Chesapeake Bay Program
Science. Restoration. Partnership.

Plastic Pollution Action Team Spring Meeting

Tuesday, March 26 · 1:00 – 4:00pm

Attendees

Kelly Somers (EPA, Co-Chair)	Matt Gallagher (DC DOEE, Co-Chair)
Bailey Robertory (CRC, Coordinator/Staffer)	Matt Robinson (EPA/CBP, Former Chair)
Bob Murphy (Tetra Tech)	Katie Morgan (NOAA)
Kristin Saunders (EPA/CBP)	Mark Trice (MD DNR)
Mark Southerland (Tetra Tech)	AJ Woodson (Graduate Student, VIMS)
Rebecca Whiteash (PA DEP)	Rikke Jepsen (ICPRB)
Michael Gonsior (UMCES)	Jon Cohen (UDEL)
Peter Tango (CBP)	Phong Trieu (MWCOG)
Doug Austin (EPA/CBP)	Cassie Ferrante (ORP)
Carlie Herring (NOAA)	Julia Fontana (UDEL)
Barbara Balestra (American U)	Madison Griffin (VIMS)
Eden Hataley (U Toronto)	Donna Morrow (MD DNR)
Elizabeth Shields (EPA)	Claire Buchanan (ICPRB)
August Goldfischer (CRC)	Adrienne Kotula (CBC)
Shawn Fisher (USGS)	Emily Majcher (USGS)
Paige Hobaugh (Tetra Tech)	Greg Allen (EPA)
Charles O'Brien (ICPRB)	Anna Kasko (MD DNR)
Julie Lawson (DOEE)	Nicole Trenholm (ORP/UMCES/PL)
Derek Ho	Christine Knauss (UMCES)

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Agenda

1:00 pm-1:15 pm	Introduction ● Roll Call
1:15 pm - 2:30 pm	Business ● EPA deliverables feedback ● Tetra Tech Updates ○ Monitoring framework ■ Reference guides ○ Mysid/Striped bass study ○ Source tracking - Potomac river estuary
2:30 pm - 3:30 pm	Talks (15 min talk, 5 min for questions) ● Chesapeake Bay plastic pollution survey results (*Nicole Trenholm*) ● Developing frameworks for monitoring and assessing the ecological risk of microplastics in the Laurentian Great Lakes: An International Joint Commission initiative (*Eden Hataley*) ● Microplastic Ingestion in Delaware Bay Blue Crabs (*Julia Fontana*)
3:30 pm - 4:00 pm	Partner roundtable/updates/close out ● Funding ● Project ideas from PPAT ● Possible next meeting at Tetra Tech lab

Action Items

ACTION ITEM: Presenters to send PowerPoints to Bailey Robertory (bailey.robertory@noaa.gov)

ACTION ITEM: Bailey to create Google Form for potential future project ideas

ACTION ITEM: See if there is any active tracking of biosolids in Maryland and the Chesapeake Bay

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Meeting Minutes

Introduction/Roll Call

Business

EPA Deliverables/Tetra Tech Updates

3 Task Orders for PPAT from EPA

Microplastics Monitoring Framework Updates

- Goal: Design and implement a microplastic monitoring program, integrating into existing Chesapeake Bay watershed monitoring framework
    - Literature review – Completed
    - Reference guides – Under review
        - Field sampling reference guide (appendix of monitoring framework)
            1. Summary of Literature Review
            2. Methods for sampling different media
            3. Sampling design considerations
            4. Reporting and AQ/WC
        - Laboratory analysis reference guide (appendix of monitoring framework)
            1. Summary of literature review
            2. Common analytical methods
            3. Sample processing and QA/QC considerations
    - Outline for the framework document includes current status and trends, spatial distribution, sources, exposure pathways, and range of concentrations within food webs.
        - Includes recommended short and long-term actions. PPAT should have the opportunity to weigh-in
            1. Institute a monitoring program to measure attainment of this outcome and support other goals
            2. Add microplastics sampling of water and sediment to existing CBP monitoring networks
            3. Estimate bay loads of microplastics from each of the major Bay tributaries for annual status and future trends

