

FINAL



NJ Water Monitoring Council

Measuring What Counts for Clean & Plentiful Water

MEETING MINUTES

MAY 25, 2022, 10:00 am – 2:00 pm
Virtual TEAMS Meeting

MEMBER ATTENDEES (Alphabetical by Organization) & GUESTS

AFFILIATION	MEMBERS & GUESTS
American Littoral Society	
Barnegat Bay Partnership	
Brick Township MUA	Rob Karl, Will Ruocco
DRBC	John Yagecic (steering committee), Namsoo Suk
EPA R2	Emily Nering
Great Swamp Watershed Association	
IEC	
Meadowlands Environmental Research Institute	Ying (Cheryl) Yao
Monmouth County Health Dept	
Monmouth University/Urban Coast Institute	Jason Adolf
Montclair State University	David Hsu
Musconetcong Watershed Association	Christa Reeves
NJDEP DWMSPC	Bob Schuster (co-chair), Jenna Krug (coordinator), Vic Poretti (steering committee), Bruce Friedman, Chris Kunz, Helen Pang, Deborah Kratzer, Dean Bryson, John Vile (<i>speaker</i>), Biswarup Guha, Marzooq Alebus, Sheri Shifren, Brian Taylor, Brian Henning, Amanda Baksa, Marina Jackson, Leah Gibala-Smith, Ismail Sukkar
NJDEP DWSG	Ray Bousenberry (steering committee)
NJDEP DSR	Nick Procopio (steering committee), Robert Newby (<i>speaker</i>), Dan Millemann, Joseph Bilinski (<i>speaker</i>)
NJDEP DFW	Gregory Hinks (<i>speaker</i>)
NJDMAVA	
NJDOH	Loel Muetter
NJ Harbor Dischargers	
NJ Pinelands Commission	
NJ Sea Grant Consortium	Peter Rowe
NJ Water Supply Authority	Heather Desko
NOAA	
NY/NJ Baykeeper	
Raritan Headwaters Association	Emily Mayer
Rutgers (Coop Extension WRP)	Lisa Galloway Evrard
Rutgers (Env. Bioengineering)	
Rutgers (IMCS)	

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Stockton University	
The Watershed Institute	Erin Stretz
USGS NJWSC	Heather Heckathorn (co-chair), Anna Boetsma
Member Emeritus	Leslie McGeorge (NJDEP), Alena Baldwin-Brown (NJDEP), Bob Reiser (USGS)
Guests	Julie Lockwood (Rutgers DEENR, <i>speaker</i>), Michael Tessler (St. Francis College and AMNH, <i>speaker</i>), Michelle DiBlasio (The Nature Conservancy), Erik Pilgrim (USEPA ORD/NERL/EERD, MERB, <i>speaker</i>), Linda Harwell (USEPA), Hugh Sullivan (USEPA)s

- **Council Business (Co-Chairs Bob Schuster, NJDEP and Heather Heckathorn, USGS):**
 - Copies of the agenda, minutes and most presentations will be available on the Council’s webpage - <https://www.nj.gov/dep/wms/wmc-meetings.html>
 - Minutes from the January 26, 2022 Council meeting were approved as presented.
 - **Next meeting will be held on September 28, 2022**, either as a virtual Teams meeting or possibly a Hybrid at USGS or NJDEP. DRBC is not holding in person meetings at this time. Suggested topics for this meeting (suggested during this meeting and previously) include Barnegat Bay/Wetlands; NJPDES related work including industrial stormwater permitting, MS4 permitting, how permits allocate pollution and how these contributions to waterways are monitored; HABs, CECs, Aquatic invasive species (multiple requests) - Council Steering Committee will discuss these and decide which topic to pursue.
 - Retirements & New Members – No announcements regarding retirements or new members were made during this meeting.

