Draft

Chesapeake Bay Program
Science. Restoration. Partnership.

Chesapeake Bay Program
Plastic Pollution Action Team
Meeting #8 MINUTES
May 16, 2021
1:00 PM – 4:00 PM

Attendance:

Adrienne Kotula (CBC)
Alex Lopez (Rutgers University)
Andreana Louise Roxas (CSN)
Barbara Balestra (AU)
Bob Murphy (Tetra Tech)
Carlie Herring (NOAA MDP)
Catherine Magliocchetti (EPA)
Christina Davis (ICPRB)
Clare Sevcik (DNREC)
Donna Morrow (MDNR)
Fredrika Moser (MD Sea Grant)
Greg Allen (EPA)
Jesse Meiller (AU)
Jonathan Cohen (University of Delaware)
Julie Lawson (CAC)
Katie Morgan (NOAA MDP)
Kay Ho (EPA)
Kelly Somers (EPA)
Kristin Saunders (UMCES CBPO)
Mark Trice (MDNR)
Martin Gary (PRFC)
Matt Robinson (DOEE)
Michael Gonsior (UMCES-CBL)
Justin Shapiro (CRC/NCBO)
Peter Rowe (NJ Sea Grant)
Paige Hobaugh (Tetra Tech)
Patricia Gleason (EPA)
Peter Tango (USGS CBPO)
Phong Trieu (MWCG)
Rebecca Whiteash (PA DEP)
Ryan Woodland (UMCES CBL)
Shawn Fisher (USGS NY)
Tish Robertson (VDEQ)
Whitney Pipkin (Bay Journal)

Meeting Actions:

- ***Bob Murphy, and the ERA team, will continue efforts focused on the exploration of mysids and amphipods, as recent diet work has highlighted the importance of these orders for YOY striped bass consumption***
- ***Paige Hobaugh will send around additional citations from her Chesapeake Bay Program alignment presentation so members have access to some of the mentioned plastic-outcome linkages.***
- ***After a monitoring discussion, heavily focused on the needs for SOPs, it was agreed that developing SOPs built specifically for the PPAT's monitoring needs/questions is the logical near-term step (as opposed to working towards nationally agreed upon standards).***
- ***Matt Robinson will reach out to members in advance of the next PPAT call to begin inventorying regional efforts in the source reduction space.***

- ***Kelly Somers will be in communication with the PPAT if there are any timing updates related to EPA funding or the review process for Tetra Tech's updated ERA.***

01:00 Introductions and Announcements
Matt Robinson (DOEE) - Action Team Chair

- *Mark Trice (MDNR): Paper called "Local Monitoring Should Inform Local Solutions" which compares microplastics concentrations by land use type in a number of different United States estuaries, will be released in the near future. In this region, the agricultural samples were from the Choptank area, and the stormwater samples came from the Baltimore area.*
- *Bob Murphy (Tetra Tech): Work in the Anacostia is looking at living resources (including YOY striped bass) plastic ingestion at different trophic levels. Some initial findings can likely be presented at the next PPAT meeting.*
- *Julie Lawson (CAC): EPA Trash Free Waters released the final report on the DC Curbside Disposal pilot. For source reduction purposes, it did show statistically significant changes in community litter levels from the project. Report is HERE.*
- *Kelly Somers (EPA): Joint federal agency microfiber funding is being discussed, with a hopeful dissemination of requirements in summer 2022.*

01:15
Update on Revisions to the Potomac Striped Bass Ecological Risk Assessment
Bob Murphy & Paige Hobaugh, Tetra Tech
Link to Presentation