4. Facilitate incorporation of microplastics sampling in to state and local monitoring programs wherever possible.
5. Conduct focus sampling of proximal microplastics sources
6. Implement plastic type identification in randomly selected samples to develop an accurate picture of sources
7. Determine microplastics concentrations in select species
8. Conduct focused food web studies
9. Undertake scientific studies on degradation of plastics and role as a vector of toxicity.

Discussion:

- *Kelly Somers*: Is there any priority order in these?
- *Mark Southerland*: Not yet. We will be informed by people's opinions and the framework.
- *Kelly Somers*: How are we going to discuss feasibility? Want to make sure they are trackable and achievable. Just wanted to confirm the order wasn't priority and the PPAT would have the opportunity to weigh in.
- *Mark Southerland*: Yes, it will be determined at the end of the process
- *Bob Murphy*: Is number 1 (add the goal of zero growth as an outcome) attainable?
- *Kristen Saunders*: Anytime someone is talking about something new in what we may have beyond 2025 (new, modify, none) based on the recommendations from small groups, it is emerging in the conversations that some jurisdictions are most interested in when they are going to meet TMDL levels and are very focused on that, so they may not be focused on new goals. However, there are different partners that are vocal about the need to include things like this. I don't know where that is going to land. I would suggest you give some thought to the necessary sequencing as they may get us closer to making the case of why this is important. The other thing that comes to mind is there is a lot of recommendations across all small groups and thematically there are several places that touch on monitoring where I suspect a lot of the interactions of microplastics with organisms within the ecosystem. I do get the sense that this tension around new and additional is not being embraced, so it will be harder to get this as a new outcome. Tying it to previous outcomes might be more efficient.

- *Matt Robinson*: One thing that helped get this group up and running was having D.C as a jurisdiction champion. For the Beyond 2025 initiative, having a jurisdictional sponsor would help a lot.
- *Kristen Saunders*: The question I have for Mark and Paige is as you look at existing monitoring programs, will you also be able to identify who is doing the monitoring? In this conversation there is an interest in bringing in community science and more local scale monitoring organizations. Knowing who is doing monitoring will be helpful.
- *Peter Tango*: What I took from this presentation is whether or not we can easily slide these in will depend on the protocol. If there is a community science supported method, maybe it will come down to methods and cost.
- *Mark Southerland*: Yes and no. Those questions are the key ones to answer. This is what it takes scientifically and technically to answer these questions. Look at who is doing what and how and look at how that fits. Thanks for the notes.
- *Kelly Somers*: How imperative would it be for plastics to be on the beyond 2025? What would happen if we didn't get it on there? The longevity and function of the Bay Program.
- *Kristen Saunders*: That is a good question. Microplastics is in the toxic contaminant research outcome. That being said, they have a hard time getting microplastics attention over other nutrients and sediments. Despite being an outcome, there is no guarantee the resources will be directed that way. I always recommend people finding their hook to tie that to outcomes. I don't know if you need one for plastics, but it does give you a leg up if you have one. It takes a champion jurisdiction.
- *Kelly Somers*: We should put out a Google form on longevity and look to solidify it if it is in the group's best interest. We have accomplished a lot from the original charge.

