Annual Joint Meeting of the Partnership for the Delaware Estuary Science & Technical Advisory Committee (STAC) and the Monitoring Advisory Coordination Committee (MACC)

May 17, 2023, 11:00 AM – 4:00 PM

Meeting Minutes

Attendees:

STAC Members

Randy Brown (CZM)
Lance Butler (PWD)
Sheila Eyler (USFWS)
Dorina Frizzera (Getting to Resilience LLC)
Ron Heun (Constellation)
Doug Janeic (Sovereign Consulting)
Danielle Kreeger (PDE)
Greg Lech (PAF&B)
Josh Moody (NJDEP)
Drew Reif (USGS)
Kelly Somers (EPA R3)
Ken Strait (PSEG)
Bart Wilson (USFWS)
Stef Kroll (River Ways Collaborative)
Josh Lookenbill (PADEP)
Preston Lutweiler (WRA)
Chris Main (DNREC)
Jonathan Malzone (NPS)
Elaine Panuccio (DRBC)
Dan Penczak (Ott Hydromet)
Kevin Pregent (DRBC)
Sarah Rickard (NYDEC)
Kate Schmidt (DRBC)
Brian Seymour (DVRPC)
Namsoo Suk (DRBC)
Zoltan Szabo (USGS)
John Yagecic (DRBC)
Li Zheng (DRBC)

MACC Members

Bailey Adams (DRBC)
Thomas Amidon (DRBC)
Erika Arnold (PADEP)
Anna Boetsma (NJWSC)
Jake Bransky (DRBC)
Kurt Cheng (PDE)
Matthew Fritch (PWD)
Skye Glover (Audubon Mid-Atlantic)
Heather Heckathorn (USGS)
Skelly Holmbeck(WRA)
Lauren Koenig

Other attendees

Haley Burns (PDE)
Leah Ettema (EPA)
Cheryl Hess (Calpine)
Dalia Ghobrial
LeeAnn Haaf (PDE)
John Harrod (PDE)
Kathy Klein (PDE)
Martha Maxwell Doyle (PDE)
Leah Morgan (PDE)

Welcome and Introductions

- Elaine reviewed the agenda with attendees

MACC Business

- Chair selection (Reserved Member) for facilitation of meetings
- Current reserved members:
    - DNREC – Chris Main
    - USFWS – Sheila Eyler
    - NJDEP – Chris Kuhn with alternate Bryan Henning
    - NYDEC – Sarah Rickard
    - PADEP – Josh Lookenbill ith alternate Erika Arnold
    - PWD – Matthew Fritch
    - USGS – Heather Heckathorn
    - USEPA – Leah Edema
- Call for nominations/self-nominations did not return any suggestions
- John Yagecic suggested that nominations can be discussed offline

STAC Business

- Approval of minutes from February meeting
    - Motion to approve minutes from February meeting was suggested by Danielle (not including any typos that are suggested today)
    - Motion was seconded by Doug Janeic
    - Greg Lech approved draft minutes
- Time use as match in the Zoom chat thread
    - Attendees encouraged to indicate whether their time at the meeting can be used as match in the Zoom chat thread. Leah to save the meeting chat thread to archive and indicate whose time can be used.
- STAC Bulletin Board – members are encouraged to view and contribute to the bulletin board by means of publications, job announcements, reports, and other information
- STAC elections – last call for nominations
    - STAC keeps up to 25 members; half are standing reps from states and other agencies/organizations and the other half are elected
        - Standing reps: PA, NJ, DE, government, PWD, DRBC, Delaware River Fish and Wildlife Co-op, PDE
    - Elections are annual and nominations are open until this Friday – share with Danielle, Dorina, or Greg with resume/CV as well as contact information for the nominee.
    - STAC would ideally have sector and geospatial representation across the watershed.
    - Nineteen members currently sit on the STAC and up to 6 more can be included; 4 spots remain as 2 nominees have already been recorded

- Doug asked: different entities involved in the region – how to integrate those organizations into the STAC?
  - Danielle encourages input on that from STAC members
- Potential white paper on hot topics – what do we know and not know about a topic?
- These topics are of interest to EIC, commissioners, etc – sometimes these are requested or suggested
  - We will review past minutes from meetings in the last 1-2 years and include ideas on white papers into STAC ideas and coordination sheet (https://docs.google.com/spreadsheets/d/1rjMtkfmQY-7CuvoPZ3lDgsA4SujhmtwBYmmGKijHBmQ/edit#gid=0)

