



FINAL

NJ Water Monitoring Council

Measuring What Counts for Clean & Plentiful Water

September 23, 2020
MEETING MINUTES

Member Attendees

NJDEP – *DWM&S*: Bob Schuster, Alena Baldwin-Brown, Bruce Friedman, Brian Henning *DWS&G*: Ray Bousenberry, Jeff Hoffman, Catherine Jedrzejczyk *DSR*: Nick Procopio *DWQ*: Marzooq Alebus
OQA – Grey Respanti

NJDOH –

NJDMAVA –

USGS – Bob Reiser, Heather Heckathorn, Tom Imbrigotta, Pam Reilly

DRBC – Namsoo Suk, John Yagecic

EPA R2 – Emily Nering

IEC – Evelyn Powers

NJ Pinelands Commission – Marilyn Sobel

NJ Water Supply Authority – Heather Desko

Rutgers (Coop Extension Service) – Lisa Galloway Evrard

Rutgers (IMCS) –

Rutgers (Env. Bioengineering) –

Montclair University – Meiyin Wu

Monmouth University/Urban Coast Institute – Jim Nickels

Stockton University – Christine Thompson

NJ Sea Grant Consortium – Pete Rowe

NY/NJ Baykeeper – Allison Fitzgerald

Meadowlands Environmental Research Institute – Cheryl Yao

NOAA –

Monmouth County Health Dept. –

Barnegat Bay Partnership – Nicole Peterson

The Watershed Institute –

Musconetcong Watershed Association – Christa Reeves

Raritan Headwaters Association – Kristi MacDonald

Great Swamp Watershed Association –

American Littoral Society –

NJ Harbor Dischargers – Greg Alber

Brick Township MUA – Rob Karl, Will Ruocco

Guest Speakers/Discussion Leaders

Austin Baldwin – USGS IDWSC

Ashok Deshpande - NOAA

Cameron Fairclough – Woods Hole Oceanographic Institution

Nicole Fahrenfeldt – Rutgers University

Leslie McGeorge – DEP Co-chair Retired

Grace Saba – Rutgers University

Phoebe Stapleton - Rutgers University

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- **Council Business** (Copies of the agenda, updated minutes and most presentations are available on the Council's webpage, under "Meeting Information" - <http://www.state.nj.us/dep/wms/wmccmeetinginfo.html>)
- Minutes from the 05/27/20 Council meeting were approved as presented. Should one outstanding presentation summary be received, the minutes will be updated. [Note: writeup was received and updated minutes have been posted]
- The next meeting will be January 20, with a snow date of February 3, as either a virtual Teams meeting or an in-person meeting at DEP HQ [Note: meeting was rescheduled to the February 3 date]. The topic recommended by the Council for this meeting is uses of continuous monitoring, remote sensing and other predictive tools.

Information Updates, Presentations and Announcements:

1. *Information Updates and Announcements*

Member Updates

- The Council welcomed new members Jason Adolf (additional rep from Monmouth University), Allison Fitzgerald (NY/NJ Baykeeper) and Greg Raspanti (DEP/Office of Quality Assurance)

Announcements

- Bob Reiser announced that the National Water Monitoring Conference, scheduled for the week of April 19, 2021, is now going to be virtual. Ideas for sessions as well as abstracts for platform and poster presentations are still being accepted and should be sent to nwqmc@epa.gov.
- Bob Schuster announced that Pat Gardner has been named the Assistant Commissioner for DEP's Water Resource Management area, replacing Michele Putnam who retired on August 30.
- Alena Baldwin-Brown provided an update on current HAB-related information including confirmed blooms to date, partner trainings as well as development of various training videos (Report a HAB, Taking a Phycocyanin Measurement, Water Sampling and Reporting to DEP). [Note: all 3 videos are now available on the DEP HABs webpage - <https://www.nj.gov/dep/hab/> - and the BFBM CynaoHABs website - <https://www.state.nj.us/dep/wms/bfbm/CyanoHABHome.html> - under Monitoring, Report a HAB and Outreach Materials.
- Alena also announced the intention to enhance the NJWMC website. This effort is expected to occur throughout the fall and early winter. Council members are requested to send any updated photos, from their agencies, that they would like included on the redesigned site.
- Leslie McGeorge provided a brief thank you to Council members for their cards, emails, texts, flowers and other well wishes for her retirement, which was effective July 1.