ACTION ITEM: Bailey to create Google Form

- Shared reference links (in the chat)
  - https://www.mdvip.com/about-mdvip/blog/are-microplastics-affecting-your-health?mkt_tok=MDAyLUNUUC0xNjQAAAGSDyFNOsMqETKussb9NlaZ2G8dKgCphAwLwT1IYRsxEaBO7aE0m1YzwYwMN6rwhj-vWy75r7yYUyvu4M5_-0ARq6TCTHtWvzEJreCaD2ASpG6JWcqL
  - https://www.frontiersin.org/articles/10.3389/feart.2024.1339822/full
  - https://aslopubs.onlinelibrary.wiley.com/doi/full/10.1002/lom3.10582
  - https://www.earthdoc.org/content/papers/10.3997/2214-4609.202333064
  - https://www.sciencedirect.com/science/article/abs/pii/S0045653523011426
  - https://www.sciencedirect.com/science/article/abs/pii/S0045653523011505

Source tracking study

- Characterize microplastics coming from 6 land use types (Agriculture, Wetland/Natural, Urban, Suburban, Stormwater, Wastewater)
- Baseflow and storm event sampling, 3 sites/land use type
- Sampling beginning near the end of April

Mysid shrimp/striped bass updates

- Field-based study is getting underway, Potomac and Patuxent Rivers
- Characterizations using ambient environmental loadings of microplastics
- Dose mysids with environmentally relevant amounts of microplastics, feeding microplastic-loaded mysids to YOY striped bass in lab
    - Observe how much is transferred
    - Sub-lethal and possibly lethal impacts

Discussion:

- *Peter Tango*: Are the collections (mysids collected from the field) what you are feeding them?
- *Bob Murphy*: No, the collections are to understand the loadings.
- *Jon Cohen*: Would you think that you would adjust your test concentrations or your duration of exposure to get the loading that you're after with the body burdens that you're after?
- *Bob Murphy*: Yes. Exactly. There will be a lot of wiggle room, but it will be nice to have actual field-collected exposure.
- *Matt Robinson*: To help with the hook as Kristen identified, we currently don't have a Striped bass outcome. How could we use this to our advantage?
- *Bob Murphy*: Shift towards shallow water environment could make a case here. Outside of the Bay Program, Striped bass numbers have been terrible. Anything that can show a reduction in population or a stressed population should be of interest for Striped bass.
- *Kristen Saunders*: Mysid is also a forage for other species.
- *Matt Robinson*: It is one of the core species, but we don't have any outcomes outside of research. It is along the line of stock assessments, correct Bailey?
- *Bailey Robertory*: Yes
- *Peter Tango*: They are indicators.

- *Peter Tango*: Along these lines of thinking with Striped bass there used to be a Striped bass IBI. Not sure if you will get much with mysids, but there are areas you are looking at that might transfer over.
- *Bob Murphy*: Mysids are the easiest prey taxa of Striped bass to work with
- *Peter Tango*: Re: Zooplankton there is a proposal in on that. Maybe we piggyback on that.
- *Bob Murphy*: Incorporate zooplankton in first part
- *Claire Buchanan*: Larval stage of Striped bass rely on zooplankton while juvenile Striped bass rely on mysids. Are you looking at early juveniles and late juveniles? Early juveniles might already have a body burden from copepods before preying on mysids. Might be good to look at different juvenile size groups to see where they are starting to pick up body burden.
- *Bob Murphy*: Great idea, but I don't think our study is equipped to pick up on this. We are trying to mimic YOY (75-85mm) from juvenile index survey.
- *Kelly Somers*: Re: the Mentimeter, I am curious how far away we are from this study saying or showing some potential links to human health if Bay residents are eating Striped bass. I am very cautious about saying this because it is still early on, but I wanted to gauge thoughts on this.
- *Bob Murphy*: We have talked about that, looking at adult fish. But that is where these monitoring programs (VIMS for example) have access to so much fish tissue we could possibly piggyback on and get at that question easily, looking at body burden.
- *Kelly Somers*: I am sure there is interest there. We could look at in the future.
- *Bob Murphy*: We found them in D.C in consumptive size classes of largemouth bass and snakehead fish tissues.
- *Kristen Somers*: The Fisheries Goal Team had students and Hampton present on the amount of microplastics in oysters. We will hopefully hear from them in a future meeting, but they are making their way across seafood.
- *Matt Robinson*: What percentage of total fish did you microplastics in?
- *Bob Murphy*: 25-27%, about ¼ of Striped bass
- *Claire Buchanan*: You are wanting to make a connection between the fish and its prey, correct?
- *Bob Murphy*: That is correct.
- *Claire Buchanan*: It seems that you want to do it laterally. What if you just looked at different life stages and inferred if they had a certain amount from larvae, they are getting it zooplankton, and if they have a certain amount when they're adults

they are getting it from prey? You could look at stomach contents rather than actually microplastics in stomach contents. You would just start inferring. Just a thought.

