BASMAA Responses to Water Board Staff comments (dated July 31, 2017) on Receiving Water Trash Monitoring Program Plan.

WB Comment	BASMAA PMT Response	Revisions to Trash Plan
The Plan does not yet propose water surface and water column sampling quantitatively in flowing water (creeks, rivers) or in San Francisco Bay as part of the monitoring pilot program.	Water Board staff comments incorrectly indicate that water surface sampling is not proposed by BASMAA in the Receiving Water Trash Monitoring Program Plan (Monitoring Program Plan). The methods developed and proposed by BASMAA include the assessment of the levels and dominant pathways of trash within 300-foot assessment areas. These areas include both the *water surface* and adjacent banks (up to high water mark) of flowing creeks/rivers where trash levels deposited within the assessment area will be assessed and quantified.	No revisions.
Addressing only water surface and shoreline trash to monitor the status of trash in receiving waters is insufficient. A thorough program, including the quantitative components, to determine the presence and amount of floating and suspended trash particles in flowing and semi-static water is necessary to determine the trash impact to receiving waters.	As described in the Monitoring Program Plan, trash can be assessed/monitored in many different types of water bodies and components within those water bodies. Current methods used to monitoring these water bodies are described in Attachment 2[1] to the Plan and in the final report for BASMAA's *Tracking California's Trash* project (State Water Board funded), which tested methods to measure the presence and amount of floating and suspended trash particles in flowing water bodies. Based on these extensive reviews and testing of trash monitoring methods, the Monitoring Program Plan acknowledges that implementing a monitoring program to monitor all water body types and components (including suspended trash in flowing waters) during the MRP 2.0 (provision and fact sheet) timeframe is not practical and is generally inconsistent with expectations set in the MRP (see MRP Factsheet) and by the Water Board Chairperson.[2] BASMAA has genuinely attempted to respond to the spirit of the MRP requirements to develop and implement a Trash Monitoring Program in Receiving Waters by selecting/developing methods that are based on well-tested and practical approaches, and are cost-effective and do not drastically divert resources away from trash control measures. In this spirit, the proposed Monitoring Program Plan focuses on monitoring trash that is deposited in flowing water bodies and shorelines during this permit term because methods to measure this component of these types of water bodies are the most well established protocols available. The Plan goes on to state that this is the most responsible approach to take over the next 2+ years because parallel efforts (i.e., State Water Board's evaluation and testing of trash monitoring methods) that BASMAA member agencies will actively participate in, are currently underway to further evaluate and test trash monitoring methods that will provide statewide guidance on this subject. Additionally, pilot microplastic monitoring in the Bay is also underway via the Regional Monitoring Program for Water Quality in the	Revise text to describe clearer levels of commitment that BASMAA member agencies will make to actively participating in 1) the State Water Board's project to evaluate and test receiving water trash monitoring methods; and 2) the RMPs microplastics strategy for the monitoring the Bay.

[1] Summary Review of Historical and Current Receiving Water Monitoring Efforts, Methodologies and Protocols for Trash

[2] Consistent with the Water Board Chairperson's statements during the MRP hearing about her expectations for the Trash Monitoring Program during MRP 2.0, the proposed BASMAA monitoring program focuses on measuring trash that is deposited on creek banks and shorelines, not floating or suspended in flowing and semi-static water. The audio of Chairperson Young's comments can be found at http://www.waterboards.ca.gov/sanfranciscobay/board_info/minutes/2015/11-18-15.mp3 timestamp of 3:04-3:09.

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	Bay (i.e., RMP) and BASMAA member agencies are actively participating in this study as well through their participation in the RMP. Both of these parallel efforts will assist BASMAA in determining the efficacy of implementing trash monitoring methods that focus on monitoring water body types and components other than those proposed in the Monitoring Program Plan. Based on the lessons learned over the next 2+ years through BASMAA's and parallel efforts focused on testing monitoring methods, BASMAA plans to recommend trash monitoring methods and approaches that should be considered for implementation during MRP 3.0. These recommendations will include lessons learned through BASMAA's, the RMP and State Water Board's efforts to identify the most practical and repeatable methods for monitoring trash in receiving water bodies and components of those water bodies. These recommendations will be included in the Final Monitoring Report developed through the BASMAA Trash Monitoring Program and submitted to the Water Board as part of the Report of Waste Discharge by July 1, 2020. Although we fear that the data may be of limited use because of site-specific considerations regarding the capture efficiencies of different booms and the maintenance methods used to remove trash from booms, BASMAA member agencies willing include quantitative trash monitoring at a portion of the existing trash booms currently deployed in creeks, lakes, sloughs and lagoons to better understand the utility of data collected from these monitoring locations to answer management questions outlined in the MRP. The number and location of trash booms that will be included in the Monitoring Program is currently under development and will be included in the Revised Monitoring Program Plan submitted to the Water Board EO for approval.	Revise Plan to state that quantitative trash monitoring at existing trash booms will be included in the Monitoring Program. Quantitative monitoring SOP will be used to collect data at trash at booms.
…..creek bank/hot spot qualitative and quantitative methods should not be considered pilot /experimental procedures. The only new aspect of this effort is employing quantitative visual assessment in the context of creek banks and shoreline assessment.	Although methods selected are based on existing protocols (e.g., Water Board's RTA), there are several aspects of the assessment approach that are new and novel with respect to trash monitoring. First, the probabilistic monitoring design will allow for the first comprehensive assessment of trash levels and pathways for different types of water bodies across the Bay Area's urban gradient. Second, a first of its kind comparison of qualitative and quantitative methods will assist in evaluating the relationship between these two methods, which may provide the information needed to allow for more cost-effective qualitative approaches to be used (with confidence) in the future. Lastly, the Plan also includes a first time assessment of trash pathways, which is intended to provide a first-order estimate of the relative contribution of trash from stormwater and other pathways. That said, the word pilot will be removed from the plan to avoid confusion over the use of the term in the Monitoring Program Plan.	The word "Pilot" will be removed from the Plan.

