

October 13, 2016

Bruce Wolfe, Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

SUBJECT: Submittal of *Pollutants of Concern Monitoring Report, Water Year 2016 Accomplishments and Water Year 2017 Planned Allocation of Effort*, dated October 12, 2016

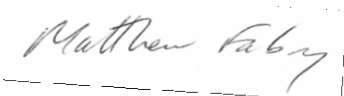
Dear Mr. Wolfe:

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) is pleased to submit the attached report entitled *Pollutants of Concern Monitoring Report, Water Year 2016 Accomplishments and Water Year 2017 Planned Allocation of Effort*, dated October 12, 2016. This report was prepared on behalf of all of SMCWPPP's member agencies in compliance with Municipal Regional Permit (MRP) Provision C.8.h.iv. This provision requires that Permittees submit a report describing the allocation of sampling effort for pollutants of concern (POC) monitoring for the forthcoming year and what was accomplished for POC monitoring during the preceding water year. The report shall include monitoring locations, number and types of samples collected, purpose of sampling, and analytes measured. Data and interpretations will be submitted by March 31, 2017 with the Urban Creeks Monitoring Report.

I certify under penalty of law that the attached report was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my enquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions or comments, please call me at (650) 599-1419.

Sincerely,



Matthew Fabry
Program Manager

Attachment: *Pollutants of Concern Monitoring Report, Water Year 2016 Accomplishments and Water Year 2017 Planned Allocation of Effort*, dated October 12, 2016

Pollutants of Concern Monitoring Report

*Water Year 2016 Accomplishments and
Water Year 2017 Planned Allocation of Effort*



Submitted in Compliance with
NPDES Permit No. CAS612008 (Order No. R2-2015-0049),
Provision C.8.h.iv



A Program of the City/County Association of Governments

Revised October 12, 2016

CREDITS

This report is submitted by the participating agencies in the



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City of Belmont
City of Brisbane
City of Burlingame
Town of Colma
City of Daly City
City of East Palo Alto

City of Foster City
City of Half Moon Bay
Town of Hillsborough
City of Menlo Park
City of Millbrae
City of Pacifica
Town of Portola Valley
City of Redwood City

City of San Bruno
City of San Carlos
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Prepared for:

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LIST OF ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agency Association
BMP	Best Management Practice
CEC	Chemicals of Emerging Concern
CEDEN	California Environmental Data Exchange Network
CSCI	California Stream Condition Index
CW4CB	Clean Watersheds for Clean Bay
ECWG	Emerging Contaminants Work Group of the RMP
MRP	Municipal Regional Permit
NPDES	National Pollution Discharge Elimination System
PBDEs	Polybrominated Diphenyl Ethers
PCBs	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl Sulfonates
PFOS	Perfluorooctane Sulfonates
POC	Pollutant of Concern
RMC	Regional Monitoring Coalition
RMP	San Francisco Estuary Regional Monitoring Program
RWSM	Regional Watershed Spreadsheet Model
SAP	Sampling and Analysis Plan
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SFEI	San Francisco Estuary Institute
SPoT	Statewide Stream Pollutant Trend Monitoring
SSC	Suspended Sediment Concentration
STLS	Small Tributary Loading Strategy
TOC	Total Organic Carbon
UCMR	Urban Creeks Monitoring Report
USEPA	US Environmental Protection Agency
WY	Water Year

1.0 INTRODUCTION

This Pollutants of Concern (POC) Monitoring Report was prepared by the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP or Program) on behalf of its member agencies subject to the National Pollutant Discharge Elimination System (NPDES) stormwater permit for Bay Area municipalities, referred to as the Municipal Regional Permit (MRP). The MRP was reissued by the San Francisco Regional Water Quality Control Board (Regional Water Board) on November 19, 2015 as Order R2-2015-0049. This report fulfills the requirements of Provision C.8.h.iv of the MRP for reporting:

- The allocation of sampling effort for POC monitoring planned for the forthcoming year (i.e., Water Year 2017); and
- What was accomplished for POC monitoring during the preceding water year (i.e., Water Year 2016).