- *Bob Murphy*: That would be another way to approach this. We have addressed some of it but haven't touched the larval stages that much.
- *Claire Buchanan*: I was aware you had done some before, but was just thinking you could take it further and get that possible connection to human health.
- *Matt Gallagher*: Asking a totally different question. For the source tracking/land uses, how were they chosen?
- *Bob Murphy*: In consultation with the EPA
- *Kelly Somers*: The six categories were part of the initial proposal. How we define that was a collaborative process between EPA, ORD, and Tetra Tech.
- *Matt Gallagher*: For urban v. suburban, what is the stormwater wastewater classification?
- *Bob Murphy*: We are essentially treating wastewater as point source, urban and suburban is based on development around at the catchment.
- *Kelly Somers*: There are some that are more distinctive and the others are more aggregate
- *Kelly Somers*: The question and way we framed this is are there specific polymer shapes, sizes, and types that correlate with different land use type, and then go from there for identifying sources. This is a pilot.
- *Matt Robinson*: The fact that you are doing particle type is above and beyond
- *Kelly Somers*: We have someone up at the ORD Narraganset lab doing the polymer analysis, but the Tetra Tech is taking care of collection, isolation and extraction, and synthesis.
- *Matt Robinson*: Christine, is Jamie doing something like this in the Choptank?
- *Christine Knauss*: He has done some in the marsh edge, tidal marsh, and through the Choptank. Above and below wastewater treatment, and water and sediment.
- *Kelly Somers*: Julie made an interesting point: multiple riverkeepers on the Eastern Shore have mentioned plastic sheeting getting tilled, so modeling from the AG could vary. Whether the farmers use cover crops or plastic overwintering.
- *Christine Knauss*: Are we tracking how much biosoldis get applied to farm fields in Maryland?
- *Kelly Somers*: I don't know that, but I am sure someone does.

- *Christine Knauss*: In wastewater treatment plants a lot of microplastics end up in biosolids and aren't treated and get tilled into the soil and can be a source of microplastics. I am sure someone is tracking the amount, right?
- *Kelly Somers*: That is certainly something someone can do a deep dive into. This could be a source. We should at least acknowledge it as a potential pathway. If anyone knows put it in the chat.
- *Matt Robinson*: In the chat Emily just put that USGS is on biosolids data release via TCW (Toxics Contaminant Workgroup)
- *Kristen Saunders*: I was going to say the TCW is looking at that for other reasons
- *Kelly Somers*: Julie said D.C water probably knows where the biosolids go. I am sure it is out there. We should follow up on that, Bailey, if you could put that in the notes.

ACTION ITEM: See if there is any active tracking of biosolids in Maryland and the Chesapeake Bay

- *Matt Robinson*: Farmers have a surplus of manure that they can't spread, so they put plastic sheets over it during the winter because they cannot spread it from December to March.
    - Shared reference links (in the chat)
        - https://marinedebris.noaa.gov/research/tracking-microplastics-choptank-river-watershed
        - https://clearinghouse.marinedebris.noaa.gov/project?mode=View&projectId=2236
        - https://mde.maryland.gov/programs/land/solidwaste/pages/biosolidstf.aspx

Talks

Chesapeake Bay plastic pollution survey updates (Nicole Trenholm)

Overview:

- Ocean Research Project: Non-profit project
- Just wrapped up field portion, have some things to share
- Project has been consulted and advised with the PPAT to support the research and development of advancing the science and understanding of microplastic pollution in the Bay

- Developing baselines and testing approaches for processing and analysis and looking for a feasible approach. What's the optimal depth for collection? What is a feasible microplastics size range? Optimal water volume?
- 1st Bay wide microplastic distribution study to occupy the 15 regions of the Chesapeake Bay Health report card
- Analysis: provides accurate near-real-time analysis/plastic validation using spectroscopy
- Preliminary results:
  - Microplastics found in every area
  - General decrease from fall to spring (indicating seasonality)
  - General decrease from headwater areas towards the mouth of the Bay
- Investigating possible bay MP traps that would explain distribution. Are suspended particles being trapped north of the Bay Bridge? Is the Bay trapping microplastics?
- Next steps: sharing reports and publishing papers, aligning cruise goals with PPAT, October follow-up research cruise.

Discussion:

- *Kelly Somers*: You said you collected sediment in seagrass bed samples already?
- *Nicole Trenholm*: We have prep samples, didn't have score regions
- *Kelly Somers*: Archived for now?
- *Nicole Trenholm*: Yes.
- *Katie Morgan*: In terms of when the samples were collected in the fall v. in the spring, were there differences in storm events that happened directly prior to sample collection? I just noticed drastic differences in concentrations.
- *Nicole Trenholm*: So, in the fall it was very calm, so it was probably it was a lot more stratified, but this past week (spring) it was rainy and windy, so it was probably a lot more mixed. We are going to look at some of the physical properties of the water at the sea surface because we fan a continuous flow thermosolar graph. We also did CTD profiles at certain locations, so hopefully we can look at the degree of stratification and buoyancy. Some of these physical ocean properties help enlighten us about the results so far.
- *Jon Cohen*: More of a comment, but if you look at those surface properties, you can also look at the change and see if you are sampling around discontinuities and salinity sites. How did you choose the sites?

- *Nicole Trenholm*: The end result was this would be a score for the Chesapeake Bay report card which helped select sites. We did transects across the rivers and the Bay, but if the channel was narrow we stayed in the main stem. Ex: for the Potomac, we did more than one station and transect. We discussed with UMCES.
- *Barbara Balestra (chat)*: Was the sampling in one day or did you have it in several days?
- *Nicole Trenholm*: 24 hours, 10 days, except for some weather events
- *Matt Robinson*: There was a paper by Alex Lopez that looked a circulation that was modeling looking at the computer model. Have you looked at that? He found most plastics are retained. Resuspension and the Coriolis effect leading to it staying.
- *Nicole Trenholm*: I would love to connect and refer to that. We did talk about circulation, but didn't get clear guidance. The Eastern Shore was the most challenging.
- *Kelly Somers*: How do these locations relate to the ones we proposed?
- *Nicole Trenholm*: I am not sure, but we do draw from the existing segments.
- *Peter Tango*: You are in the vicinity. 15 regions, still really good coverage and up into the key tributaries.
- **Pulled up Google Earth map of sites*
- *Nicole Trenholm*: I don't have the GIS shapefile, but this gives you a sense of transects and stations, and a general idea of cross bay transects.
- *Bob Murphy*: You histogram that showed the decrease down the bay was the main stem, not tributaries correct?
- *Nicole Trenholm*: Yes, we aren't ready to start discussing tributaries
- *Matt Robinson*: 1-10, how do these concentrations compare to what people found elsewhere?
- *Nicole Trenholm*: It isn't too bad, it isn't nearly as concentrated as other places. I think we are seeing a lot getting trapped or buried in the bay. I don't think it is completely dire and we have a fighting chance to improve this.
- *Christine Knauss*: One of the reasons for choosing those locations and the score regions matching the report card is we are going to (with Bill Dennison) begin with some of this data to develop a debris indicator for the report card because there isn't one right now. Since it is so public facing this might also get some momentum.