DELEP/NEP Updates

- Translation of TREB to State of the Estuary (SOE) Report – John Harrod, Meghan Rogalus, PDE
  - Input survey/Google Form was sent recently by Leah via email
  - Can we create something in shorter form that's conceivable for them to read and encourage them to look into the larger document?
  - PDE Engagement Team will also be writing vignettes for SOE so people can view and read online and also view TREB if they want to read more. These will also be posted on the website.
  - Estuary News newsletter will have an executive summary summarizing the vignettes
  - The SOE would ideally "reach more of the masses" and engage more people with what we produced with the TREB
  - Is there an approach to how to discuss status and trends in a graphic form?
    - STAC and MACC encouraged to comment if so; we must convert complicated figures, data, geospatial images to something more conceivable
  - We are creating nothing new in terms of content or science; the SOE involves simply taking indicators and highlighting pieces of their information associated in the TREB
  - DRBC will also be doing a translation product but the SOE might assist that product and MACC members are welcome to contribute as well
  - Only 5 or 6 responses have been received so far on the survey
  - We want to ensure that the selected suite of indicators is representative of the ecosystem
  - STAC and EIC were involved in the TREB; sharing with others outside of the STAC (i.e., people not involved in document but still reviewed) could be beneficial; anyone that "has skin in the game" could respond to the survey.
  - Primer articles will also be included (e.g., "what is a watershed?" and other "fun estuary facts"); not necessarily only indicators will be included in the report
  - Goal is to have this completed in time to release it for National Estuaries week in September; will also have some associated media coverage

        - Might also be associated with an event
    - Survey can be found here: https://forms.gle/9hLAg29piCZDodkd8
        - Includes list of potential indicators and leaves room for comments as well as contact info for follow up if necessary
- MINA Annual inventory reminder (Morgan/Haaf)
    - In 2021, PDE finalized the Monitoring Inventory and Needs Assessment (MINA) report as a required addendum to the CCMP
    - The overall goal of this report is to maintain a consistent monitoring database in order to better identify gaps, steer CCMP goals, and plan future projects based on need.
    - In 2022, LeeAnn and Leah prepared a monitoring survey that STAC members and other estuary monitoring practitioners are encouraged to contribute to at least annually, if not more often. The more information is recorded as work is completed, the less practitioners will have to "remember later" in order to contribute to the 2026 report.
    - Survey can be found here: https://www.surveymonkey.com/r/WGJGTW6
    - Members are encouraged to share the link with other monitoring practitioners in the estuary to contribute to the 2026 MINA and make the report construction process more streamlined and efficient.
- 2025 Summit planning (Kreeger/Klein)
    - PDE is planning to have a summit in 2025; this will be the 20-year anniversary of the first conference
        - What advancements have we made since the 2005 White Paper?
    - What suggestions does the STAC have on venue, format, etc?
    - Based on feedback we received from participants, having the 2023 summit at the casino had mixed reviews
        - Reminder that Harrah's was least expensive which helped us choose it over other venue options.
    - We have committed to look at other places but the only way to reduce cost would be to take away things we offered and rethink the format
    - Bart asked whether there's any thought of bringing the meeting to a location in the estuary like UD or Philly.
        - PDE discusses this frequently; it's more expensive to host the meeting in these locations and attendees tend to commute home at the end of the day's programming, which takes away the camaraderie/casual interaction aspect of the meeting
        - Not many possibilities exist in Philly or outside but we plan to keep looking
    - Dorina indicated that she would like to see how the indicator report shows up and match that with TREB and go from there; this should provide information on new and emerging issues
        - I.e., "This is where we've been, this is our success, this is where we should go"