- **Member Updates and Announcements (see Appendix A for the TEAMS chat transcript and additional links):**
 - Council Member Updates:
 - Dr. David Hsu from Montclair State University introduced their publication *Freshwater Cyanobacteria of New Jersey* and shared how to request a copy from MSU (<https://www.montclair.edu/water-science/freshwater-cyanobacteria-of-new-jersey/visual-guide-to-cyanobacteria-in-new-jersey/>).
 - Heather Desko – Invasive aquatic plants update and plug for the NEAPMS Plant Camp - <https://www.neapms.org/neapms-plant-camp>; need to revisit the NJWMC Aquatic Invasives Workgroup and finalize the invasive species protocol (Alena offered assistance with this).

- **Upcoming or Recent Conferences, Symposiums and Workshops**
 - Recent Conferences:
 - March 2-4; 2022 Northeast Aquatic Biologists Conference (NAB), Portland, ME
 - March 30-31; 2022 Mid-Atlantic Aquatic Biologists Meeting (AMAAB), virtually hosted by NJDEP
 - May 14-20: 2022 NALMS Joint Aquatic Sciences Meeting, Grand Rapids, MI
 - Upcoming Conferences, Symposiums and Workshops (Presenting or Attending?):
 - 2023 hybrid conference of the National Water Quality Monitoring Council, April 24-28 (CT or VA) – Call for Sessions (due June 10); *Leslie McGeorge gave an update on this and suggested submitting ideas for sessions by June 10*
 - Northeast Aquatic Plant Management Society Plant Camp, Sept 13-15, 2022, Cold Spring, NY (\$150); <https://www.neapms.org/neapms-plant-camp>
 - Others? – Heather Desko – NALMS 2023, Bob Schuster – Atlantic City 2023, Rob Newby – HABs Symposium, Albany, NY, Oct 23-28, 2022

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➤ Presentations (Topic: eDNA & its Potential Applications)

– All or most presentations from this meeting will be available on the Council website at:

https://www.nj.gov/dep/wms/download/NJWMC_09-29-2021_Agenda_fnl.pdf

– 10:30-12:00 Morning Speaker Session

- 10:30 **eDNA: A Primer and Deployment**, *Rob Newby*, NJDEP DSR
 - (LM) asked about a general rule for degradation/detection of eDNA in the water; (RN) 7-21 days depending on organism size, water movement, and many other factors, so really a week or sooner before significant degradation
- 10:50 **Monitoring of Aquatic and Marine Invasive Species in New Jersey: Validation Using eDNA Detection Methodology**, *Joseph Bilinski*, NJDEP DSR
- 11:10 **Using Environmental DNA for Surveillance and Monitoring of Aquatic Invasive Species**, *Julie Lockwood*, Rutgers University (<http://www.lockwoodlab.com/rutgers-edna-lab>)
- 11:30 **eDNA and *Hydrilla***, *Michael Tessler*, St. Francis College & American Museum of Natural History
- 11:50 **Q&A with Speakers and Group Discussion**
 - (LGS) asked about the cyanobacterium *Aetokthmos hydrillicola*; (HD) expanded on CPM testing – CPM 2010, was reproducing on the gills of the invasive carp, killed all carp and used algicide to kill CPM, in 2019 they were still getting eDNA hits of CPM; question about whether touching your hair could affect results, with qPCR, touching hair is not an issue (won't amplify DNA), the laboratory is most concerning area for potential contamination.
 - Also discussed was the fact that you can get the DNA mark without the organism actually being present at that moment (a false Lazarus effect, can detect old, ancient, ghost DNA, so you want to target your sampling to avoid this as much as possible; for the CPM work they sampled above the sediment to avoid detecting ancient and ghost DNA, revisited sites several times (would get several negatives then positives), have to incorporate realism into results; (RN) Legionella work – biofilms in pipes, found DNA but organism was dead pointing out that DNA is DNA not an organism; (JL) DNA can be used to narrow down a search area, it's a tool in the toolbox; (RN) – need to think about how wide of a net you want to cast when thinking about your eDNA project, and what are you actually getting detection wise, true detections?; (LM) – are there any certifications for eDNA protocols/testing?