- Shared reference links (in the chat)
  - https://www.frontiersin.org/articles/10.3389/fmars.2021.715924/full

Developing frameworks for monitoring and assessing the ecological risk of microplastics in the Laurentian Great Lakes: An International Joint Commission initiative (Eden Hataley)

Overview:

- *Kelly Somers*: A small intro. Thanks to Carlie at NOAA she connected members of the PPAT with members of the IJC because she saw some cross over between our work and collaborate, so Eden is here on behalf of IJC to give us information on their work and how it aligns with ours.
- Workgroup is close to wrapping up (started in late 2022) – final documents and outputs drafted
- International Joint Commission (I.J.C) works to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes
- Workgroup objective: Develop and advance coordinated frameworks for monitoring and assessing the ecological risk of microplastic pollution in the Great Lakes.
  - Objective 1: Synthesize recent advances and knowledge
    - Coordinated a plastic pollution session at the 2023 IAGLR
    - Write a literature review of field and lab methods for measurement – Draft
    - Create 2 publicly-accessible databased – Draft
  - Objective 2: Develop a monitoring framework
    - Hosted a workshop to elicit recommendations for SOP's for sample collection and guidelines on how we go about capturing spatial and temporal availability and incorporating microplastics into regional programs
    - Workshop #1 Report – Draft
    - SOPs – Draft
  - Objective 3: Develop a risk assessment framework
    - Water species sensitivity distribution

Discussion:

- *Kelly Somers*: How far off is the Chesapeake Bay from accomplishing something like this and establishing thresholds? Is there enough literature out there?
- *Bob Murphy*: You are probably familiar with ToMEX. How many brackish and marine species are in there?
    - *Eden Hataley*: Depends on the matrix, for ambient water it is doable. Some thresholds are derived for marine. For ambient water I think there is enough in ToMEX. Sediment is tricky as there may not be enough data. For marine and freshwater it is feasible.
- *Christine Knauss*: I was also involved in the update. Were you able to use all that data and the papers we added?
- *Eden Hataley*: Yes, we did. It was very necessary. I would highly recommend ToMEX for anyone.
- *Peter Tango*: In the formation of the D.O criteria there were 43 species that informed that. I am not sure what a comparable number would be relative for this. Even if there is a smaller subset it may be feasible. There is potential given the number of species you showed us.
- *Eden Hataley*: Water SSD turned out nice. We still don't meet Canada guidelines.
- *Kelly Somers*: For a lot of the monitoring you used pumps, but they weren't going to be used in original reference guides. What are your guidelines? Are they back on the table?
- *Bob Murphy:* Yes, keep pumps back in. There is some talk about pumps degrading though and contaminating samples.
- *Eden Hataley*: SCCWRP has a different timeline. We are doing an additional study on types of pumps/contamination this summer. River and ambient water protocol suggest using pumps. We still do have some questions. Both the river and ambient water suggest pumps, with trawl as an alternate for ambient. These groups lean towards pump because you lose some sizes with trawls.
- *Kelly Somers*: For our source tracking we are using the SCCWRP methods currently for EPA PPAT projects.
- *Kristen Saunders*: At one point you talked about microplastics as a sub-indicator in sub-ecosystem health. We are trying to make sure the work we are doing here has a broader hook to Bay Program work. What is the "hook" for your committee? Public health? Species feeding?
- *Eden Hataley*: Hasn't been designated yet. Our workgroup is providing tools if and when they are needed. We are working in anticipation in case the decision is

made. There are chemicals of mutual concern that are a part of government commitments to reduce the release of those contaminants in the Great Lakes. There is a nomination for micro plastics to be designated as that.