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A footnote to Table 3-3 states that acceptable methodologies are not currently available to determine if trash is transferred between water bodies. That is one reason for the current pilot work, which requires Permittees to develop, or attempt to develop, a method of estimating the portion of trash in the Bay that may be transported from upstream lotic waterways.	BASMAA's *Tracking California's Trash* study spent over $250,000 evaluating different methods to measure trash levels transported in flowing waterways during storm events. The study was conducted as a proof of concept and was not expected to generate reliable data on trash "flux" in water bodies. Study findings identified several constraints to conducting trash monitoring in flowing waterbodies during storm events, including the lack of suitable sites (e.g., bridges with access, permit for monitoring, nearby flow gauge), permitting, safety and costs. Additionally, the monitoring data collected was of limited use in answering questions about the transport of trash from one water body to another, mostly due to the constraints listed above. Therefore, because of the impracticality and high costs of collecting data that will likely be unusable and not assist BASMAA in answering MRP management questions, water column monitoring was not included in the BASMAA Trash Monitoring Program Plan. As an alternative to trash "flux" or water column monitoring, BASMAA member agencies will include quantitative trash monitoring at a portion of the existing trash booms currently deployed in creeks, lakes, sloughs and lagoons to better understand the utility of data collected from these monitoring locations to answer management questions outlined in the MRP. The number and location of trash booms that will be included in the Monitoring Program is currently under development and will be included in the Revised Monitoring Program Plan submitted to the Water Board EO for approval.	Add text describing the efforts that BASMAA has taken to-date to evaluate and test monitoring methods for measuring trash "flux", the lessons learned from these efforts, and the reasoning for not including it in the Monitoring Program Plan. Revise Plan to state that quantitative trash monitoring at existing trash booms will be included in the Monitoring Program. Add an SOP and field data collection form for quantification of trash at booms.
Refined Receiving Water Monitoring Questions numbers 1, 2 and 3, as presented in Table 2-3, cannot be adequately answered without water column data. This underlines the importance of working to collect that data.	We generally disagree. Monitoring questions similar to these were addressed via methods developed and utilized by the SF Bay Water Board (i.e., Rapid Trash Assessment) that did not include the collection of water column data. Furthermore, data collected using these methods focused on assessing the levels of trash deposited or present in receiving water bodies, were used to list many Bay Area urban creeks/rivers and shorelines on the 303(d) list of water quality impaired segments. Trash monitoring methods proposed by BASMAA are derived from the Water Board's Rapid Trash Assessment method and therefore should be able to adequately begin to answer these questions. Lessons learned from this type of monitoring will be incorporated into recommended method revisions that will be included in the final monitoring report. That said, BASMAA member agencies will include quantitative trash monitoring at a portion of the existing trash booms currently deployed in creeks, lakes, sloughs and lagoons as an alternative to monitoring trash in flowing water bodies during storm events. See additional information above.	See above revisions regarding the addition of trash booms to the Monitoring Program.

