RMP
REGIONAL MONITORING
PROGRAM FOR WATER QUALITY
IN SAN FRANCISCO BAY
sfei.org/rmp

Microplastic Workgroup Annual Meeting

April 30, 2026 (Hybrid Meeting)
San Francisco Estuary Institute

Meeting Summary

MPWG Science Advisors	Affiliation	Present
Chelsea Rochman	University of Toronto	Yes
Barbara Beckingham	College of Charleston	Yes

Attendees

Adam Wong (SFEI)
Amy Kleckner (SFEI)
Barbara Baginska (SFB Regional Water Board)
Bushra Khan (UC Davis)
Carlie Herring (NOAA)
Chris Sommers (EOA, SCVURPPP)
Damien Reggio
Dan Hossfeld (EPA)
David Robertson (City of San Jose)
Diana Lin (SFEI)
Don Yee (SFEI)
Elise Sbarbori (City of Palo Alto)
Emily Corwin (SFEI)
Erica Yelensky (USEPA)
Ezra Miller (SFEI)
Gerardo Martinez (SFB Regional Water Board)
Hazel Vaquero (Moore Institute for Plastic Pollution Research)
Jeremy Conkle (Delaware River Basin Commission)
Jay Davis (SFEI)
Jennifer Sun (SFEI)
Jesse McDermott (CCSD)
Kayli Paterson (SFEI)
Leah Hampton (SCCWRP)
Lester McKee (SFEI)
Lorien Fono (BACWA)
Luisa Valiela (US EPA Region 9)
Madeline Milne (University of Toronto)
Maggie Monahan (SFB Regional Water Board)
Michelle Azurin (SFEI)
Michelle Lin (City of San Jose)
Noah Rudko (SFEI)
Rebecca Sutton (SFEI)
Shelly Moore (Moore Institute for Plastic Pollution Research)
Sierra Garcia (SFEI)
Simret Yigsaw (City of San Jose)
Tom Mumley (Retired SFB Regional Water Board)
Valerie Hanley (DTSC)
Veronica Suarez (SacSewer)

1. Introductions and Goals

Amy Kleckner initiated the microplastic workgroup meeting and stated that the meeting is recorded and AI-transcribed for note-taking purposes. Amy continued with a land acknowledgement to the Native peoples of the San Francisco Bay Area. She introduced the microplastic workgroup advisors, Dr. Chelsea Rochman from the University of Toronto and Dr. Barbara Beckingham from the College of Charleston, followed by a brief roll call of those present both in-person and virtually.

Amy reviewed the meeting's agenda and went over the goals for the day's meeting: 1) provide updates on recent and ongoing microplastic studies; 2) discuss the MPWG multi-year plan and the future direction of the program; 3) discuss the special study proposal. Tom Mumley reminded the group that the workgroups are also engaging in a review of past work. Amy noted that the funding for the RMP has grown to $9.2 million for 2026, due to a non-competitive grant award from the EPA. The planning budget for the MPWG for 2027 is $154,650. She noted that the RMP committee has recommended that workgroups plan multi-year proposals when possible.

2. Information: Microplastics Update

Diana Lin presented updates about the ongoing microplastic projects. She showed a timeline of how the RMP's Microplastics Strategy has evolved, and shared major themes. Urban stormwater runoff is recognized as the major pathway for microplastics to enter the Bay, and is dominated by tire road wear particles (TRWPs) and fibers. Small microplastics, including TRWPs, fibers, and other small microplastics, are a major gap in Bay and global microplastic monitoring studies and also a major data gap to inform risk.

Diana's first project update was on the Pilot Study to Evaluate Methods to Measure Small Microplastic Particles in Bay Water. The major motivation for the project is to address data gaps in the previous San Francisco Bay Microplastics Study by piloting sampling and analytical methods to quantify small microplastics <350 µm. The methods for this study leverage surface water sampling guidance developed by Chelsea Rochman and the Southern California Coastal Water Research Project (SCCWRP) in coordination with the California Ocean Protection Council (OPC), with the intention that the sampling guidance could be used for future statewide monitoring efforts. The sampling methods have also been presented to the International Joint Commission for monitoring microplastics in the Great Lakes. The sampling will be similar to how SFEI has been collecting stormwater samples using an ISCO pump and running the water through 20 µm, 53 µm, and 125 µm stacked sieves. The study will collect samples at two open Bay locations, which will be analyzed using Raman spectroscopy by Chelsea Rochman's group at the University of Toronto and Laser Directed Infrared (LDIR) by Barbara Beckingham and Stephanie Whitmire at College of Charleston and Clemson University, respectively. Diana reviewed the deliverables and timeline, with sample collection starting this summer and a final report delivered around September 2027.

