a significant area. Similarly, smaller areas of fractured pooling would not have been included in the totals. Andrew noted that using smaller grids would be extremely time-consuming and not feasible.

The meeting was adjourned at 11:50 a.m. The next full STAC meeting is on February 16, 2022 (which is WEDNESDAY).

Draft meeting notes submitted by Marianne Walch, STAC Liaison. Edited and approved by the STAC Chair and Vice Chair.