    - Doug suggested that there is value in looking back 20 years to highlight success and indicate the difference it makes.
    - Danielle noted that the point would be to update "David Letterman top 10 list" for the estuary.
- PDE/DELEP updates (Klein)
    - PDE received the first two years of BIL project funding.
    - We reached out to STAC for ideas for projects, but right now we are starting to use that funding mainly via subawards. Time is being used to make sure everything is in line with federal funding requirements
    - Year 3 work plan has been prepared and shared with DELEP steering committee in April and was approved.
    - We will be able to have the match waived for the first and second years and 5 year strategic plan and approved equity strategy is required for match to be waived for year 3
    - PDE has been active in the public community at face to face events; STAC members are encouraged to reach out if they'd like to attend or want more information
    - PDE Engagement Team is currently planning Delaware River Festival which will be at Penn's Landing in September
    - Annual Experience the Estuary Celebration will be on October 12, 2023 and still hosted by Cescaphe but at the Switchhouse (old PECO generating station)
    - PDE/DVRPC/Water Resource Committee is working to identify projects and subcommittes working on together for branding, fundraising, climate change, workforce development
        - People interested in serving on committees should reach out to Kathy; there are 3 meetings per year, one hour long each

DRBC 2023 Monitoring Activities and Updates

- Non-tidal chloride monitoring (Panuccio)
    - Awaiting data; some is not finalized. Laboratory reports have not been received yet and about a month or two of data is missing
    - EWQ: existing water quality
    - Data are preliminary and should not be distributed
    - Alexauken Creek decreased in chloride
- Freshwater Salinization and Increasing Chloride Workgroup (Panuccio)
    - The workgroup is a meeting with representatives of partner agencies
        - Interested individuals can join set quarterly meetings for the year
        - Kickoff meeting was December 2022
    - Workgroup focuses on regulatory and road salt management groups as monitoring indicates that this is a problem
    - DRBC discussing initiating a grant proposal working with a municipality or subwatershed to advance ways to track improvements in road salt management.
- SPW monitoring in Upper, Middle, and Lower Delaware reaches (Panuccio)
    - Last completed in 2017; recently relaunched and currently in assessment period

    - No measurable change assessment was done in the past
    - Rotating site basis assessment will take place 2023-2025
    - National Parks Service collected upper Delaware and Delaware Water Gap sites
    - Monitoring is taking place every other week from May – September.
- Cyanotoxins pilot study in tidal (2022) and non-tidal (2023) (Panuccio)
    - SPATT (soluble phase adsorption toxins tracking) bag
    - Eleven deployments in tidal Delaware River locations for 8 days at a time
    - Presence of microcystin at all sites and anatoxin-a at most sites
    - Completed in tidal portion of Delaware River and will be completed soon in non-tidal portion
- PFAS, persistent organic pollutants (POPs), and other contaminants of emerging concern (CECs) (Panuccio on behalf of Conkle)
    - Jeremy Conkle: new DRBC senior toxicologist
    - PFAS samples were collected under NFWF grant. Data will be synthesized this year.
    - Funding from PDE through BIL will assist this work and identify tributaries with problematic levels and sources in order to mitigate releases
    - A report on this work will be finalized and shared in spring/summer 2024.
    - PACZM/PADEP funding will help replicate a 2021 study examining PFAS
- 6-PPDq exploratory study (non-tidal and tidal) (Panuccio on behalf of Conkle)
    - 6-PPDq is a chemical leached from tires and tirewear particles; it reacts with water to form 6-PPDq toxicant which is toxic to fish
    - Monitoring has been done in tidal portions and starting in September
    - DRBC has also reached out to basin-state biologists and will coordinate with them on trout mortality and identifying evaluation locations.
- Storm-based bacteria monitoring (Yagecic)
    - DRBC has been collecting fecal bacterial data for years (e.g., fecal coliform, e. coli, enterococci).
    - Comparing datasets indicated different behavior; boat-based monitoring in boat run program appears to be responding to storm events but nearshore data does not appear to follow the same pattern
    - In 2023, wanted to track storm events over that storm event
    - Existing boat run is once per month, April – October. During summer 2023, storm events will be tracked so monitoring is done before a storm and multiple days after a storm
        - This will help indicate whether concentrations are low before and high after storm events
        - DRBC submitted a QAPP to EPA for approval and is looking to start work as soon as QAPP is approved
- Thermal plume drone monitoring (Yagecic)
    - DRBC is looking to acquire a drone with thermal imaging camera
    - The drone will enable DRBC to evaluate mixing zones and affirm that what is seen matches computations that are performed for thermal mixing zones