Diana's second project update was Tire Rubber Marker Analysis for Tire Wear Particle Quantification. The motivation for this study is to improve methods to quantify tire wear particles in Bay Area samples, statewide, and nationally. The study partners with Elisabeth Rødland from the Norwegian Institute of Water Research (NIVA). SFEI will purchase 30 tires representative of tires used in the Bay Area; these will be analyzed using pyrolysis GC/MS to quantify four tire rubber markers and create a profile of tires widely used in the SF Bay Area as a reference database. Diana reviewed the timeline and deliverables. Tires will be purchased and sampled this summer, and a final report will be completed by next summer. She is seeking collaborators for this study, including individuals with insights into the tire market, and would like to review the project tire selection and/or scientists who would like representative tire material from the purchased tires. Tom Mumley asked if anyone was actually interested in collaborating with us. Ezra Miller mentioned interest from the Harper lab and Elise Granek at Oregon State University. Both Barbara Beckingham and Chelsea Rochman were also interested in material from the 30 tires to build their spectroscopy library. Tom Mumley emphasized that the RMP is taking leadership on this topic area by developing a tire database that can be used to improve tire wear quantification beyond the Bay Area.

Diana reviewed other projects that will be further discussed later in today's meeting: Dryer Study, Microplastics in Sport Fish, and Microplastics Pilot Stage Study. She briefly reviewed other related microplastic projects. A series of papers co-authored by Ezra Miller published updates to the Toxicity of Microplastics Explorer (ToMEx) database, which have doubled the database for aquatic organisms and human health. The key findings of these papers are that there is a lot more microplastic toxicity data compared to the previous publication in 2022. However, the overall quality in terms of fit-for-purpose for risk assessment hasn't changed that much, and neither have the thresholds.

Diana noted that the manuscript summarizing the study of microplastics removal in rain gardens, which was part of a larger study and project funded by an EPA Water Quality Improvement Fund grant, has been accepted for publication with revisions. Tom was interested in reviewing the project findings messaging; he emphasized that while SFEI has previously found rain gardens to be effective at removing microplastics from stormwater runoff, this approach had limited application and is not feasible at a large scale for stormwater treatment. Chelsea Rochman asked about study findings and how they compared with SFEI's previous rain garden study. Diana responded that for this study, there was a focus on evaluating TRWPs, and at the four rain gardens being monitored, we saw significant removal. Rebecca Sutton assured Tom that his concerns were well addressed and agreed to share the draft manuscript with the workgroup.

Diana provided an update on the Statewide Plastics Monitoring Strategy, developed for and in close coordination with OPC. The RMP's strategy recognizes the development of a statewide strategy and seeks to coordinate efforts with the statewide strategy. The goals of the Statewide Microplastics Monitoring Strategy are consistent with the RMP: to understand exposure and risks from microplastics, and to inform management actions. One of the recommended pilot studies included in the report is to implement a microplastic monitoring study with established regional monitoring programs, such as the RMP and the Southern California Bight Regional

Monitoring Program. Diana reviewed the deliverables and timeline for the Statewide Plastics Strategy, which started in 2023, a draft report that was shared publicly for review and comment, and a final report due at the end of May 2026. SFEI will also continue to support technical discussions over the next year to implement pilot studies. Diana also described work led by SCCWRP, Chelsea Rochman, and Andy Gray to develop sampling guidelines for water and stormwater monitoring. This work is developed in coordination with OPC with the intention to use these methods for future statewide monitoring. Diana mentioned the Bight Program sampled sediment and shellfish in the Southern California Bight in 2023, and reporting is anticipated later this year, but the analysis did not include TRWPs.