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Targeted sites are not proposed to be monitored during a wet season. The proposal does not include collection of quantitative data for the wet season at any targeted sites. Wet season data should be included as much can change at sites months after the wet season.	The PMT, peer reviewers and stakeholders agree that the primary method that should ideally be used to characterize trash levels in receiving water bodies is the qualitative visual assessment method. The method is practical to implement and is the most cost-effective data collection method currently available. Based on this agreement, the Monitoring Program is focused on conducting qualitative assessments. The main purpose of including quantitative monitoring in the Monitoring Program is to provide a foundation for qualitative assessments. This foundation should be based on correlations between the ranges of trash volumes observed per unit area at sites where qualitative assessments and quantitative monitoring is conducted in parallel. Data needed to evaluate and develop these correlations do not need to be collected during the wet season. Therefore, quantitative data are being collected at targeted sites during timeframes when trash cleanup events are safe to conduct and are already occurring. For these reasons, quantitative monitoring during the wet weather season was not included in the Monitoring Program. Adding this element would require significant additional resources to be expended by Permittees, with limited benefits that are already being addressed via quantification during dry weather at these sites.	No revisions.
Please consider adding qualitative observations of the general area outside the defined assessment areas to this guidance or the associated protocols. That is, the Plan anticipates that trash in the assessment areas may be coming from the adjacent receiving water. At the same time, a number of receiving areas are likely to be impacted by direct discharges associated with homelessness and illegal dumping. It may be helpful to understand, via a qualitative observation of the area surrounding the assessment area, whether direct discharges are an immediate source to the assessment area (e.g., whether there are accumulations of trash discharging down a streambank).	We agree. The identification of sources adjacent to, but outside of the defined assessment area will be included in the qualitative protocol. Only the sources that are observable and immediately adjacent to the assessment area will be documented. These sources and the associated locations will be delineated in the field on a map and indicated in the field notes.	Revise qualitative protocol and assessment forms to include identification of trash sources to the assessment area that are observed in adjacent land areas.
Since trash booms collect material from upstream, booms should be included as a pilot approach to develop a reproducible method for their use in	During the evaluation of sampling methods, BASMAA evaluated booms as monitoring locations. A description of this evaluation and the limitations associated with using booms as monitoring sites is described in Attachment 2 of the Monitoring Program Plan. In summary, a very limited number of trash booms currently exist in Bay Area	Revise Plan to include quantitative trash monitoring at existing trash booms.

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monitoring. If a location with a trash boom is monitored, quantitative monitoring is recommended.	creeks, rivers, sloughs and lakes (13, including 5 in Lake Merritt), making the use of booms as monitoring locations for all water bodies and watersheds in the Bay Area impossible. If Permittees attempted to deploy additional booms, the design and permitting for new trash booms at optimal locations would likely take over a year, which would further constrain data collection required by the MRP. Although we fear that the data may be of limited use because of site-specific considerations regarding the capture efficiencies of different booms and the maintenance methods used to remove trash from booms, BASMAA member agencies willing include quantitative trash monitoring at a portion of the existing trash booms currently deployed in creeks, lakes, sloughs and lagoons to better understand the utility of data collected from these monitoring locations to answer management questions outlined in the MRP. The urrently under development and will be included in the Revised Monitoring Program Plan submitted to the Water Board EO for approval.	Revise Plan to state that quantitative trash monitoring at existing trash booms will be included in the Monitoring Program. Add an SOP and field data collection form for quantification of trash at booms.
This number of ratings, including 5 sublevels in each category, seems likely to present challenges. Can the sublevels be consistently assessed across varied staff, events, and locations, such that they would be a consistent indicator of difference? It may simplify data collection and analysis to reduce the number of sublevels or omit them and use the four categories.	We agree that 5 sublevels for each category will be challenging to score consistently and may present challenges. The intent of the sublevels was to provide greater resolution in qualitative scores to allow comparison with quantitative data that will be collected in parallel.	SOP will be edited to reduce the number of sublevels under each category. We propose to have 3 sublevels under each category to allow for low, med and high scores to be assigned.
This proposal is acceptable if CEDEN can be effectively modified in time to meet program needs. However, it is unclear whether this can be accomplished. For example, CEDEN is not currently set up to accept photographic monitoring, and it is unlikely that will change during the current permit term.	BASMAA has extensive experience in working with the SF Bay Regional Data Center (i.e., SFEI) on incorporating monitoring data (of many types) into CEDEN. Additionally, CEDEN currently accepts receiving water trash monitoring data based on the Water Board's Rapid Trash Assessment method. Because the BASMAA proposed trash assessment method is similar to the RTA, we do not anticipate issues with modifying data fields and incorporating data collected through the BASMAA Monitoring Program Plan into CEDEN. Should issues arise and appear insurmountable, alternative methods will be used to allow for data collected to be made publicly available.	No revision.

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Data presentation can be further discussed and determined based on the data collected. The current means of data presentation, in the annual report and in Tracking California Trash, may be preferable to facilitate long-term data and trend analysis.	We agree, the Plan includes examples of data analyses that will be considered during the development of progress reports and monitoring reports required by the MRP. As indicated and similar to other stormwater and receiving water monitoring plans, the exact presentation of the data collected through the Trash Monitoring Program Plan cannot be defined prior to the data are collected and reviewed. We are happy to further discuss the most appropriate presentations of data collected through the Program once we begin development of the interim and final reports required by the MRP.	No revision.