- Boat Run monitoring program (Yagecic)
    - Boat run has been going on for 50+ years. John shared the summary list of analytical parameters in the Zoom chat:
        - Metals, wide variety of nutrients, DO, temperature, conductivity, pH, photosynthetically active radiation (PAR), secchi depth, turbidity, color dissolved organic matter (CDOM), chlorophyll-a, fecal indicator bacteria (E. Coli, enterococci, fecal coliform), semivolatiles, 1,4-dioxane, & selected ions
    - 2023 Program started in April; May event occurred on Monday (May 15) and will continue monthly through September
    - At national monitoring conference, groups indicated mixed success using tryptophan as an indicator for human fecal contamination
- Sturgeon Dissolved Oxygen Monitoring (Bransky)
    - DRBC is working with USGS to monitor DO, install loggers in a safe way with shipping traffic and other concerns
    - Loggers were deployed at the end of the summer last year; this summer will include more robust deployments.
    - Last year's preliminary data indicates a difference in DO between USGS logger and DRBC logger, which are a few miles apart from one another
- Thermal exceedance shading study in upper Delaware (Bransky)
    - Camera will estimate canopy cover with movement down the river and evaluate whether a thermal benefit is being maximized for trout spawning given that trout rely on cold water.

Partner Monitoring Updates – current and planned activities

- Federal agencies
    - EPA (Kelly Somers, Leah Ettema) – nothing specific to report.
        - EPA microplastics team is working with Water PACT/Department of Energy project and will be hosting a federal webinar next week and the Delaware River is one of 5 rivers being assessed: https://www.zoomgov.com/webinar/register/WN_quQsfHZ1QHOe-47I2E4X1w
        - Two more sites to do in June
        - No SAV monitoring has been scheduled yet but is anticipated for this year.
    - USGS (Drew Reif, Doug Burns, Heather Heckathorn, Anna Boetsma) – USGS NGWOS
        - USGS is supporting more than 50 gauges across the basin, many with continuous WQ sensors.
        - Water temperature monitoring is beginning this spring, with 70 sites using machine learning model (only 5 sites considered with this model in past)
        - A set of data on salt front in the DRB collected by an AUV 2021 was just shared

(https://www.sciencebase.gov/catalog/item/61705512d34ea36449a5f206).

- Previous temperature prediction modeling from 2021-2022 has been published (https://onlinelibrary.wiley.com/doi/10.1111/1752-1688.13093).
- Airborne Electromagnetic Survey data will be published later in 2023 and will entail a map of saltwater intrusion into subsurface for the entire bay shoreline.
- Several other projects focused on saltwater intrusion into NJ water supply wells and tributaries of the bay are being worked on.
- Surrogate modeling work will help predict chloride concentrations from conductance data, focusing on areas of road salt influence
- Resampling of wells in PA to examine chloride trends and others is being worked on and will continue into 2024; 15 will be sampled this year and 15 next year
- A well in Delaware County in Glen Mills, PA is being monitored as a soil moisture test site; methods are being tested for soil moisture to better understand for water modeling
- Delaware River at Penn's landing is NGWOS test site, and the USGS website has more info on readings at that location on a variety of parameters.
- Fluidian quick bacteria monitoring were recently installed; these can take samples and incubate and return results between 6-18 hours afterwards. They have already been installed and run in NJ (Camden).
    - NGWOS work has included lots of gauging with conductance and turbidity
- Camera innocation technology is being tested using traditional and new cameras to measure flow and sediment.
- Data collection was just completed for paired air/water/temperature outlet for NGWOS
- Domestic self-supplied water usage is being collected. Use meters were installed on domestic wells for a few years to measure use rate and patterns of usage, and the analysis of those data are being worked on
- Separately from NGWOS, USGS partnered with NJDEP on the water quality network
    - 33 sites in DRB
    - Continuing to collect PFAS samples at 8 locations in DRB monthly
- Project year 2 of looking at PFAS at foams – funding is through 2024 looking at other rivers
    - Prelim results indicate higher concentrations in foam than in water below
- Macrosampling is being done in Chester county
- Sediment-turbidity surrogate models will estimate sediment loads
- PWD work is involving gauging WQ sondes