Diana also mentioned that DTSC's Safer Consumer Products Program initiated rulemaking to add microplastics to its Candidate Chemical List. The proposed definition for microplastics is very broad to avoid regrettable substitutions. DTSC has started preliminary screening research on products that can release microplastics and has narrowed the list to a few categories. Valerie Hanley (DTSC) clarified that DTSC does not have a lower size limit in the microplastic definition because they don't want industry to put smaller microplastics in their products to avoid a lower limit. This is in contrast to EU regulations that have included a lower size limit (e.g., 100 µm) based on what they can accurately measure.

Chelsea Rochman asked whether the Bight Program didn't include tires due to method limitations. Leah Hampton mentioned that since they are doing sediment samples and particle isolation methods include density separation, the methods they are using are not designed to analyze tire particles, but they are seeing tire particles and noting them visually. They are archiving sediment samples from this study and can go back and evaluate them for tire particles in the future if a method becomes available. Erica Yelensky asked if we are seeing more tire particles as more people switch to EVs and if we are purchasing tires for the SFEI tire marker study. Diana responded that SFEI will be including tires for popular EVs in the Tire Marker Study.

3. Discussion: Microplastics Strategy and MYP Plan

Amy Kleckner introduced the multi-year plan discussion led by Diana Lin. Diana reviewed the priority management questions and asked if the advisors and stakeholders could discuss and prioritize the first two questions, 1. What are the levels of microplastics in the Bay? What are the risks of adverse impacts? 2. What are the sources, pathways, processes, and relative loadings leading to levels of microplastics in the Bay? These two questions steer the group in different directions for monitoring design.

Diana reviewed the multi-year plan, which includes monitoring microplastics in stormwater, Bay water, sediment, and wastewater. For 2028, she proposed adding a water monitoring study as a follow-up to the ongoing pilot study, as well as sediment monitoring, which will leverage that year's Status & Trends sediment monitoring cruise. Additionally, these monitoring efforts can be used to coordinate with more statewide monitoring. Looking further into the future, Diana noted that it may be worth revising wastewater monitoring with newer sampling and analytical methods since this has not been done since the 2019 study. Air monitoring is a pathway for microplastics

in stormwater, and monitoring may inform the relative importance of local and regional sources compared to long-range sources. She also wants to characterize microplastic additives by working more closely with the emerging contaminants work group, as many of the chemical contaminants they are exploring are also used as plastic additives.

Diana asked the group: 1) are we missing important topics, 2) are there any updates on related management questions and decisions, 3) what topics are of highest priority. Tom Mumley responded that both the priority monitoring questions are equally important. One area he sees missing in the strategy is modeling related to loadings, relative presence, and fate of microplastics. Previous microplastic studies show that not all microplastics behave the same. He wants this workgroup to utilize modeling of microplastics in the watersheds and the Bay. Luisa Valiela asked if our partners are doing any of this modeling work. Chelsea Rochman mentioned that they had done some modeling work with the Ocean Conservancy to model plastic trash and how it moves down rivers. Chelsea Rochman asked if the Bay water study could sample at different depths. Diana noted that for the upcoming Bay water study, only a limited number of samples are collected, so depth sampling was de-prioritized. Barbara Beckingham noted that the surface-level concentrations can give us an idea of what might be in the lower depths, as we would expect the levels to decrease with depth. Leah Hampton mentioned that Andy Gray (UC Riverside) had a student who studied microplastics at different depths in San Pedro Bay and found higher concentrations at the surface, but also found some suspended in the water column. Diana said she would connect with Leah and Andy Gray. Chelsea agreed that modeling could be helpful to inform monitoring locations that are potential “hot spots”. Diana noted that from the previous study, they had seen “hot spots” at discharge points because fewer microplastics actually make their way out to the Bay.

Jay Davis noted that we should understand concentrations in the benthic zone since the food web in the Bay is mainly benthic-driven. Chelsea noted that the nearshore zones may be where a lot of these microplastics in the Bay are settling, and so monitoring should be focused in these areas. Chris Sommers and Barbara Beckingham agreed with Jay Davis’s point that benthic organism monitoring would be important as a possible risk indicator. Barbara asked whether clams or mussels are an indicator organism. Ezra Miller responded that the RMP has evaluated bivalves and did not observe more microplastics compared to prey fish, which were pretty low, and there wasn’t a clear pattern with sediment. They also only found fibers in the bivalves. They also noted that those previous bivalves were caged and that the benthic organisms would be interesting to evaluate. However, participants agreed there currently isn’t a good indicator species, but that bivalves are not a good indicator species.

