



NJ Water Monitoring Coordinating Council

Measuring What Counts for Clean & Plentiful Water

February 3, 2010
MEETING MINUTES

Member Attendees

NJDEP – *WM&S*: Leslie McGeorge, Alena Baldwin-Brown, Bob Connell, Danielle Donkersloot, Debra Hammond *NJGS*: Karl Muessig, Ray Bousenberry *OS*: Judy Louis *SRP*: Mary Anne Kuserk

USGS - Eric Vowinkel, Jack Gibs, Bob Reiser

DRBC – Bob Tudor, Tom Fikslin

EPA R2 - John Kushwara, Randy Braun

IEC - Caitlyn Nichols

NJ Pinelands Commission – Nick Procopio

NJ Water Supply Authority – Todd Kratzer

Rutgers (Coop Extension Service) –

Rutgers (IMCS) –

Passaic River Institute/Montclair U. – Kirk Barrett

Meadowlands Environmental Research Institute –

NOAA –

Monmouth County Health Dept –

Stony Brook-Millstone Watershed Association – Alyse Greenberg

Musconetcong Watershed Association – Nancy Lawler

Guest Speakers/Discussion Leaders

Tom Belton – NJDEP/OS

Paul Morton – NJDEP/WM&S

Bob Nicholson – USGS

Ashley Pengitore – PVSC

Vic Poretti – NJDEP/WM&S

Eric Silldorf – DRBC

Tom Vernam – NJDEP/WM&S

Guests

James Nickels – Monmouth University

Paul Schorr – NJDEP/DWS

➤ **Council Business**

- Minutes from the 9/30/09 Council meeting were approved.
- New Members/Member Updates: Rick Kropp announced that he is stepping down as the USGS Co-Chair and has asked Eric Vowinkel to take over in this capacity. Alyse Greenberg, from the Stony Brook-Millstone Watershed Association, and Nancy Lawler, from the Musconetcong Watershed Association, joined the Council.