- *Julie Lawson*: I wanted to tag on to Kristin's question and put something out to the PPAT to consider. There was a lot of angst at Beyond 2025 meetings that none of the talk is on microplastics. Is there an opportunity to amend a clean water suggestion to get microplastics in Clean Water recommendations? I am suggesting this to the PPAT and looking for things to push for to get some of these adjusted to include plastics.
- *Peter Tango*: Within the set of recommendations, we are talking about a TMDL focused small universe of recommendations. There is another set of brackets somewhere that it would fit in. So it may not fit in Clean Water, but somewhere in recommendations there is a home for plastics, bacteria, pH, etc.
- *Kristen Saunders*: Just because it doesn't fit in this round doesn't mean it won't be included elsewhere.
- Shared reference links (in the chat)
  - https://www.chesapeakebay.net/what/event/hold-beyond-2025-steering-committee-march-meeting

Microplastic Ingestion in Delaware Bay Blue Crabs (Julia Fontana)

Overview:

- 2019 Preliminary sampling found 48% of Blue crabs in Blackbird Creek and Murderkill river contained microplastics
- Overall Baywide plastic sampling found higher concentrations in upper region of estuary, along the Delaware coast, and along the main channel and at fronts
- Research objective: Determine spatio-temporal patterns in Blue crab stomach microplastics in the context of crab morphology/physiology and estuarine microplastic distribution
  - Only used female Blue crab stomachs
  - N= 197 (for 2021, still some that haven't been analyzed
  - Morphometrics and reproductive state analyzed, stomachs dissected and stored
  - Stomachs digested in 10% KOH filtered onto 10µ polycarbonate filters
  - Particles picked from filters, measured, and analyzed for plastic polymer
- Results:
  - 40% of crab stomachs contained at least 1 microparticle
  - Average of 1-3 pieces per crab
  - Fiber 79%, 11% fragments, 10% beads

- Seasonality:
  - More plastic in crabs in the spring, less summer-winter (more crabs in summer overall, less in winter)
- Type distribution
  - More diverse types in up river in summer region (where ETM takes place, might be a possible explanation)
- Morphology
  - Even distribution of 30-40% for each crab size class
  - Carapace condition (when they terminally molted) v. plastic burden
    - No relationship
    - Taking a look at the distribution (dirty crabs have more pieces in their stomach, although not statistically significant)
- Polymers
  - Fiber were mostly rayon (synthetic fiber)
  - Fragments were relatively split
- Conclusions
  - 40% contained plastic and semi synthetic
  - Most contained 1-3 microplastic pieces
  - Spring contained most plastic
  - Summer contained more diverse types of plastic

Discussion:

- *Matt Robinson*: How far up Blackburn creek did you sample?
- *Jon Cohen*: The NIRS site, the reserve
- *Kelly Somers*: If you take rayon out it is a pretty even distribution.
- *Julia Fontana*: If we take out that rayon significantly less crabs have plastic
- *Kelly Somers*: What is rayon used in besides clothing? Fishing materials? Nets?
- *Julia Fontana*: Not sure. I know clothing is a significant part of it
- *Christine Knauss*: Have you looked at the polymer types in the water proportionally to crab stomachs? Was it similar proportionally?
  - *Julia Fontana*: Yes. It isn't uncommon for us to see rayon, however proportionally this is pretty high. About on par with polyester within the water column. We found a lot of polyester in the water.
  - *Christine Knauss*: Why did they have more rayon in them then? Do they prefer rayon?

