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NJ Water Monitoring Council

Measuring What Counts for Clean & Plentiful Water

**September 21, 2016
MEETING MINUTES**

Member Attendees

NJDEP – *DWM&S*: Leslie McGeorge, Alena Baldwin-Brown, Bruce Friedman, Brian Henning, Helen Pang, Vic Poretti, Bob Schuster *DWS&G* – Ray Bousenberry *DSREH* Nick Procopio

NJDOH –

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

USGS (retired) –

DRBC – Tom Fikslin

EPA R2 – John Kushwara, Darvene Adams

IEC – Robin Jazxhi

NJ Pinelands Commission – Marilyn Sobel

NJ Water Supply Authority – Heather Desko, Sarah Helble

Rutgers (Coop Extension Service) –

Rutgers (IMCS) –

Rutgers (Env. Bioengineering) – Eric Vowinkel

Montclair University – Kevin Olsen

Monmouth University/Urban Coast Institute – Jim Nickels

Stockton College –

Meadowlands Environmental Research Institute –

NOAA – Matt Poach

Monmouth County Health Dept. – Dave Sorensen

Barnegat Bay Partnership – Jim Vasslides

Stony Brook-Millstone Watershed Association –

Musconetcong Watershed Association –

Raritan Headwaters Association – Angela Gorczyca

Great Swamp Watershed Association – Sandra LaVigne

NJ Harbor Dischargers – Lisa Obberreiter

Brick Township MUA – Rob Karl

Guest Speakers/Discussion Leaders

Mark Davis – NJDEP/ODST

Nancy Hamill – NJDEP/SRP&WM

Ward Hickman – USGS

Chris Kunz – NJDEP/DWM&S

Tim Reilly – USGS

Zoltan Szabo – USGS

Other Attendees

Kevin Berry – NJDEP/DWM&S

Kevin Biallis – NJDEP/DWM&S

Carmela Buono – AmeriCorps Watershed Ambassador

Teresa Guloy – NJDEP/DWQ

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Debbie Kratzer – NJDEP/DWM&S

Allison McCarthy – NJDEP/DWM&S

- **Council Business** (Copies of the agenda, minutes and many of the information updates and presentations are available on the Council's webpage, under "Meeting Information" - <http://www.state.nj.us/dep/wms/wmccmeetinginfo.html>)
- Minutes from the 05/19/16 Council meeting were approved
- The 2017 meeting schedule was announced – Jan 19 at NJDEP HQ (snow date – 2/1), May 24 at USGS and Sept 20 at DRBC. The technical theme for January is biological monitoring. Suggested presenters/presentation ideas should be sent to Leslie, Bob or Alena. Ideas for future meetings include sediment quantity, nutrients and/or aquatic life impacts.

Information Updates, Presentations and Announcements:

1. Membership Updates – **New Member:** Marilyn Sobel was introduced as the new representative for the NJ Pinelands Commission. The Harbor Dischargers Group is still deciding on its replacement member following the departure of Ashley Slagle. **Member Resignation:** Danielle Donkersloot has left NJDEP.

2. Announcements –

- Tom Fikslin announced the availability of 2 new reports from DRBC: the Lower Delaware Measureable Change Report and the 2016 Water Quality Assessment. Both reports are available from DRBC's website at: <http://www.nj.gov/drbc/quality/reports/wq-assessment-rpts.html>
- Bob Reiser announced that Tom Imbrigotta (the current USGS/NJWSC Water Quality Specialist) will now be focusing on ground water contamination and that Heather Heckathorn will be taking over the responsibilities of the NJWSC's acting Water Quality Specialist. Bob also provided an update on new/enhanced information in the USGS Sediment Data Portal (*see <http://www.nj.gov/dep/wms/wmccmeetinginfo.html> for additional information*)
- Heather Desko provided an announcement and several slides regarding the NJ Water Supply's discovery of *Hydrilla* in the Delaware & Raritan Canal as well as actions NJWSA has taken and continues to take with regards to this invasive aquatic plant (*see <http://www.nj.gov/dep/wms/wmccmeetinginfo.html> for additional information*).
- Pam Reilly shared information on several new surface and ground water reports and/or articles recently published by the USGS NJWSC. Additional information about each of them can be found on the USGS NJWSC website at: <http://nj.usgs.gov/news/>.

3. National Water Monitoring Information from the National Water Quality Monitoring Conference (NWQMC - <http://acwi.gov/monitoring/>) – Leslie McGeorge provided a summary of the National Water Quality Monitoring Council's summer teleconference. Key topics included 3 new types of informational materials regarding the Council that were produced this year: the Council's Calling Card, its Fact Sheet and the 2015-2016 activity highlights. The fact sheet and 2015-16 Highlights are available on the NWQMC website: <http://acwi.gov/monitoring/pubs/index.html>. Leslie also highlighted 2 presentations related to HABs and Cyanobacteria, which were particularly relevant for this NJWMC meeting. The first was on the new CDC One Health Harmful Algal Bloom System (presented by CDC) and the other was on the Northeast Cyanobacteria Monitoring System (presented by U of New Hampshire) (*see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation*).