        - Navy/EPA work is involving technical assistance, superfund work (i.e., groundwater, surface level water monitoring).
        - Several projects evaluating new instrumentation
            - Fluidian monitor – novel piece of instrumentation that can monitor and measure total coliform and e coli in real time. USGS's role is to evaluate for use. Questions can be directed to Anna.
                - Elaine and Heather to discuss potentially giving a presentation about this work at a future meeting.
            - PFAS concentrations in DRB in shallow groundwater – evaluated two types of asset samplers and releasing report in the next few months
            - USGS is recognizing DE River at Trenton site as a monitoring milestone; 20 years of water quality monitoring has been done at that site; press release to be shared relative to this milestone.
            - Zohan indicated that there are some surface wells that have conductivity of 2000-4000 and that they want to get a better idea of saltwater inundation/intrusion. More clays than expected were found and much of the saltwater is fairly shallow.
            - AEM overflights looked at cross sections from where wells were being installed. Unexpected clays were experienced by USGS and AEM overflights; ground truthing is working and consistent with what overflights are seeing.
        - NJ water science center initiating microplastics work in Haddonfield at Cooper River; NY Water Science Center is other main collaborator.
    - USFWS (Bart Wilson, Sheila Eyler)
        - Webinar recently done about the salt marsh sparrow (https://www.youtube.com/watch?v=QxSZJQ_gO0c&list=PLZb5DyVcCk94VPZ7vCwfKsHHiEmvloovJ&index=4). Monitoring has and can be done in restoration projects to assess presence/absence but to optimize work to create good habitat for sparrows.
        - Current work is focusing on creating an assessment on best places to do salt marsh restoration on the east coast.
        - Juvenile American shad surveys are taking place monthly in late summer/early fall; Sheila can be point person about American shad moving forward.
    - NPS (Jonathan Malzone)
        - NPS is working with EPA to do microplastics work
        - USEPA rivers and stream assessment year has involved a lot of fish sampling, other WQ monitoring up and down the river
        - Special protection water sampling began yesterday (May 16) with DRBC
        - Hoping to develop water quality partnership with the USGS water science center
- State agencies

- DNREC (Chris Main)
  - Delaware Boat Run started on 5/15
  - Recent discussion has focused on internally potentially testing tryptophan (mentioned earlier)
  - Focusing on Delaware River, red clay, white clay
    - F&W focusing on Atlantic sturgeon, short nose sturgeon, American hickory, blueback, alewife, invasive species, blue catfish, northern snakehead
    - Working with other folks in DNREC to look at freshwater mussels using eDNA
    - Analyzing PFAS throughout the state is also being worked on
- PADEP (Josh Lookenbill)
  - Continuing to make progress on monitoring protocols and assessment methods
  - Spoke in November about starting process – starting to finalize draft documents and will have assessment methods out for public comment in the next few months
  - Ongoing monitoring for 1,4-dioxane for Delaware at PA-DE state line in Perkiomen creek basin every other month
  - Participating in national river and streams assessment
  - PFAS surface water data collection – partnership with USGS – partnering with fish tissue collection and passive sampler deployments throughout the state
  - Implementing fish assemblage method uses fish index to assess water quality, thermal discharge
  - Eutrophication cause determination focuses on nutrients and accounts for difficulty PA has had on nutrient impairments and TMDLs
  - Four existing use evaluations for four basins
- NJDEP (Josh Moody)
  - Coastal zone management (306 CZMs) - 2023 monitoring funds have been released for SET monitoring; contracts out with awardees sometime next week.
  - Submitted for 2024 funds, which includes static occupation, laser leveling, and tidal datums, in addition to SETs
  - 309 CZM funding: getting ready to start marsh migration modeling, sediment transport, marsh retention analyses and integrating those together to see how they can inform and integrate restored tools that are coming out and being integrated together
  - SEARAP – geospatial atlas that includes variety of sites and projects as well as metadata around projects and the state of the projects and their different goals; data are overlaid with geospatial datasets with issues of concern. Helps people pair projects with different goals
  - Working with awardees on contracts, statements of work on blue carbon work. Projects should be starting this summer.