Chelsea Rochman thinks the planned future wastewater monitoring is important because microplastics methods have advanced so much. She does not think air is a big priority and proposed an alternative matrix that we should look at: agricultural runoff. She did not think that microplastic additives were part of what MPWG does, but interesting for the ECWG to look into. Barbara Beckingham noted a recent study showed hurricane events generate much greater inputs than smaller storms from the air. She thinks land-based sources for the Bay are much more important. Diana asked the stakeholders if Chelsea’s comment about exploring microplastics in agriculture is a pathway they would like to see in the future. Chris Sommers

noted that we tend to overlook the Sacramento River, even though it drains ⅔ of the state's water and is largely agriculturally influenced; this river doesn't fit the urban stormwater category, but does for broader Bay water modeling. Tom Mumley suggested leveraging S&T water monitoring and getting a better idea of Delta influences on the Bay. He pointed out that there is a Delta Regional Monitoring program, and we could use our Bay findings to influence their monitoring. Diana noted that the current microplastic study in the Bay will inform whether microplastic sampling is compatible with the S&T water monitoring.

Lester McKee noted that the Central Valley has around 6 million people whose water drains through the Bay, and that we shouldn't ignore these people and urban areas as sources of microplastics to the Bay. Veronica Suarez from Sac Sewer said they are thinking about doing microplastic monitoring but have not started yet and will update us with more information. They are looking into measuring microplastic removal in the tertiary treatment. Chelsea Rochman found high levels of microplastics in agricultural runoff in their 2014 study, and thinks it is a significant source to the Bay. Diana asked if there was a clear agricultural fingerprint in the microplastic data. Chelsea mentioned that agricultural runoff had more films and fibers compared to urban stormwater flows. Tom Mumley recommended that, in the future, possibly after 2030, we develop an updated conceptual model to illustrate our understanding of sources, pathways, and loadings. We should start thinking about what components we should be accounting for in a robust model. Before 2023, proposals could include a rough outline of a conceptual model that identifies priority areas.

4. Information: Dryer Study

The goals of the study were to evaluate the importance of dryers as a source of fibers, and 5 Gyres looked at whether dryer filters were effective at removing fibers from dryer emissions. Dryer samples were collected between 2024 and 2025 at 19 households, with each household collecting three laundry loads, plus a community laundromat on a university campus. Monica Arienzo's lab did the analysis (dilution, fiber extraction, FTIR). Kayli Paterson reviewed the data results. There was a fairly wide range of sample masses. Barbara Beckingham asked whether we normalized per person and if we could upscale to per capita. Diana noted that we scaled based on the number of households in the region rather than per capita because the number of loads per household does not scale linearly with the number of people. Kayli noted that this project ended up garnering a lot of attention and turned into a community outreach project as well. The project page was the second most visited SFEI webpage, had several media interviews, a Sea Grant webinar, and a poster at SETAC. Barbara Baginska asked if the dryers in the study had filters. Kayli clarified that they had internal lint filters but not filters to the outside. Kayli mentioned that we ran some blank loads (nothing in the dryer) and still saw material in the blanks.

Chelsea asked how we are defining plastic and if anthropogenic non-plastic fibers were also included. Diana clarified that we have both the plastic and the other fiber types, including cotton. Chelsea asked if we used automated FTIR or microscopy to get the fiber analysis. Monica clarified that it was microscopy combined with FTIR. Chelsea suggested including anthropogenic cotton fibers in study estimates, given California's broad definition of

microplastics. Diana clarified that we are going to report both natural and plastic fibers, but when talking about toxicity concerns, should these two categories be lumped together? Monica said they didn't record the color info, but they do have all the images, so they could go back to figure out whether it is dyed or not natural fiber. Barbara Beckingham asked if the CA definition uses color to define what might be considered plastic or if there is a chemical basis. Ezra responded that it is vague, but dyes are something we can see, so we can use them as a proxy. Chelsea said that undyed cotton fibers and cellulose can't be distinguished, so they only include the brightly colored dyed fibers. She also noted that with automation becoming more widely used, identification of colors will no longer happen. Barbara Baginska asked how long the participants' dryer cycles were, as this could affect emission levels. Diana explained that we instructed participants to do a variety of loads to try to capture different drying lengths.