4. Presentations:

- **Draft CyanoHABs Strategy & Advisory Committee** – Leslie & Vic Poretti (NJDEP/DWM&S) updated the Council on DWM&S/Bureau of Freshwater & Biological Monitoring's development of CyanoHAB monitoring and toxin analysis capabilities, responses to several CyanoHAB events over the summer, as well as a summary of the draft NJ CyanoHAB Freshwater Recreational Strategy which is being put

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together by an Interagency Workgroup (NJDEP and NJDOH). The draft Strategy document was provided for NJWMC members' review – comments were requested to be sent to Vic (victor.poretti@dep.nj.gov) by October 7. In addition, Vic mentioned the formation of an external CyanoHAB Advisory Committee and asked that any interested NJWMC member organizations please let him know [Note: Montclair University expressed interest in participating].

- **WRTDS' Trends Study of NJ Rivers (1971-2010: Methods and Results** – Bob Hirsch (USGS) gave a presentation on the Weighted Regressions on Time, Discharge and Season (WRTDS) model he developed to study changes in water quality. Ward Hickman (USGS) shared the results of a project that was being conducted for DEP and DRBC designed to identify and quantify long term trends in NJ streams (including some Delaware River sites) using data collected between 1971 and 2010. The project reviewed the Cooperative water quality data set (developed by DEP and USGS) and created a water quality data set for 12 water quality characteristics at 32 stations. Trends in concentrations and fluxes of total nitrogen, filtered nitrate + nitrite, & total phosphorus were studied at 28 stations. Trends in specific conductance, filtered chloride, and total dissolved solids were studied at 4 Delaware Basin stations. Trends and fluxes were evaluated using WRTDS models and Seasonal rank-sum tests. Overall, results indicated either downward or no trends in both total nitrogen and total phosphorus concentrations, an equal number of upward and downward trends for nitrate + nitrite, and upward trends in specific conductance, filtered chloride, and total dissolved solids. The final report from this project is expected to be available by the end of January.

Session – Sediment Contaminant Monitoring

- A. **Overview & NESQA/RSQA and Sediment Monitoring** - Pete Van Metre (USGS) provided an overview of sediment monitoring, including problems observed (too much, too little, etc.) and challenges faced (e.g., insoluble contaminants – metals, pesticides, etc.). He then summarized a USGS program – the Regional Stream Quality Assessments (RSQA) – that involves characterization of sediment and water chemistry, habitat and ecology at up to 100 Wadeable streams across a region. RSQA can also include focused studies looking at particular parameters of concern in that region, including pesticides, HABs, PAHs/metals, and suspended solids, among others. RSQA takes place in 1 region around the country each year and, in 2016, it was the northeast. The Northeast Stream Quality Assessment (NESQA) covered much of the northeast, including a portion of NJ. Pete shared results from both the Midwest region's sediment sampling under RSQA as well as for NESQA, with a focus on the NJ sampling. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation].
- B. **Remedial Investigations of Sediments in NJDEP's Site Remediation & Waste Management Program** – Nancy Hamill (NJDEP/SRWMP) summarized how remedial investigations of sediments are performed by NJDEP including their objectives, various regulations and guidance under which they operate, sampling/analysis/QA plans, screening criteria for data evaluation, and remediation goals. She also provided several examples of both contaminant pathway migration as well as receptors of interest. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]
- C. **NJ Tidal Dredging Projects: Sediment Sampling & Water Monitoring Requirements** – Mark Davis (NJDEP/OSDT) shared information on the sediment sampling and water monitoring requirements when tidal dredging projects are performed. Mark described the types of tidal dredging projects that NJDEP oversees, the water quality-related regulatory authority under which they operate, the tools used for water quality protection – sediment sampling, water monitoring and BMPs, sediment sampling requirements, and how results are used to, ultimately, ensure that the waters meet the applicable Surface Water Quality Criteria. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]
- D. **Freshwater Stream Sediment Sampling: Summary & Assessment (1997-2016)** – Chris Kunz (NJDEP/DWM&S) summarized the surface water sediment-related monitoring that's been conducted in NJ over the past 19 years. Since 1997, 533 samples have been collected at 383 sites statewide, the majority of which were collected under the NJDEP's Ambient Surface Water Quality Monitoring Network. All samples were collected from wadable, non-tidal, freshwater streams. Chris shared the collection methods, sampling locations, as well as the Assessment results and recommendations from the 2010 Integrated Water Quality Monitoring Report as well as the preliminary results from the 2016 Assessment. In addition, he also presented a comprehensive assessment, from 1997-2015, with a focus on carbon, nitrogen, phosphorus and PCBs.