        - Natural workings land strategy focuses on services provided by different land types. NJ developed a draft national working land strategy and just reached public outreach period; this report should be ready for release by the fall.
        - Beneficial use monitoring report includes work done at Avalon, Fortescue, and Ring Island and has been posted on NJDEP website: https://dspace.njstatelib.org/handle/10929/110092
    - NYDEC – none provided
- Academia, NGOs, Private Sector, Others
    - PDE (LeeAnn Haaf)
        - PDE received some CZM money
        - Supawna Meadows, Reeds Beach work being done with USFWS, and report has been sent to Heidi Hanlon for review
        - Living shoreline assessment projects: Department of Defense effort with University of Delaware is still getting off the ground but intention is to start looking at specific sites for more intensive monitoring foresting, oyster recruitment, and physical parameters are being recorded
        - Trying to embark more on SAV work (e.g., trialing, restoration, LTM) -- proposal has been submitted for LTM in freshwater tidal sections
        - Marsh restoration assessment work being done, partnering with Ducks Unlimited and USFWS – low cost, low tech/impact being evaluated
        - Dendrochrenology, climate change effect on growth of trees
        - Soundscape ecology grant for acoustic recording units was received and work has started evaluating soundscapes on restored ecosystems. Rare species detection as well as all sound being collected will be used to understand full soundscape of ecosystems
        - Continuing freshwater mussel work is being done in stormwater ponds, including monitoring conductivity, DO in relation to mussel health. This will probably expand to larger rivers and streams; mussels are growing well in stormwater ponds.
        - Croydon – shooting for habitat mosaic
    - Sovereign Consulting (Doug Janeic) – no updates
    - WRA (Preston Lutweiler) – no updates
    - PWD (Matthew Fritch)
        - Collaborations with USGS, PDE
        - Quarterly grab samples in tributaries
        - Yearly macroinvertebrate assessments at sites
        - PFAS is a priority
        - Drinking water evaluation reports
        - Relaxing of materials that are recommended with PFAS sampling
        - Regulatory sampling protocols are being followed strictly
    - Audubon Mid-Atlantic (Skye Glover) – no updates
    - Trenton Sewer Utility (Dalia Ghobrial) – no updates

- River Ways Collaborative (Stef Kroll)
  - E. coli monitoring – weekly starting this week samples will be taken at each site to follow PADEP approaches and send off samples to labs
    - Main objective is to evaluate whether boating is safe during different times of the year
    - Will be done may – September
- Dan Penczak
  - All in one ecology with conductivity and water log – salt testing, salt studies, etc
- PSEG (Ken Strait) – no updates

Roundtable discussions

- Monitoring Needs & Opportunities - Opportunity for group to discuss monitoring needs (as per CCMP, MINA, TREB), new technologies, and partnering, funding and leveraging opportunities. This discussion addresses the annual "organic coordination" specified in the CCMP's Monitoring Framework.
  - Are there things that were covered that need more work?
  - Doug: What is the best use of our resources? What's causing the impact? Funding should be reflective of what works. We discuss different topics but don't review the big picture – where can we get the biggest bang for our buck?
  - DK: many of these things are driven by politics and funding fads – funding is mainly driven by the Endangered Species Act rather than the Clean Water Act
  - How can we do better to partner? Are there new hot topics or monitoring data gaps that need to be addressed/are you limited technically?
    - John Yagecic: existing methods on fecal indicator bacteria work is limiting; microbial source tracking has another host of deficiencies
    - Chris Main – other methods exist where you can get an approximate estimate
  - Businesses, parking lots, etc take up a large size of impervious surface area and can be contacted to expand work on salt intrusion; this should be a more regimented discussion
  - What kind of sensors can we deploy to assess TSS, other in-water parameters and relate them to mussel beds? More water quality work can be evaluated relative to mussel stocking.
- Reminder to members to share nominations or self-nominations with Greg, Dorina, or Danielle by the end of Friday including resume/CV and contact information
- Dorina to identify new STAC members and potentially have another focused meeting of the committee in July
  - Leah to send out Doodle poll for another STAC meeting in late July/early August for scheduling this meeting
  - Leah to set up Google Folder for STAC internal materials – upload jam board, ideas and coordination sheet, updated member and affiliation list.
- Upcoming Meetings and Events

- Next STAC Meeting (joint with EIC, virtual on October 25, 2023)