- *Presentation Summary on the ERA: As a refresher, the first iteration of the ERA focused on developing a prey network for resident striped bass in the Potomac River. The literature review (focused on diet data) utilized (primarily) Potomac and Chesapeake Bay data, and considered other coastal/global research. The model identified biological endpoints of interest, and established qualtivative and semi-quantitative food web interactions. The team is now working on steps for an updated version of the ERA, as new striped bass diet data (and relevant plankton data) may tell new stories of trophic interactions (ERA version one relied heavily on decades old diet data). Newer research has identified updated YOY striped bass top prey items such as, mysids, isopods, amiphods, insects, and bay anchovy (varies significantly by salinity regime). Immediate next steps will be focused on the major prey taxa of Mysids and Amphipods (recommend research priorities and quantitative analyses that will help identify risk).*
- *Presentation Connecting Plastics Work to the CBP Goals: A review of all Watershed Agreement Outcomes found that 12 of 31 outcomes could be impacted by plastic pollution. Most of these outcomes are related to living resource and habitat goals. Specifics outcomes and connections can be explored in the presentation linked above.*

Discussion:

- *Matt Robinson (DOEE): Are bay anchovy a species included in the Bay Agreement the Forage Fish goal?*
    - *Justin Shapiro (CRC): They are identified as key forage from the STAC workshop that guides the group's priorities.*
    - *Ryan Woodland (UMCES): Bay anchovy is one of the species that the Forage Action Team is considering as a focal species for development of a forage indicator.*

    - *Kristin Saunders (UMCES): There is a nexxus for sure. As others note, bay anchovy is getting a lot of attention but there is no goal specific to it. It is an important factor for forage availability.*
- *Matt Robinson (DOEE): Didn't Susanne Brander's research on black sea bass show that fish uptake of MPs was more common by feeding on zooplankton contaminated with MPs vs direct uptake?*
    - *Ryan Woodland (UMCES): I'm not sure about her work in particular, but I've seen other experimental studies that have shown that trophic transfer is more important than passive uptake (for fish at least).*
    - *Carlie Herring (NOAA MDP): Yes, that is what Susanne Brander found (though they were looking at black sea bass). Her work is linked HERE.*
- *Kay Ho (EPA): Interesting that there is such a strong benthic community connection (mysids and amphipods) with striped bass. Of course we believe sediments are the major MP sink.*
- *Jonathan Cohen (University of Delaware): I'm encouraged by the striped bass ERA, as we've been looking at MPs in amphipods and mysids in the Delaware Bay ETM (and using a few physiological metrics on these as well) More information on this soon!*
- *Julie Lawson (CAC): I like seeing how plastic pollution connects to the outcomes and would love to keep exploring this connection and how we talk about it.*
    - *Kristin Saunders (UMCES): There is also the overarching vision in the Bay Agreement that calls for swimmable, fishable, strong economies, human health...etc. Microplastics might not be an outcome, but their presence for sure impacts our ability to see the full vision of restoration.*
    - *Julie Lawson (CAC): We have a perennial tension between WQ/TMDL, and emerging issues including plastic pollution. Articulating these connections will be really helpful for CAC and other groups.*
- *Matt Robinson (DOEE): For the Ogburn work, was the diptera order, specifically, the most common group in the gut content analysis?*
    - *Bob Murphy (Tetra Tech): The Ogburn study used eDNA, letting them break down diet data to a species level (for four out the five identified groups). Bob assumes dipteras were left broader because of breadth of order.*
    - *Peter Tango (USGS): Chironomid identification at genus or species level requires very detailed looks at head capsules for example. Order level, family level is less resource intensive so ID classification level sometimes is a compromise between time, sample size and relevant detail for your needs.*
    - *Phong Trieu (ICPRB): I have come across cased caddisflies using MP to incorporate in their cases. I have not come across any diet studies in insects. I am definitely not the dipteran/chiro. expert.*
    - *Matt Robinson (DOEE): Do we need more empirical data on diptera?*
        - *Bob Murphy (Tetra Tech): That would be doable, but the key is understanding which ones, specifically, are being consumed by YOY striped bass. Would like to see a bit more on this information when Ogburn publishes his results, and would recommend that mysids and amphipods are prioritized. Tackling insects will require more discussion.*
- *Matt Robinson (DOEE): When looking at aquatic insects in the Boynton paper, how specific did his work go as far as level of detail? What are folks thoughts on addressing insects, as they are very common in oligohaline and tidal fresh systems? Is better understanding key species an important step?*