The group discussed the source and accuracy of using the 9% wash-off fraction from Pitt et al. (2005). Tom noted this value seems high, but even if that number were lowered, it would still result in a lot of fibers. Chris Sommers encouraged a literature review and to use a range rather than just one number. Tom and Chris commented that pollution is not the right word choice, and rephrased this as "source of microplastic fibers to the Bay". Tom noted that we have fiber data in fish, so this is something we can cite. Tom recommended using fewer significant figures. And for the plastics vs. other fibers question, we want to be careful we do not send the wrong message (that non-plastic fibers are okay).

5. Discussion: Microplastics in Sport Fish

Madeline Milne from Chelsea Rochman's lab at the University of Toronto presented on Microplastics in striped bass and shiner surfperch tissues from the SF Bay. Madeline gave an overview of the study design, which included 25 striped bass and 36 shiner surfperch from six sites in the Bay. They looked at three tissues individually for the striped bass: the gut, muscle, and liver, and pooled the same tissues for the surfperch. She reviewed the method for processing and analysis, as well as the QA/QC methods for blank contamination and correction. Microplastics were identified using Raman spectroscopy. They found that 85% of the fish they analyzed contained microplastics, and there were significantly more microplastics in striped bass versus the shiner surfperch. They also looked into whether bioaccumulation was happening using the microplastic concentrations from the liver and muscle, by looking at the total length of the fish as a proxy for age, and found no evidence of bioaccumulation. They found that microplastics were able to move out of the gut and into the muscle tissue, and could be a path for human consumption. Madeline highlighted a similar study from the Great Lakes.

Lorien Fono asked if they were surprised not to see microplastic bioaccumulation with size. Madeline said that they were not, and it may be explained by accumulation rates being slower than fish growth. Chelsea noted that the few market studies showed similar levels to what we were seeing in the SF Bay fish. Jay Davis also asked to get a mass-normalized load for the fish. Jay asked why the microplastic levels in fish muscle were higher than in the gut. Madeline noted that this could be because of the nature of the correction, since they only used one filet of fish versus two, so they scaled to two filets. Madeline said the Great Lakes fish had particle concentrations that were extremely high, especially in comparison to the SF results, because

Great Lakes sampling was at hot-spot locations chosen for their significant urban impact and discharges. Chelsea noted that the Great Lakes do not flush like the Bay.
Chris Sommers asked how tire particles fit into the fragment concentrations they found. Madeline said that fibers were the most dominant type of microplastic found across all of the species and examined tissues; tire particles were examined and made up a much smaller fraction. Jay Davis commented that the particles found in the fish align with their feeding patterns. Chelsea elaborated on a lab study they are starting, where they'll look at how microplastics travel through a fish and are possibly absorbed using tagged plastics, and if this can help to explain the bioaccumulation results. Chris asked if we should be looking more at fiber sources and pathways and getting better estimates of their numbers in stormwater runoff, since they are a big part of what is found in the fish. Chelsea added to Chris's comment by noting that what they find in the GI tract is often indicative of what is in that fish's environment.

Barbara Beckingham asked if they are looking at different life stages of the fish and if this changes their uptake. Chelsea said they didn't have a large size-range variation for the study, and they would like to look at this for the fish's whole life cycle. Jay Davis noted there is a strong relationship between fish size and mercury levels, and without a representative size range, it is difficult to see the relationship with mercury; this study has a very narrow size range that would make it hard to evaluate this relationship. Tom Mumley wants to tie what we are seeing in this study to our other fish monitoring studies. He also noted that we have archived fish samples that could be explored for microplastics in future studies. Jay Davis also noted that we archive the fish differently for microplastics, so this would take some pre-planning since we can't use our normal archive methods. Luisa Valiela pointed out that all fish monitoring done under the WRMP is non-lethal, and we would have to make exceptions for this type of study. Chris thought that for the report, the microplastic levels should be put into the context of the microplastic levels other studies are seeing.