- Member Announcements: NJ Pilot for National Ground Water Network - Karl Muessig announced that NJ has been chosen as a pilot state for the new National Ground Water Monitoring Network. NJDEP/NJGS and USGS (Darryl Pope) are working cooperatively on this effort, which is looking at stressed/unstressed parts of the state, data gaps, etc. Karl asked that any Council members/member organizations involved in ground water monitoring please let him know. *National Coastal Assessment NJ* – Bob Connell announced that, this summer, NJ will again be participating in the National Coastal Assessment survey along with EPA Region 2. Measurements of water quality, sediment quality, biota & habitat will be taken at 29 estuarine locations in and around NJ. *National Lakes Assessment Report* – Vic Poretti (for Al Korndoerfer, NJDEP/WM&S) shared the fact that the draft report from the EPA National Lakes Survey is now available (www.epa.gov/lakesurvey/#report). Eight NJ lakes were included in this survey – NJDEP sampled two of these lakes. The purpose of this survey was to report on the condition of the nation’s lakes, ponds and reservoirs and to help states/tribes implement lake monitoring programs. In addition, as part of the survey, key stressors were measured in an attempt to gain an assessment of lake conditions across the nation. Assessments are being reported at the Ecoregion Level (nine Ecoregions in the Continental US). NJ-related results will be shared with the Council when they are available. *New NJDEP/WM&S ListSrvs* – Alena Baldwin-Brown announced that Water Monitoring & Standards now has a group of nine ListSrvs, available for subscription, as a mechanism for sharing information about the program with the public. They can be accessed at: www.state.nj.us/dep/wms/subscribe.htm. If Council members have suggestions for additional ListSrvs, please let her know. (NOTE: an additional ListServ, related to the NJ Water Monitoring Council, has now been added) *Passaic River Symposium* – Kirk Barrett (PRI/Montclair U.) announced that the Fourth Passaic River Symposium is scheduled for Tuesday, June 22 at Montclair University. Abstracts are due by March 10. Registration information is available at: www.csam.montclair.edu/pri/conferences.
- December 2009 National Water Quality Monitoring Council Meeting Information – Leslie McGeorge provided information from the December National Water Quality Monitoring Council meeting in Denver, CO. This meeting focused primarily on reviewing abstracts for the upcoming 2010 National Monitoring Conference, to be held in Denver in April. NJDEP, USGS, EPA Region 2, DRBC, as well as Stony Brook-Millstone Watershed Association submitted abstracts for this Conference. The NJ Council will be represented by a poster that Alena will develop, together with Leslie, Rick Kropp & Eric Vowinkel. Ideas for items or topics to include on the poster should be sent to her. Danielle Donkersloot, who’s on the Volunteer Monitoring Planning Subcommittee for the Conference, announced that YSI has donated funds for Volunteer Monitoring Organizations’ attendance at the conference – these funds must be applied for and the deadline for application is March. Leslie shared a recap of the Colorado Water Data Sharing Network (<http://www.coloradowaterquality.org/cdsn.html>), which was also presented at the December meeting and asked NJ Council members to look at the system and if they see anything promising for NJ to please share that information with her, Alena or Paul Morton.
- NJ Water Monitoring & Education Summit – Danielle Donkersloot and Alena Baldwin-Brown provided a summary of the 2009 NJ Water Monitoring and Education Summit, which was co-sponsored by the Council. Danielle announced that all of the presentations from the Summit are available online – Alena will link to them from the Council’s website (NOTE: the agenda and all presentations are now accessible from the Council page under “Events”).
- Emerging Contaminants Subcommittee: Ray Bousenberry and Caitlyn Nichols reported that the subcommittee had received feedback on the emerging contaminant activities spreadsheet from the NJDEP Office of Science and the NJ Geological Survey. Additional Council members, involved in emerging contaminants-related projects &/or activities, were requested to please provide this information to Caitlyn or Ray (NOTE: the new Water Quality Data Exchange System may also be used to obtain this information). The subcommittee is still working on both the draft white paper as well as the definition of Emerging Contaminants; they are interested in feedback from Council members on the definition. Subcommittee members are from NJDEP (NJ Geological Survey, Office

of Science, Division of Water Supply), IEC, EPA Region 2, DRBC, and USGS. Ray also updated the Council on the joint NJGS/USGS Personal Care Products project which is now focusing in the Piedmont and Highlands areas of the state. Preliminary results from the Coastal Plain are showing 80% detections in ground water down gradient from septic water discharges – 83% for wastewater, 100% for pharmaceuticals and 66% for antibiotics. Eleven of EPA’s candidate list of emerging contaminants were screened for and 5 were detected. Once the study is complete, the Subcommittee will assist in releasing the results.

- Water Quality Data Exchange Project: Paul Morton provided an update on population of the NJ Water Quality Data Exchange System. Since it went “live” in September, 18 organizations have entered almost 16,000 activities and over 220,000 results. One of the largest groups of data came from the Brick Twp MUA (NOTE: there was discussion about asking Brick TWP MUA to present their ambient monitoring program at a future Council meeting). The project team is now in the process of designing “data out” reports. Paul requested assistance from Council members with this phase and asked that they email him questions that can be used to design these reports. He also agreed to email the Council the list of standard reports so they can see what already exists. Paul’s presentation is available on the Council’s website.

➤ **Technical Presentations** (Copies of many of the following presentations have been posted to the Council’s webpage - <http://www.state.nj.us/dep/wms/wmccpresentations.html>)

- *NJ Harbor Dischargers Monitoring Program* – Ashley Pengitore (Passaic Valley Sewerage Commissioners)