    - *Ryan Woodland (UMCES): The paper went to only the insect level, but discussion mentioned a few specific families/orders that dominated (but just qualitative in reporting).*
- *Marty Gary (PRFC): Striped bass has a benchmark assessment coming up this October, and a new framework for management just passed, including strong recruitment triggers. Are there linkages between MPs and striped bass impacting recent low recruitment years? Even though recruitment is low, spawning stock biomass (coastal wide) is still enough to produce these big spawns. That being said, this recruitment issue is under the spotlight of the region's managers.*
    - *Matt Robinson (DOEE): This issue gets to the point about characterizing the risk MPs have on striped bass. (Ex.Will MPs inhibit larval survival?)*
    - *Bob Murphy (Tetra Tech): Sounds like understanding natural mortality and possible links to MPs, will be important knowledge.*
    - *Marty Gary (PRFC): Also mentions Ilene Seltzer Hamilton's work on striped bass diets on specific zooplankton. Could there also be climate issues causing mismatch with spawn times and prey availability. This moves away from the MP question, but it connects back to recruitment, which is the key concern at the moment.*
    - *Kristin Saunders (UMCES): If we find that the presence of microplastics do affect recruitment, it would certainly create another lever on the source reduction conversation because a lot more people (fisheries stakeholders) would care.*
    - *Bob Murphy (Tetra Tech): Earlier alluded to a zooplankton regime shift, which would likely impact larval striped bass. Important to note that the ERA is looking at juvenile, not larval. The larval stage would be most susceptible to direct ingestion, but also potentially ingestion through zooplankton.*
        - *Ryan Woodland (UMCES): Yes, early work references plankton communities that have likely changed significantly.*
        - *Bob Murphy (Tetra Tech): Work on recent diet studies have found plastics in YOY striped bass (only 20 fish). These findings have demonstrated direct ingestion because they are looking at the stomach contents.*
    - *Matt Robinson: In terms of impacts on recruitment, which life stage is most important to study?*
        - *Bob Murphy (Tetra Tech): Larval is the most important. Also notes that striped bass YOY/resident age 1-3 really provide "tributary condition" as bioaccumulation takes place.*
    - *Ryan Woodland (UMCES): Also notes that anything impacting growth will make a fish susceptible to size-based predation and in effect will impact recruitment. Also consumption of MPs by primary consumers will further fragment MPs into nanoplastics. Particles of this size can directly pass into tissue, and is where health concerns enter the equations*
        - *Bob Murphy (Tetra Tech): Work from Kristine Knausse found slowed growth from MP uptake to be true for larval oysters.*
- *Matt Robinson (DOEE): So to wrap up this group discussion, should the ERA focus efforts on amphipods and mysids at this point in time?*
    - *Kelly Somers (EPA): Agrees with this suggestion, especially with ERA deliverable deadlines approaching.*
    - *Bob Murphy (Tetra Tech): Agrees with Kelly.*
- *Matt Robinson (DOEE): Can Bob and Paige send around citations from presentations.*
    - *Action: These will be added to slides for dissemination.*

02:00
Update from the PPAT Monitoring Workgroup
Matt Robinson, DOEE
Link to Presentation

- *Presentation Summary: Matt reviews charges from the Bay Program PSC/leadership as well as the Chesapeake Bay Commission. Based on these updates and charges, it was decided that this PPAT group should form an informal working group tasked with developing the goals/objectives/gaps for designing a monitoring program. Matt reviews the questions, goals, and objectives that were agreed upon by the monitoring subgroup during the first two meetings. The team will continue meeting to refine these design parameters. The team also plans to develop a questionnaire to be sent around to the region's research/academic institutions. A major takeaway from initial subgroup discussions has been a documented need for regional monitoring/analysis/QA SOPs.*