In accordance with Provision C.8.h.iv, this report includes monitoring locations, number and types of samples collected, purpose of sampling (Management Questions addressed), and analytes measured. Data and interpretations will be provided in the Water Year 2016 Urban Creeks Monitoring Report (UCMR) which will be submitted to the Regional Water Board by March 31, 2017. Data generated from sampling of receiving waters (e.g., creeks) will be submitted to the San Francisco Bay Area Regional Data Center by March 31, 2017 for upload to the California Environmental Data Exchange Network (CEDEN).

1.1. POC Monitoring Requirements

Provision C.8.f of the MRP requires monitoring of several POCs including polychlorinated biphenyls (PCBs), mercury, copper, emerging contaminants¹, and nutrients. POC monitoring is conducted on a Water Year (WY) basis, with each WY beginning on October 1 and concluding on September 30 of the named year. For example, WY 2016 began October 1, 2015 and concludes September 30, 2016. Provision C.8.f specifies yearly (i.e., WY) and total (i.e., permit term) minimum numbers of samples for each POC. In addition, POC monitoring must address the five priority management information needs (i.e., Management Questions) identified in C.8.f:

1. **Source Identification** – identifying which sources or watershed source areas provide the greatest opportunities for reductions of POCs in urban stormwater runoff;
2. **Contributions to Bay Impairment** – identifying which watershed source areas contribute most to the impairment of San Francisco Bay beneficial uses (due to source intensity and sensitivity of discharge location);
3. **Management Action Effectiveness** – providing support for planning future management actions or evaluating the effectiveness or impacts of existing management actions;
4. **Loads and Status** – providing information on POC loads, concentrations or presence in local tributaries or urban stormwater discharges; and

¹ Emerging contaminant monitoring requirements will be met through participation in the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP) special studies. The special studies will account for relevant constituents of emerging concern (CECs) in stormwater and will address at least PFOS, PFAS, and alternative flame retardants being used to replace PBDEs.

5. **Trends** – providing information on trends in POC loading to the Bay and POC concentrations in urban stormwater discharges or local tributaries over time.

The MRP specifies the minimum number of samples for each POC that must address each Management Question. For example, over the first five years of the permit, a minimum total of 80 PCBs samples must be collected and analyzed. At least eight PCB samples must be collected each year. On average 16 PCBs samples should be collected per year but the Permit gives flexibility to collect more samples some years and less other years. By the end of year four² of the permit term, each of the five Management Questions must be addressed with at least eight PCB samples. It is possible that a single sample can address more than one information need. POC Monitoring requirements are summarized in Table 1. In addition to the required yearly and cumulative total number of samples, Table 1 lists the yearly average number of samples that would need to be analyzed to meet the total sample goal, a good benchmark to consider when planning annual sampling goals.

Other MRP provisions require studies or have information needs that could be addressed through Provision C.8.f (POC Monitoring) and for which related samples will count towards POC monitoring requirements. These other Permit provisions and their associated timelines are listed below.

- Provisions C.11.a and C.12.a require that Permittees provide a list of management areas (referred to in this report as Watershed Management Areas, or WMAs) in which new mercury and PCBs control measures will be implemented during the permit term, as well as the monitoring data and other information used to select the WMAs. Progress toward developing the list was reported on April 1, 2016 and more complete lists with identified control measures will be provided with each Annual Report, beginning with the 2016 Annual Report due on September 30, 2016. Provision C.8.f (POCs Monitoring) is intended to support C.11/12 requirements by requiring monitoring directed toward source identification (i.e., identifying which WMAs provide the greatest opportunities for implementing controls to reduce loads of POCs in urban stormwater runoff and source areas within the WMAs).
- Provision C.12.e requires that Permittees collect at least 20 composite samples (region-wide) of the caulks and sealants used in storm drains or roadway infrastructure in public rights-of-way. Results of the investigation must be reported with the 2018 Annual Report, due by September 30, 2018.

1.2. Third-Party Data

Provision C.8.a.iii of the MRP allows Permittees to use data collected by third-party organizations to fulfill monitoring requirements, provided the data are demonstrated to meet the required data quality objectives. For example, samples collected in San Mateo County through the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP), the Clean Watersheds for a Clean Bay (CW4CB) project, and the State's Stream Pollution Trends (SPoT) Monitoring Program may be counted by the Program towards meeting Provision C.8.f monitoring requirements.