– 12:10-12:40 LUNCH BREAK

– 12:40-14:00 Afternoon Speaker Session

- 12:40 **Fish Monitoring Using Environmental DNA (eDNA)**, *John Vile*, NJDEP BFBM
- 13:00 **Current Lab Protocols for Detecting Fish Species with eDNA to Optimize Sensitivity and Reproducibility**, *Greg Hinks*, NJDEP DFW Marine Fisheries
- 13:20 **An Overview of EPA eDNA Work in Aquatic Ecosystems**, *Erik Pilgrim*, US EPA Ecosystem Condition Branch, Watershed & Ecosystem Characterization Division
- 13:40 **Q&A with Speakers and Group Discussion**
 - (RG) brought up proteobacteria, hallmark taxa to identify good and poor, (EP) wanted to see if correct info was being collected at a national level using 3 common proteobacteria; (HS) discussed using eDNA as climate change indicators, specifically diatoms with (EP), could you use macroinvertebrates as well? Macros don't shed

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enough DNA into the water, too difficult to detect their eDNA; and would love for eDNA to become a regular part of the national surveys

- Alena asked about marine water monitoring eDNA work, (RS) – looking at antimicrobial resistance
- Leslie M and John V discussed the fish monitoring at BFBM, suggesting the yoy DNA may be flushed out after high flow events, JV- weekly sampling will be helpful, may be able to pick up peaks and spawning events; they try not to sample during high flow events
- *Council Business Reminders and Wrap-Up*
 - Reminder that the next meeting will be held on September 28, 2022 and will most likely be virtual

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Appendix A. ***TEAMS Chat Transcript***

NJ Water Monitoring Council Meeting – May 25, 2022, Virtual via Microsoft Teams, 10 am – 2 pm

[5/25 10:02 AM] Newby, Robert [DEP]

Motion to accept the minutes as is

[5/25 10:02 AM] Newby, Robert [DEP]

second.

[5/25 10:05 AM] Christa Reeves

Aquatic invasive species

[5/25 10:05 AM] Emily Mayer

Case studies on aquatic invasive species (plants)

[5/25 10:09 AM] Krug, Jenna [DEP]

[montclair.edu/water-science/phytoplankton-lab](https://www.montclair.edu/water-science/phytoplankton-lab)

like 1

[5/25 10:10 AM] Newby, Robert [DEP]

Here is the direct link: <https://www.montclair.edu/water-science/freshwater-cyanobacteria-of-new-jersey/visual-guide-to-cyanobacteria-in-new-jersey/>

Visual Guide to Cyanobacteria in New Jersey

Choose which general growth type—coccoid or filamentous—describes your cyanobacterial specimen. To help you understand what these terms mean, each option is accompanied by a text description and ph...

[5/25 10:12 AM] Bilinski, Joseph [DEP]

Thanks Heather (thunder slightly stolen 😊)

laugh 3

Emily Mayer5/25 10:12 AM ❤️ 1

Yay! Congrats! 😊

[5/25 10:14 AM] Newby, Robert [DEP]

Upcoming conference for those who are interested in HABS <https://neiwpc.org/events/ushab11/>

like 2

11th U.S. Symposium on Harmful Algae • NEIWPC

The 11th U.S. Symposium on Harmful Algae will be held Oct. 23-28, 2022, in Albany, NY. The HAB symposium is coordinated in partnership with NEIWPC, New York State Department of Environmental Conse...

[5/25 10:15 AM] Alena Baldwin-Brown (Guest)

Heather D and Jenna - if you reform the workgroup and would like some assistance/input from me, please reach out - abaldwinbrown@gmail.com

like 2

[5/25 10:15 AM] David Hsu [MSU] (Guest)

New Jersey Phytoplankton Lab <https://www.montclair.edu/water-science/phytoplankton-lab/>

like 2

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New Jersey Phytoplankton Lab

The Phytoplankton Lab in the NJCWST studies the biodiversity of aquatic microorganisms and investigates the changing dynamics of cyanobacteria-dominated harmful algal blooms. Phytoplankton–photosyn...