Discussion:

- *Kristin Saunders (UMCES): Is curious how this list of goals/questions/objectives links up to the PSC report that identifies priority monitoring locations/categories. Does this work fit into those documented highest level priority investments?*
    - *Peter Tango (USGS): Plastic pollution needs are best highlighted under the priority area of "extended outcomes under development." This work is on the radar of the leadership team, but more details/specifics will be needed.*
    - *Matt Robinson (DOEE): In the mentioned report, our team purposefully left the needs as "general", as specifics are being worked out.*
- *Kelly Somers (EPA): Adds that EPA Region 3 has additional Trash Free Waters funding for monitoring. Approach to this program and understanding our community's top priorities will be key. Implementation of monitoring will be available in 2023.*
    - *Peter Tango (USGS): I would love to follow up with you on details to continue to demonstrate the build-out of support agencies/institutions are helping to tackle.*
- *Kay Ho (EPA): There are a number of SOPs out there that have been developed, but the team will need to define data objectives to guide which will be effective or not.*
    - *Matt Robinson (DOEE): NOAA has done marine debris sampling, and we can borrow from them. When we say SOPs I think of nationally recognized standards.*
    - *Kay Ho (EPA): Two ASTM methods specific to plastics are out there (for stormwater and drinking water) that USGS is using, but again it depends on what the community wants to sample.*
    - *Shawn Fisher (USGS):Building on Kay's point, his team plans to use ASTM methods in Hickey Run sampling. These procedures will be slightly modified to match project requirements.*
- *Kelly Somers (EPA): As a reminder, this monitoring conversation includes a focus on plastics across the entire size spectrum, not necessarily just MPs.*
- *Matt Robinson (DOEE): Are there other SOPs out there for analysis/QAPP, as opposed to specifically for sampling?*
    - *Kay Ho (EPA): The Southern California Coastal Water Research Project has publications currently being released. There are lots of insights on instrumentation and identification*

(raman and lidar). Recommends looking into the work of Suzanne Brander, who has published work on QA/QC (ex. what works/what doesn't on a boat).

- *Matt Robinson (DOEE): What about macro plastics sampling? (Ex. non tidal stations looking at litter counts in DC). Are there other standard methods to look at?*
    - *Carlie Herring (NOAA): MDP protocols are currently focused on shorelines/beaches, but the team's new monitoring coordinator is interested in exploring other areas/habitats, so gathering interest on additional habitats would be good.*
- *Matt Robinson (DOEE): For our federal partners, should all of these protocols be compiled at a national level to ensure that different regions are using a standardized approach to plastics monitoring?*
    - *Shawn Fisher (USGS): Believes that would be great. Have been talking about it since 2017 net sampling. It would be great to share current procedures being used by the USGS team. That said, internal review of procedure documents do take years to complete.*
    - *Kay Ho (EPA): So many different questions are being asked, creating blanket SOPs for methods can be difficult. More representative of what we need are standard reference materials. That said, California is starting a sediments/water monitoring program and our team could check in on their design progress?*
        - *Peter Tango (USGS): Concurs on Kay's point on standard reference materials.*
- *Matt Robinson (DOEE): Based on this, we should develop our own SOPs (based on our monitoring needs/questions) and not wait for national recommendations, as that could take a long time.*
    - *Peter Tango (USGS): Agrees this is a good way forward. Protocols are out there, are well described, and should be utilized.*
    - *Shawn Fisher (USGS): Agency is working on a microplastics strategy highlighting vision for all projects moving forward. There was recently a completed summary on PFAs and HABS (emerging cotamaintats work).*
- *Peter Tango (USGS): Brings up infrastructure funds, and notes that plastics monitoring in the Chesapeake is minimal compared to the EPA.*