Ashley Pengitore provided an overview and a few results from the ambient monitoring program of the NJ Harbor Discharges Group (NJHDG). This group of nine Sewerage Agencies consists of 11 wastewater treatment plants that discharge to the NY/NJ Harbor and treat 614 MGD of wastewater. The initial ambient monitoring program was conducted by the Passaic Valley Sewerage Commissioners (PVSC) and included the Passaic and Hackensack Rivers and Newark Bay. The current monitoring program covers the NJ portion of the NY/NJ Harbor Estuary. Thirty-three (33) sites are monitored for a variety of parameters, including: temperature, pH, salinity, DO, TSS, fecal coliform, enterococci, nitrate, total phosphorus, and chlorophyll a. Samples are collected weekly, May-September, and once/month (weather permitting) October-April. Laboratory analyses are performed by PVSC, Middlesex County Utilities Authority and Bergen County Utilities Authority – all state-certified laboratories. Monitoring data are available either from Ashley or (eventually) from the NJ Water Quality Data Exchange System. Continuous monitoring and optical brighteners may be added in the future. Information from the ambient monitoring program is used to produce biennial NJHDG water quality reports (www.pvsc.com) as well as Harbor Estuary Program publications (www.harborestuary.org).

Nutrient Criteria and Nutrient Monitoring

A. *Nutrient Criteria (NJ & National) & Nutrient Criteria Enhancement Plans: NJ & Delaware* – Debra Hammond (NJDEP/WM&S) and Erik Silldorff (DRBC)

Debra Hammond and Erik Silldorff provided the Council with information on nutrient criteria nationally and in NJ as well as nutrient criteria enhancement plans in NJ, and the Delaware River Basin. A general chronology of EPA actions on nutrients was provided as well as a brief overview of the recent actions in Florida related to nutrient criteria development for lakes, rivers and streams. Consistent with the consent decree signed by EPA Administrator Lisa Jackson to resolve a lawsuit filed by the Florida Wildlife Federation lawsuit, EPA proposed numeric nutrient criteria for lakes, rivers and streams for the State of Florida. The FL actions primarily rely on numeric water quality criteria for nitrogen and phosphorus but also provide an option for a series of interim designated uses and numeric criteria representing feasible steps toward attainment of a CWA 101(a)(2) designated use (including Use Attainability Analysis - UAA - and interim targets defined by UAA and implementation plans). In addition for the second approach, state adoption and EPA approval as revised state Water Quality Standard are required. In NJ, a combination of numeric (for phosphorus in

non-tidal freshwaters) and narrative nutrient criteria exist. In 2009, a NJ Nutrient Criteria Enhancement Plan (for developing and enhancing nutrient criteria) was developed by NJDEP/WM&S and approved by EPA (www.state.nj.us/dep/wms/bwqsa/nutrient_criteria.htm). The Plan, which is a “living document”, explores research into cause-response relationships and indicator selection for aquatic life use impairment, enhancing nutrient-related monitoring and data collection, developing new ecosystem response assessment methods, implementing new assessment methodologies through Integrated Report listings/delistings and the development/promulgation of new nutrient criteria where appropriate. Based on work done since the Plan’s approval by EPA (June 2009), it is expected to be updated during Summer 2010. Regarding nutrient criteria development in the Delaware Estuary and Bay, while there are high nutrients and stable trends, the DRBC and States have limited ability to control nutrients from point-source facilities. Among the few requirements is an effluent limitation of 35 mg/l ammonia. In 2009, DRBC developed recommendations for interim protective measures including point source monitoring of dischargers within the estuary watershed, non-point source loading estimation, tech-based limits on new sources and antidegradation program review. Also under review/revision are DO and ecosystem effects.

B. DEP Nutrient Monitoring: Freshwater & Coastal – Tom Vernam (for Al Korndoerfer) and Bob Connell (NJDEP/WM&S)

Tom Vernam and Bob Connell detailed the freshwater and coastal water nutrient-related monitoring that is conducted by NJDEP’s Water Monitoring and Standards. In the freshwater area, phosphorus and nitrogen are collected in surface waters; 215 streams, sampled 4x/year, and 40 lakes/year (3 stations/lake) are sampled for nutrients. Currently, phytoplankton chlorophyll a, diurnal DO, benthic macroinvertebrate community monitoring and Fish Index of Biotic Integrity are used as indicators of biological responses. In the future, DEP will be adding the application of a “diatom trophic index” to lotic waters (expected in 2010) and will be developing a Sediment Diatom Impairment Index for lakes (expected in 2011). In the coastal areas, DEP collects 1000 samples/year from 250 locations which are analyzed for DO, nutrients (including ammonia, nitrate, total nitrogen, and total phosphorus) and chlorophyll. DEP has been performing this monitoring since 1989 - the data are available online (www.nj.gov/dep/bmw). Information from this monitoring is used to identify impaired waters in the NJ Water Quality Monitoring and Assessment Report.