6. Discussion: Microplastics Stormwater Pilot Study Update

Diana Lin presented an update on the stormwater microplastics study. She reviewed the motivation behind this study to inform the RMP Microplastics Strategy and Statewide Microplastics Monitoring Strategy, both of which prioritize stormwater monitoring. Diana reviewed the study design with simultaneous samples collected at the near-surface, middle, and near-bottom of the water column, across three or four timepoints in the hydrograph. These samples were collected at two urban locations predicted to be well-mixed during a storm. If the study finds that single-depth sampling is sufficiently representative, then future microplastic sampling can leverage the use of small automated samplers or fixed station monitoring. The measurements for turbidity and suspended solids showed consistent, well-mixed results for the three depths at the two locations.

Diana reviewed the microplastic data from the Moore Institute. The particles greater than 500 µm underwent manual extraction and FTIR analysis. This microscopy analysis and characterization for the greater than 500 µm particles could be used to link to potential sources and went over a few examples. The 50-500 µm particles were analyzed using automated FTIR.

Fibers and TRWPs were not counted in this size fraction. Diana concluded this section by noting that she considers the microplastics results to be qualitative; however, the study also provided important information about microplastics in stormwater runoff.

Diana moved on to discuss the TRWP LDIR methods and results. Samples were collected as 1L bulk samples, then sieved with a 20 µm sieve. Particles were then analyzed with the LDIR Agilent software and counted if they had a rubber spectral match quality >0.7. The average concentration was around 500,000 TRWP/L. Diana noted that the TRWP count is very sensitive to the match quality criteria. This study was one of the first to use LDIR for tire particle quantification, and the TRWP levels were greater than those in the previous study. This approach is recommended for further screening of additional watersheds. Diana went over the tire wear particle mass pyrolysis GC/MS methods and results. Samples were collected as 1L bulk samples and analyzed by NIVA, which used pyrolysis-GC/MS to quantify the tire chemical markers and then estimated concentration using their tire chemical marker database, which will be improved with the results from The Tire Rubber Study.

Deliverables for this project include a draft report, which will be ready by July 2026, and a final report ready in August 2026. Diana asked whether what was presented was sufficient evidence to support a single-depth sample for TRWPs and microplastics in stormwater, what level of accuracy is needed to inform the management questions, and whether there are other interpretations to consider. Chelsea asked if the Moore Institute gave any measurement of uncertainty for their subsampling and if the final numbers were scaled; Diana confirmed that they did both in their report. Chelsea asked what the dilution factor is for the LDIR and FTIR analysis, and commented that their group tries to use as much of the sample for analysis as possible.

Tom, Chelsea, and Chris agreed with the study's conclusion that this study supported using single-depth measurements. Diana clarified that the match criteria are how well the spectra for the sample particle match the reference library spectra for a known material. Barbara noted that the current literature suggests we may need to have a match quality of 0.8 or even 0.9 since the fingerprint region of the LDIR has many peaks, but she disagrees. When Barbara explored the spectra, she noticed that samples had very similar features and matched well with library spectra, but were still showing a low match quality; she also didn’t know how digestion affected the spectra. She is concerned that raising the match quality might underestimate the amount of tire particles in the samples. They will be building their own library to improve the match score of the tire particles so they can rerun the results against a more tailored library. The library they are currently using is from Agilent and is the same one used for FTIR. Tom Mumley compared this current learning process to the non-target analysis work, and how much that has improved as more data libraries have been developed. Tom pointed out that the quantity of TRWPs was still very large when using the lower match score criteria.

Chris noted that with macroplastics, they are seeing a large difference in horizontal profile of the creek or river flow, but this may not be as big an issue for microplastics due to their rate of mixing. Don Yee asked what order of magnitude of the size difference is between the previous studies and if what we are seeing is fairly similar. Diana responded that methods are not really

comparable between this study and the previous 2019 study, but it may be possible to compare non-tire fragments greater than 125 µm in size. Comparison may be possible for the Bay water study. She elaborated that there should be more harmonization between methods for retroactive comparisons, but this specific method does not harmonize well with previous work. Don would like to see a “ballpark” comparison to the previous study.

Maggie Monaham asked what depths were used to show the vertical spread across the hydrograph. The total depth during sampling was two feet at Hayward, and the tubing was adjusted based on the steam depth taken in the field before the sample timepoint. Tom noted that we are seeing more depth variability in the lower flow conditions. Diana agreed, and we see higher mixing in higher flow. Tom pointed out we are also seeing a large variation with the time of collection, so we need to worry about how we are compositing the samples to best represent the whole storm. Chris Sommers noted that the automated samplers should be programmed to represent the entire hydrograph of the storm. Diana shared that a draft report will be sent out to the group sometime in July. Tom Mumley emphasized that we should be forecasting more about when we will be getting drafts of reports, to help get more responses to the reports and better reviews.