02:45 Discussion on Source Reduction

Matt Robinson, DOEE

Link to Presentation

- *Presentation Summary: As charged by the Management Board, this PPAT body should be tracking policy advances around source reduction. Recent conversations with the PSC and CBC have also directed this body to focus on source reduction strategies and policy options. California is a useful case study of a region addressing source reduction and science needs at the same time. These initial reduction strategies can be called "no regret actions", noting that although the science is not yet perfect, the community does understand that plastics that do make their way into the environment can not likely be removed. These strategies can include pollution prevention, pathway interventions, and outreach/education. Current examples of implementation plans in the watershed include the VA Marine Debris Plan and the NOAA Mid-Atlantic Marine Debris Action Plan.*

Discussion:

- *Matt Robinson (DOEE): Can the PPAT begin focusing on source reduction strategies, while still addressing the necessary science/research questions?*
    - *Many members concur with this statement: Donna Morrow (MDNR), Julie Lawson (CAC), Kelly Somers (EPA), Michael Gonsior (UMCES), Kristin Saunders (UMCES).*
    - *Kelly Somers (EPA): Adds that we have enough information to make a case that reduction needs to be a focus. Monitoring and reduction can/should happen in tandem.*
    - *Marty Gary (PRFC): What incentives are being proposed to the manufacturers, as it seems as if consumers don't have a choice in usage?*
    - *Donna Morrow (MDNR): There is enough funding through different avenues to go after this reduction strategy question. Do we need a plan first, like California?*
    - *Michael Gonsior (UMCES): Believes we should move towards strategies to reduce sources of plastics. Even with science gaps, we are aware of the issues we are dealing with.*
    - *Kay Ho (EPA: There is enough data saying that plastics are bad for the environment/ecosystem. As Matt said earlier, microplastics cannot be removed once they enter the system, making near-term reductions key.*
    - *Adrienne Kotukla (CBC): The Commission is gathering/looking for examples about what can be done, largely in producer-responsibility space. We are ready to move on these strategies, and do not need to wait on additional data.*
- *Matt Robinson (DOEE): Are there any specific funding sources?*
    - *Kelly Somers (EPA): EPA has a verbal commitment to fund monitoring work, which allows for flexibility/guidance from the PPAT. Also mentions potential collaboration with TCW in the CBPO (exposure studies for example) through the GIT-funding process. Finally, there is funding from the "Save Our Seas Act" focused on recycling programs. There may be opportunities to attend listening sessions to push towards reduction funding.*
    - *Carlie Herring (NOAA): NOAA has funding from the new infrastructure law over the next five years. There is still no update on timing/specific focus area breakdowns, but we do know there is 150 million dollars for the MDP, and an additional 50 million to MD Sea Grant*
- *Matt Robinson (DOEE): Can other members from PPAT bring different partners from our team/watershed to talk about reduction strategies/plans. Should we put together a list/document of regional undertakings?*
    - *Adrienne Kotula (CBC): Supports this idea.*
    - *Kristin Saunders (UMCES): Important to note that the CBP MB is already feeling at capacity on commitments, which is why connecting this effort to existing priorities will go a long way.*
    - *Kelly Somers (EPA): Agrees with this idea, but believes additional outreach to managers will be important, as the PPAT membership may not be in a position to commit to these actions.*
    - *Matt Robinson (DOEE): Next meeting we can talk more about the current inventory of what's happening in the source reduction space, and use that to move this segment of our effort forward.*

3:45 Next Steps (*Kelly Somers (EPA Region III)*

- *The PPAT will review the updated ERA sometime in the near future.*
- *This coming winter we will look about moving our monitoring forward with the mentioned EPA funding.*
- *Interest in putting together a monitoring guidebook to advocate for certain SOPs that are currently out there/published.*
- *If anyone has project ideas to address risk assessment data gaps, we can work on the GIT-funding process over the summer.*