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- E. ***Estuarine Sediment Results from NJ's Portion of NCCA (thru 2010) & Other Marine Sediment Monitoring Efforts*** – Bob Schuster (NJDEP/DWM&S) shared the results from sediment sampling conducted as part of NJ's participation in the National Coastal Condition Assessment (NCCA) from 2000-2006 and in 2010. Bob explained the NCCA's sampling protocols, locations, parameters analyzed, as well as the criteria (ERM vs ERL) against which results were assessed. He also summarized the results which indicated that most of the high levels of sediment contaminants seen are in the NY/NJ Harbor/Hudson area of the state. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]
- F. ***SCoRR Network – Sediment-bound Contaminant Resiliency & Response Strategy*** – Tim Reilly (USGS) presented a summary of the USGS' Sediment-bound Contaminant Resiliency and Response (SCoRR) strategy, which was developed to assess the impacts of environmental quality and persistent contaminant exposure post-Superstorm Sandy. The Strategy is a tiered, multi-metric approach to assess the baseline status of a complex system and more adequately assess the significance of changes in contaminant hazards. The objectives of the strategy are to assess the changes in contaminant threats to humans and ecosystems caused by Sea Level Rise and storms, to perform a pilot demonstration in the Northeast (including NJ), and to deliver interactive products that map, measure and evaluate vulnerability from contaminant threats. Additional information is available at: <http://toxics.usgs.gov/scorr/>
- G. ***Sediment Chemistry & Toxicity in Barnegat Bay, pre- & post-Hurricane Sandy*** – Zoltan Szabo (USGS) summarized a study that looked at sediment chemistry and toxicity in Barnegat Bay pre- and post-Hurricane Sandy. The rationale behind the study was to determine how much non-visible toxicological damage occurred from the Hurricane as sediment resuspension, urban tidal creek flushing, wastewater treatment plant overflow and flushing of non-point source soil contaminants could all be potential sources. Trace element concentrations increased throughout Barnegat Bay up to two orders of magnitude after Hurricane Sandy. The number of sites exceeding sediment quality guidance levels for trace elements tripled post-Sandy. Sediment toxicity test results found the survival rate of the test amphipod decreased at the site with the greatest relative increase in trace elements. Most sites did not show a change in toxicity test results indicating a greater understanding of factors affecting sediment toxicity and bioavailability is needed. The final report, for this study, is available at: <https://pubs.er.usgs.gov/publication/70171120>. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]
- H. ***Monitoring for Sediment-Regulated Programs at EPA*** – Darvene Adams (EPA R2) provided an overview of the sediment monitoring activities, as well as uses of the data, at EPA Region 2. These include the various National Aquatic Resource Surveys (Lakes, Rivers, Streams, Wetlands and Coastal) as well as several regional sediment monitoring programs/activities (REMAP, Post Superstorm Sandy, dredging and historic area remediation site monitoring, and superfund site monitoring. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]
- I. ***Sediment Contaminants in the Delaware Bay & Estuary*** – Tom Fisklin (DRBC) - on behalf of Greg Cavallo – summarized DRBC's work with sediments as part of managing PCBs in the Delaware Estuary. Tom explained the utility of sediment sampling – its interaction with the water column, it provides trends data, it provides assimilation capacity, and its ability to serve as a pollutant removal mechanism. He also described the relationship between sediment sampling and PCBs, briefly reviewed the sediment work done as part of both the Delaware Estuary Benthic Inventory project and other DRBC efforts, showed a comparison of PCB homolog signatures, shared technical and management implications from the sampling results, as well as discussed the ongoing 2016 sediment sampling efforts. [see www.state.nj.us/dep/wms/wmccmeetinginfo.html for presentation]

➤ **Technical Topic for Next Meeting**

Biological Monitoring

➤ **Next Meeting**

January 19, 2017 at NJDEP Headquarters (snow date – February 1)

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Gaps/Needs Related to Sediment Contaminant-related Monitoring

- Need for a better model/predictor of water quality impacts from dredging
- Regional parameters (NY/NJ Harbor, Atlantic Coastal, Delaware Bay) – are there any additions or deletions
- Need to add dioxin to sediment testing
- Do sediment testing exclusions still apply? If so, are there ones that need to be added or deleted?
- Based on regional trends, is sediment sampling for future dredging projects necessary?
- Need for websites to make sediment contaminant monitoring data, associated with dredging projects, electronically available
- Need for dedicated project to sample freshwater stations selected for follow-up
- How to deal with variability of sediment results at freshwater sites monitored repeatedly
- Need for total PCB analysis in coastal and estuarine waters
- Need to update NJDEP's Ecological Screening Criteria table
- Need for increased use of sediment pore water sampling & comparison with water quality criteria for screening
- Need for increased use of Equilibrium Partitioning approach to determine site-specific sediment benchmarks
- Need for additional work linking sediment quality and sediment transport modeling
- Need for additional work to better understand factors affecting sediment toxicity