Delaware Center for the Inland Bays
Scientific and Technical Advisory Committee Meeting
April 23, 2021 - 9:00 AM to 12:00 PM, Zoom Meeting

The meeting was called to order at 9:03 AM by Chair Jennifer Volk

Attendees

STAC Members
Jennifer Volk, Chair
Doug Janiec, Vice Chair
Scott Andres, DGS
Chris Main, DNREC
Kari St. Laurent, DNREC
Tyler Monteith, DNREC
Kelly Somers, USEPA
Andrew Homsey, UD
Claire Simmers, CAC
Miling Li, UD
Kathy Coyne, UD
Holly Michael, UD
Bhanu Paudel, DNREC
Christian Schwartz, UD
Roger Shephard, citizen
Ashley Tabibian, DNREC
Richard Watson, citizen
Ed Whereat, UD

DCIB Staff
Chris Bason, Executive Director
Marianne Walch
Andrew McGowan
Michelle Schmidt
Zach Garmoe
Nivette Perez-Perez

Others
Aaron Givens, DNREC
David Wolanski, DNREC
Claire Cevcik, DNREC
Ping Wang, DNREC
Justin Shawler, DNREC
Gordon Woodrow, DNREC
George Mwangi, DNREC
Deb Jaisi, UD
AG Robbins, Citizen Monitoring Program
Brian Ashby, DNREC
Rachel (surname unidentified)

Meeting convened at 9:00 a.m.

DCIB Announcements

Michelle Schmidt – CCMP Update

The draft CCMP was sent to the USEPA in January; the received comments two weeks ago. The comments were generally minor and reflect the change in positions by the Biden Administration on such areas as Climate Change. They are attempting to get the revised document to the printer by mid-May and out to the public before the end of the current fiscal year.

Chris Bason – Pontoon Lagoon (https://www.dogfish.com/blog/pontoon-lagoon-weekend-dogfish-inn)

Chris discussed the upcoming Pontoon Lagoon Weekend (May 14-16) which DCIB is partnering with Dogfish Brewing Company. He briefly discussed the recent Mountaire Farms Settlement and the CIB position on it. He also mentioned the upcoming Citizen's Advisory Committee meeting (August 5, 2021) where the State of the Bays will be reviewed.

Marianne Walch – State of the Bays

Marianne indicated that many of the indicators have been developed. She stated that they will need additional assistance on reviewing the indicators and developing the associated text for the report.

Investigating the Impacts of Global Environmental Changes on Legacy & Emerging Contaminants –*Mi-Ling Li, University of Delaware*

Dr. Li studies global and local environmental issues related to ecosystem and public health, using a variety of tools including isotope geochemistry, quantitative modeling, and field observation. Her current research is on per- and polyfluoroalkyl substances (PFAS) contamination in Delaware bays, as well as her investigations on the source, transport, and fate of legacy heavy metals (e.g., mercury and lead) in various ecosystems.

She briefly discussed her research on legacy contaminants mercury and lead. She indicated that it was difficult to know the source of these contaminants since there is long range transport from many sources. She discussed how she utilizes isotopes as "fingerprints" for the contaminants. She is also working on defining major feeding habitats as a means of identifying the contaminant source.

Her latest research concerns the emerging contaminants per- and polyfluoroalkyl substances (PFAS – "Teflon"). These compounds are very stable, difficult to biodegrade, and will bioaccumulate. There are approximately 5000 types of PFASs. They are very good surfactants and are used in non-stick cookware ("Teflon"). They are also used in UV Protectants, paints, photography, and fire suppression foams. Since the compounds are difficult to degrade, a significant source is the effluent from wastewater treatment plants.

Human health impacts include cholesterol and thyroid disease, high blood pressure, immune system suppression, decreased fertility in women, lower birth weight in infants.

PFOA is currently restricted by the Stockholm Convention as an Annex A contaminant (Parties must take measures to eliminate the production and use of the chemicals). PFOS is currently restricted by the Stockholm Convention as an Annex B contaminant (Parties must take measures to restrict the production and use of the chemicals listed under Annex B in light of any applicable acceptable purposes and/or specific exemptions listed in the Annex).

EPA has established health advisories for PFOA and PFOS, based on the agency's assessment of the latest peer-reviewed science, at 70 parts per trillion. In Delaware, DNREC is working with the USEPA on regulation of emerging contaminants such as PFAS and PFOS. When PFAS/PFOS are detected in public drinking water in Delaware at concentrations above the EPA's health advisory limit (70 parts per trillion), DNREC implements a response plan, which may include alternate sources of water and/or water treatment, to ensure that public water supplies are safe to consume.

Dr. Li reported that there were significantly high PFAS readings along the Delaware Bay near Dover AFB and that St Jones Reserve had the highest PFAS concentrations found so far (higher than any others found in the country). Artesian Water Company also had readings as high as 1940 parts per trillion. The readings along the Delaware Bay were the highest of those taken along the East Coast.

She indicated that her research priorities are as follows:

1. Determine locations of sources;
2. Determine extent of potential bioaccumulation; and
3. Determine potential human health effects.

She stated that COVID19 has limited her research efforts ion the past year. She stated that they expect to start sampling again in Delaware Bay and the Inland Bays next week. They will be sampling oysters and fish.