C. Development of Nutrient Criteria for NJ’s Streams, Lakes & Estuaries Using Algal Diatoms – Tom Belton (NJDEP/OS)

Tom Belton provided an overview of the NJ-related diatom research which he has been involved in with the Philadelphia Academy of Natural Sciences. Diatoms are good ecological indicators because they are important ecosystem components, they are widely distributed in many habitats, siliceous remains preserve well, they are identifiable to the lowest taxonomic level, there are many taxa/large number of individuals, they are sensitive to stress, they exhibit rapid response to change, and they are efficient to store. From 2000-2004, 79 streams in NJ were studied to develop a diatom index, including phosphorus as the limiting agent. In addition, the steps that have been taken to develop a NJ Diatom Tiered Aquatic Life Use index using a biological condition gradient approach, including remaining issues, was also presented. Tom also presented information on development of nutrient criteria for lakes, nutrient loadings and ecosystem effects from tidal marsh coring efforts.

D. Sensors – Nitrate Results and Sensor Research on Nitrate & Other Parameters – Jack Gibs & Eric Vowinkel (USGS NJ Water Science Center)

Jack Gibs presented data on results of the use of a continuous real-time sensor for nitrate in two surface water sites in New Jersey. The S::CAN sensor was tested on the Delaware River at Trenton and Two Bridges on the Passaic River. The results of the concentration data from the continuous nitrate sensor and water-quality samples sent the USGS National Water Quality Lab (NWQL) were for the most part similar. The nitrate sensor is currently operational at the Two-Bridges site <http://waterdata.usgs.gov/nj/nwis/>. Eric Vowinkel presented preliminary information on a project with EPA Office of Research where USGS will be testing continuous optical nitrate sensors in conjunction with the Delaware Basin Demonstration project. The scope of the project is to test nitrate sensors in waters of varying salinity, turbidity, and dissolved organic carbon which may interfere with

the sensor results. Plans are to sample in the Delaware Estuary from the Atlantic Ocean to the Trenton as well as at Two Bridges on the Passaic River during FY10.

E. Vulnerability of Surface Water to Nitrate Contamination – Ron Baker/Eric Vowinkel (USGS NJ Water Science Center)

Eric Vowinkel presented results of a study funded by NJDEP's Office of Science related to the vulnerability of groundwater and surface water to contamination by nitrate at threshold levels of nitrate at levels of 1, 3, 5, and 10 mg/L as nitrogen. Logistic-regression was used to make maps of vulnerability using the significant variables of percent agricultural, percent urban, septic tank density for groundwater less than 100 feet below land surface and the same variables plus sewage treatment plant density for surface water.

F. Barnegat Bay: Project Announcement – Tom Belton (on behalf of NEIWPC, Rutgers/IMCS, USGS) and *USGS Historical Work* – Bob Nicholson (USGS NJ Water Science Center)

Tom Belton briefed the Council on a new project related to the assessment of nutrient loading and eutrophication in Barnegat Bay-Little Egg Harbor in support of nutrient management planning. Mike Kennish (Rutgers/IMCS), who will be conducting part of the work, has agreed speak to the Council once the project is underway. Bob Nicholson also provided a summary of the previous nutrient-related work that USGS has done in the Barnegat Bay-Little Egg Harbor Estuary.

➤ **Technical Topic for Next Meeting**

Wetlands Monitoring

➤ **Next Meeting**

May 19, 2010 at the Delaware River Basin Commission