- *Julia Fontana*: Rayon is slightly denser. They may have a chance of re-suspension.
- *Matt Robinson*: What color are the rayon samples? Orange?
- *Julia Fontana*: Not sure. Most of the time they were clear or white but we are getting all sorts of colors.
- *Kristen Saunders*: Does it mimic crab's food source? I remember having the conversation when picking mysids I was wondering if they mimic worms.
- *Kelly Somers*: Has there been work in the exact locations with surface water? Is rayon that prevalent or is it selective feeding?
- *Julia Fontana*: My guess is it is just proportionate and not selective. It is just what is out there in the Bay in general.
- *Carlie Herring*: FYI the SOS 2.0 Report on Microfiber Pollution considers all types of fibers (manufactured - synthetic and cellulosic, as well as treated natural fibers). This report is going through final clearance/review. I can share with this group once it is available.
- *Matt Gallagher*: Going back to the Blue crab sizes bell curve. You are seeing 1-3ish particles per crab. Do they get them early on in their lives and then keep them?
- *Julia Fontana*: They can excrete/export them. This study was just to show does the crab have plastic (yes or no) v. sizes?
- *Bob Murphy*: Would you expect a difference if you include male crabs?
- *Julia Fontana*: I would expect them to be the same
- *Matt Robinson*: Studies in the past have shown that microplastics will translocate from crab stomach to their blood. Are you going to look at that? Or does that require more funding?
- *Julia Fontana*: If we could have looked at tissue we could have, but these were just sacrificed for their stomach.

- *Julie Lawson*: Clothing, blanket, sheets, tire chords seemed to be the most common uses for rayon.
- *Kristen Saunders*: Is there any rayon manufacturing in the area?
- *Julia Fontana*: Not made in the U.S
- *Kelly Somers*: I think it is more popular and an attempted balance between more "ecologically friendly" and fashionable. Being advertised as better for the environment.
- *Matt Robinson*: Haven't heard about rubber tire particles yet. That is a big issue that people are paying attention to.
- *Kelly Somers*: We are trying to look that in to some conversations within the EPA. We are trying to loop them into conversations.
- *Christine Knauss*: Most everything has been analyzed water samples
- *Katie Morgan* : I think there is some work being done on that. Jessie Meiller and Barbara Belestra to understand tire particles in the Anacostia.

- *Jon Cohen*: We see them in the Murderkill River when near the heavily trafficked bridge that crosses route 1.
- *Matt Robinson*: They are toxic to some Northwest Salmon species
- *Matt Gallagher*: One of DOEE's projects will be looking at BioChar treatment and bio retentions for 6 PPDQ.
- *Kelly Somers*: Let's talk offline about if it more dominant in certain areas

Partner roundtable/updates/close out

- *Kelly Somers*: PPAT SCCWRP and IJC put in together for a panel on large scale microplastics monitoring session at SETAC in the fall (2024). Trying to get national and international representation. Haven't heard yet if we are going to get the panel.
  - *Eden Hataley*: It has been accepted and the abstract submissions are now open!
- *Kelly Somers*: EPA has been following the original PPAT charge. We are getting close to checking all the boxes. I was looking to see if we have any projects ideas? Start a list and look for funding sources. Just putting it out there to start thinking about project ideas in tandem with, if we want to make this action team permanent, how this plays in to Beyond 2025. I think the best thing is to do some sort of Google Form where people can put in ideas and weigh in on where this action team goes.
- *Kelly Somers*: Matt G and I are going to present at an upcoming management board meeting (most likely the end of the summer) when some of Bob Murphy's projects will be completed. So we can hopefully give out some concrete report outs.
- *Kristen Saunders*: Just going back to the hook conversation, should we solicit information from the GITS to see if they have any feedback? Ex: Blue Crab goal team might have a connection. Habitat GIT, Fish GIT, etc. Are there needs goal teams have that may cross over?
- *Julie Lawson*: Agree with Kristen. The interest in pushing plastics through Beyond 2025 for research and management. Questions on micro v. macro. Two are micro, most are macro. There is some social science that this crosses into. Program as a whole wants to better integrate across all outcomes. If plastics are affecting their species of concern they need to also support and lean in to social science.
- *Kelly Somers:* Look for a form and we will have the microplastics monitoring strategy shared. Thanks for all of the fantastic reference guide comments. We are hoping the frameworks get equal attendance and feedback.
- *Next meeting TBD.*

End of meeting. Thanks to all who attended. Please email Staffer/Coordinator Bailey Robertory with any questions.

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