Questions

1. ***AG Robbins stated that when the State was reconstructing the old bridge by Inlet Road there were heavy tanker truck accidents that may have caused the high readings there. He also indicated that Dover AFB performs frequent fire-fighting training exercises using foam that would lead to the high readings in that area.***
2. ***Chris Main noted that the DNREC Environmental Lab has analyzed samples from as far up the Delaware River as Trenton, NJ.***
3. ***Ed Whereat asked what the PFAS Detection Limits were?*** Dr. Li was not certain. She was also not aware of any specific PFAS toxicity limit for wildlife.
4. ***Mark Nardi asked whether they had considered any geochemical prospecting techniques to locate the PFAS Sources?*** Yes, several researchers were looking at various geochemical techniques. The problem is that there are so many potential sources which makes it difficult for source tracking. A discussion on source tracking continued.
5. ***Mark Nardi stated that there will be a report from the USGS within two months on PFAS levels in groundwater wells. He discussed the Dover AFB problem and stated that there may be certain bacteria that consume TCE that may also "eat" PFAS (research not final).***
6. ***Chris Bason stated that there is a bill in the Delaware Legislature that would begin to address the PFAS problem.***
7. ***Doug Janiec discussed the Dover AFB PFAS problem further by identifying the two major source pathways (Saint Jones River and Little River).***
8. ***Marianne Walch discussed sampling in the bays and the influence on water quality from dredging activities and marina sources.***
9. ***Claire Simmers discussed the discharge issues from the Indian River Powerplant***
10. ***Roger Shephard asked whether there were modelling/tracking predictions over time?*** Dr. Li indicated that there were some new compounds being investigated and that the contaminants do not dissipate but simply move within the water body.

Wastewater Planning – *Michelle Schmidt and Marianne Walch, CIB*

Michelle discussed the FY22 wastewater planning activities which include the formation of the Wastewater Planning Committee (scheduled to be formed by November 2021). The purpose of this committee is to provide increased coordination among the public and private entities responsible for managing decisions involving land use planning as well as permitting of wastewater nutrient concentrations and loads to the land. The committee will also work to ensure that present and future land-based wastewater contributions will allow TMDLs to be achieved. A white paper will be developed on wastewater planning and recommendations will be provided to the CIB Board of Directors and to DNREC for inclusion in the DTAP program.

STAC input and discussion is being sought on tracking of wastewater loads and development of the watershed nutrient budget for wastewater. Both are actions in the revised CCMP for which STAC is a lead.

Ping Wang, Brian Churchill, and Gordon Woodrow at DNREC offered to assist with providing data. Jenn Volk suggested reaching out to Olivia Devereux to learn how wastewater loads are handled In DTAP to determine what may also be useful for her efforts.

Continuous Water Quality Monitoring Network for the Inland Bays – Marianne Walch and Andrew McGowan, CIB

The development of a continuous water quality monitoring network, with a focus on tributaries, is a high-priority recommendation of the Inland Bays Environmental Monitoring Plan. To date, long term monitoring stations have been established at the following locations:

1. Wharton's Bluff,
2. Delaware Cultured Seafood,
3. Pepper Creek, and
4. Massey's Ditch.

Three short term monitoring stations have also been established with oyster reefs. Two more stations are planned to be installed during 2021.

Andrew discussed data management practices that have been employed and indicated that newly calibrated sensors are replaced once a week. He indicated that drift readings are taken upon return to the lab and that calibration summaries are retained. He provided a list of parameters being monitored.

He stated that measurements are taken every 30 minutes and that Wharton's Bluff was the only site with as full data record so far. As part of their analyses, they calculate the number of summer mornings when at least one DO observation was less than or equal to either 2.0 mg/L or 4.0 mg/L. Data was collected from June 1, 2020 through October 1, 2020 and only included observations between midnight and 9:00 AM each day. They found that 75.4% of the mornings had at least one DO reading of 4.0 mg/L or less and 48.3 % had at least one DO reading of 2.0 mg/L or less.

In order to assess long term poor DO events, data from the full record was used (April 7 – October 31, 2020) and included all observations regardless of time of day. The found that there were 39 occurrences where the DO was 4.0 mg/L or less for at least six consecutive hours and 18 instances where the DO was 2.0 mg/L or less for at least six consecutive hours. Andrew provided graphs of the various data.

Andrew indicated that the data had the following potential uses:

1. Providing an understanding of the actual water quality conditions and bio-geochemical processes including recurrent, episodic or extended hypoxia events;
2. Development and calibration of predictive water quality models;
3. Real time information and alerts via telemetry; and
4. High quality data for use by DNREC in determinations of impairment for 305(b)/303(d) reporting.

Andrew discussed current future plans including the installation of new FY21 monitoring stations and completion of the CWQM network plan.

There was a general discussion about WQ Data availability and uses from several STAC members and Dave Wolanski from DNREC provided some context on the data used presently for 303d/305b reporting Jenn Volk Indicated that she would schedule a follow up meeting with DNREC to further discuss use of CIB data for resource management.

Doug Janiec presented a video on a recently completed project.

The next meeting will be July 30, 2021. The meeting was adjourned at 11:27 AM.