7. Proposed MPWG Special Study for 2027

Diana moved on to the single microplastic study proposal for the group to review. The study: Evaluation of Tire Wear Particles in Urban Stormwater Runoff and Method Evaluation for Other Types of Microplastics, would help to inform our microplastic stormwater approach and the statewide microplastic strategy. The motivation for this study is to inform the RMP microplastics stormwater approach and better understand the sources, pathways, and relative loadings for microplastics in the Bay. This study would also help to inform the statewide microplastics monitoring strategy.

8. Discussion of Recommended Studies for 2027 - General Q&A

Chelsea Rochman asked what the smallest size of our sieves would be. Ezra Miller responded that we can use 20 µm sieves, but these tend to clog quickly. Diana noted that the LDIR results from the MP stage study were analyzed for plastics, but the small aliquots made it difficult to see a strong signal. Tom Mumley commented that the number of sites (n) is small, but this study is still exploratory, and the smaller number of samples is fine to flesh out the methods. Diana noted that microplastic data will not be uploaded to CEDEN, and we have no plans to do so in the future as CEDEN is not designed for microplastics data. Tom agreed he had reservations about putting exploratory results into CEDEN. Microplastics are not required for monitoring, so there is no requirement to upload to CEDEN.

Tom Mumley asked if the study's LDIR analysis would give us fiber data, Diana noted that this may be possible. The group discussed how to optimize the number of samples, locations, and repeat storm events. Chris Sommers noted we don’t know that much about variability between sites and storms. He also noted that the first flush for macroplastics provides a huge proportion of the total mass of macroplastics they see over the course of the year. He is not sure if this is

the same with microplastics, but for sediment, they see higher loads during the first flush. Tom Mumley agreed we should approach the study design more systematically, based on what we know about the variability among sites.

Lester asked if we had a good conceptual model of the between-storm variability for microplastics at a single site, and if there are studies out there that have done a lot of repeat sampling at a single site for multiple storms, and how much variability are they seeing. Chelsea Rochman answered that there are studies that have repeated sites for different storms, and they show that it depends more on the size of the storm and when they sample in the hydrograph. Chelsea also noted that if the goal of this study is to test and refine methods, then it doesn't matter how we choose to sample, but if we are looking to inform a model to predict how much microplastics are discharged to nearby streams, then we would want to know how land use, flow, and antecedent dry days affect their variability. Lester thinks we should explore spatial variability versus temporal variability. He noted that the spatial sampling will also include an element of temporal variability based on the nature of how storms vary across an area. Diana pointed out that the conceptual model would be different for different types of particles, such as TRWPs, and the management questions might also be different, but they're lumped together for this study and analysis. Diana agreed with Lester's commentary; more locations would be better than repeating locations with more events, since we are not looking to assess loads. The group agreed with this approach. Lester didn't think sampling at 2 or 3 storms would give you enough information about temporal variability. Chelsea Rochman noted that we see high variability in field duplicates, and agreed with Lester.

Chris Sommers is more interested in developing a conceptual model for microplastics than TRWPs, since we know they'll vary with roadway density. Don Yee thinks we could go to 8 unique sites, then resample at two sites. Chris liked Don's idea as it gave spatial variability and allowed us to look more closely at a couple of sites for temporal variability. He thinks it might be a good idea to look at the literature to see what approach might be better, spatial or temporal; use this information to update the proposal with how many sites and storms we should do. Lorien Fono asked if there would be time to review the data from year one, between when we begin the design for the second year of the study, so we can see if the chosen approach is working. Diana also responded that we can review data from the first year and provide an update on the timeline for the study.

9. Closed Session - Decision: Recommendations for 2027 Special Studies Funding

Diana presented a new workflow for an updated proposal. The group suggested increasing the budget to $250K as there is additional planned budget for this year. Chelsea Rochman asked if TRWP and microplastics for LDIR could be done in the same run. Barbara Beckingham noted that there are so many TRWPs that it clogs up the process.

Amy adjourned the meeting.

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