Presentations:

Session – Monitoring for Microplastics in Water

- A. ***Summits to Stomachs: An Overview of Microplastics in the Environment*** – Austin Baldwin (USGS IDWSC) provided an overview of microplastics in the environment including types, sources, pathways and biological effects with a particular focus on occurrence and biological uptake in the Delaware River. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- B. ***Microplastics Particle Analysis of Hudson River Surface Water Using Flow-Through Imaging Raman Spectroscopy*** – Cameron Fairclough (Woods Hole Oceanographic Institute) summarized work done to analyze microplastics in the Hudson River from Manhattan to Albany. Results indicate that microplastic distribution appears to be a result of saline density with higher microplastic concentrations in areas with higher salinity. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- C. ***Monitoring Microplastics in New Jersey and the Northeast Region*** – Pam Reilly (USGS NJWSC) shared information regarding USGS microplastics monitoring activities including background on the Urban Landscapes Capability Team (which focuses on issues specific to urban areas), monitoring networks in NJ, microplastics-related monitoring in both NJ and the northeast, methods used and future collaborative microplastics-related research needs. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- D. ***Monitoring and Analytical Challenges and Techniques for Microplastics in NJ*** – Nicole Fahrenfeld (Rutgers University) discussed work that she and her team have done related to monitoring and analyzing

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for microplastics in ambient surface water, wastewater treatment plant influent, and sediment. She also included challenges they have faced and results they have achieved using various analytical methods. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]

- E. **Micro-and Nanosized Particles: Implications for Human Health** – Phoebe Stapleton (Rutgers University) summarized information related to the human health effects of exposure to both micro and nanosized plastic particles including inhalation, dermal contact and ingestion as well as particle uptake and translocation. She also presented risks/concerns and limitations/outcomes of this work. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- F. **Zooplankton Ingestion of Microplastics** – Grace Saba (Rutgers University) discussed the impacts of microplastics on the aquatic food web, specifically how they ultimately impact zooplankton. She detailed previous and current work in both Raritan and Delaware Bays at both high and low flow conditions along the salinity gradient, as well as upcoming work in Raritan Bay focusing on evaluation of larval fish traits that influence microplastics ingestion. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- G. **Chemical Characterization of Plastic Polymers, including Microplastics Analyses from the Raritan and Passaic Rivers** – Ashok Deshpande (NOAA) summarized work that NOAA has been doing related to general chemical characterization of various plastic polymers (including microplastics) using raman spectroscopy, infra-red spectroscopy, pyrolysis GC/MS and differential scanning calorimetry. In addition, he shared information from monitoring efforts that are ongoing in both the Raritan and Passaic Rivers. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]
- H. **Ecological Survey and Effects of Microplastics in Freshwater Lakes and Wetlands** – Aaron Stoler (Stockton University) provided an overview of work that he has done related to microplastics in both lakes and wetlands, including methods that have worked as well as those that have failed. He shared that his work is also investigating both the relationship of contamination to human density as well as, if microplastics are present, what type are being found and what is the response from the food web. [see <https://www.nj.gov/dep/wms/wmccmeetinginfo.html#2020> for presentation]

➤ **Topic for Next Meeting**

Uses of Continuous Monitoring Data

➤ **Next Meeting**

February 3, 2021 - virtual Teams Meeting

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Microplastics-Related Gaps/Needs (from Presentations and Discussion Sessions)

- Need better coordination of microplastics-related research and better communication of results
 - Could NJWMC be used as a vehicle for this?
- Need more and better information related to health effects of human consumption of microplastics
- Investigation into S. Jersey septic systems and the effects of microplastics on ground water in the coastal plain is needed
 - DEP BFBM is willing to assist in collecting samples
 - NOAA has students available for assistance with chemical analyses
- Additional information also needed on micro/nanoplastic occurrence in ground water near landfills
- Clean Ocean Action may have developed a microplastics-related database; need to reach out to Cate Tobin (CTobin@cleanoceanaction.org); weekly email updates listing new publications are also available.
- Need to rectify inconsistencies between microplastics studies related to interlaboratory verification, analytical capabilities related to particle size, particle uptake and subsequent excretion, and separation of particle vs chemical additives
- Need to explore density-based polymer distribution and abundance in upper, middle and lower sections of the water column
- Need to explore chronology of microplastics deposition in sediment cores – when did they 1st appear and are there any trends in deposition rate?
- Need to explore temporal and seasonal trends in polymer composition