[5/25 10:20 AM] Erin Stretz

Thanks Leslie 😊

like 1

[5/25 10:23 AM] Emily Mayer

Interested in learning more about aquatic invasive plants and to improve your plant ID skills?: sign up for Plant Camp hosted by NEAPMS (Heather Desko, Kyle Clonan, and myself are on the board of Directors). Any questions, feel free to reach out to us.: <https://www.neapms.org/neapms-plant-camp>

like 1

NEAPMS Plant Camp — Northeast Aquatic Plant Management Society | NEAPMS

[5/25 10:25 AM] Newby, Robert [DEP]

Thanks Schuster, Robert [DEP]!

like 1

[5/25 10:26 AM] Alena Baldwin-Brown (Guest)

Some of these symposiums may actually be good potential topic sessions for the National Conference (e.g., aquatic invasives)

like 2

[5/25 11:17 AM] Heather Desko

CPM found in NJ in 2010

like 2 sad 1

[5/25 11:51 AM] Gibala-Smith, Leah [DEP]

Very interesting presentation, thank you Michael. Are you looking at incorporating work on the distribution of *Hydrilla* with occurrences of the cyanobacterium *Aetokthonos hydrillicola*, the causative agent of avian vacuolar myelinopathy?

like 1

[5/25 11:56 AM] Emily Mayer

Hi Leah, I worked on the Croton River project previously since the start, we collected hydrilla samples and other plant samples in the Croton River and sent them to Dr. Susan Wilde at University of Georgia for *Aetokthonos hydrillicola* testing. None has not been detected so far.

like 2

[5/25 11:56 AM] Newby, Robert [DEP]

<https://www.science.org/content/article/after-more-2-decades-searching-scientists-finger-cause-mass-eagle-deaths#:~:text=A%20new%20species%20of%20cyanobacteria,waterweed%20produces%20an%20unusual%20neurotoxin&text=More%20than%2025%20years%20ago,never%20seen%20before%20in%20eagles.>

like 2

Science | AAAS

[5/25 11:56 AM] Newby, Robert [DEP]

<https://www.science.org/doi/10.1126/science.aax9050>

like 2

Science | AAAS

Nailed the pronunciation Heather Desko

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Bilinski, Joseph [DEP] that's a good note for the state AIS plan

Lunch break - Back at 12:40

[5/25 1:38 PM] Guha, Biswarup [DEP]

Very interesting and thank you for sharing. Have a few questions - what prompted you to investigating the relationship between proteobacteria and nutrients? What classes and types of proteobacteria did you use? Did you include carbon in the analysis as photosynthetic proteobacteria are able to fix carbon and require the chemoorganotrophs require fixed carbon?

like 1

[5/25 1:53 PM] Hinks, Gregory [DEP]

Apologies I have an upcoming appointment and must sign off. Feel free to reach out any time!

New Jersey Bureau of Marine Fisheries

Gregory.Hinks@DEP.NJ.gov

609-310-1913

[5/25 1:56 PM] Ying Yao

Thank you!

[5/25 1:56 PM] Sullivan, Hugh

Thank you for the invitaiton!

[5/25 1:56 PM] Alena Baldwin-Brown (Guest)

Great meeting once again! thanks for putting it together!

[5/25 1:56 PM] Julie Lockwood

Thank you!

[5/25 1:56 PM] Harwell, Linda

Thanks you very much for inviting me to join this meeting. Presentations were very insightful.

[5/25 1:56 PM] Bob Reiser (Guest)

Thanks for another great meeting

[5/25 1:56 PM] Nering, Emily

thank you!