² Note that the minimum sampling requirements addressing information needs must be completed by the end of year four of the permit; whereas, the minimum number of total samples does not need to be met until the end of year five of the permit.

Table 1. MRP monitoring requirements for POCs.

Pollutant of Concern	Media	Total Samples ^d	Yearly Minimum	Yearly Average	Minimum Number of Samples That Must Be Collected for Each Information Need by the End of Year Four				
					Source Identification	Contributions to Bay Impairment	Management Action Effectiveness	Loads and Status	Trends
PCBs	Water or sediment	80	8	16	8	8	8	8	8
Total Mercury	Water or sediment	80	8	16	8	8	8	8	8
Total & Dissolved Copper	Water	20	2	4	--	--	--	4	4
Nutrients ^a	Water	20	2	4	--	--	--	20	--
Emerging Contaminants ^b	--	--	--	--	--	--	--	--	--
Ancillary Parameters ^c	--	--	--	--	--	--	--	--	--

^a Ammonium³, nitrate, nitrite, total Kjeldahl nitrogen, orthophosphate, total phosphorus (analyzed concurrently in each nutrient sample).

^b Must include perfluorooctane sulfonates (PFOS, in sediment), perfluoroalkyl sulfonates (PFAS, in sediment), alternative flame retardants. The Permittee shall conduct or cause to be conducted a special study that addresses relevant management information needs for emerging contaminants. The special study must account for relevant Chemicals of Emerging Concern (CECs) in stormwater and would address at least PFOS, PFAS, and alternative flame retardants being used to replace PBDEs.

^c Total Organic Carbon (TOC) should be collected concurrently with PCBs data when normalization to TOC is deemed appropriate. Suspended sediment concentration (SSC) should be collected in water samples used to assess loads, loading trends, or BMP effectiveness. Hardness data are used in conjunction with copper concentrations collected in fresh water.

^d Total samples that must be collected over the five-year Permit term.

³ There are several challenges to collecting samples for “ammonium” analysis. Therefore, samples will be analyzed for total ammonia which is the sum of un-ionized ammonia (NH₃) and ionized ammonia (ammonium, NH₄⁺). Ammonium concentrations will be calculated by subtracting the calculated concentration of un-ionized ammonia from the measured concentration of total ammonia. Un-ionized ammonia concentrations will be calculated using a formula provided by the American Fisheries Society that includes field pH, field temperature, and specific conductance. This approach was approved by Regional Water Board staff in an email dated June 21, 2016.

2.0 POC MONITORING ACCOMPLISHMENTS (WY 2016) AND GOALS (WY 2017)

In compliance with Provision C.8.f of the MRP, the Program conducted POC monitoring for PCBs, mercury, copper, and nutrients in WY 2016. The MRP-required yearly minimum number of samples was met or exceeded for all POCs. The total number of samples collected for each POC, the agency conducting the monitoring, and the Management Questions addressed are listed in Table 2. Specific monitoring stations are listed in Table 3 and mapped in Figure 1. The sections below describe details of the monitoring accomplished in WY 2016 and the planned allocation of effort for WY 2017. A summary of the planned allocation of effort for WY 2017 is presented in Table 4.

Table 2. SMCWPPP POC Monitoring Accomplishments, WY 2016.

Pollutant of Concern/ Organization	Number of Samples (WY 2016)	Management Question Addressed ^a					Sample Type and Comments
		1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	
PCBs & Mercury							
SMCWPPP	8	8	8	--	8	--	Stormwater runoff samples to characterize catchments of interest
RMP STLS	7	7	7	--	7	--	Stormwater runoff samples to characterize catchments of interest
CW4CB	--	--	--	3	--	--	BMP effectiveness samples at Bransten Road bioretention facilities
Total / MRP Minimum by Year Four	15 / 80 ^b	15 / 8	15 / 8	3 / 8	15 / 8	0 / 8	
Copper							
SMCWPPP	3	--	--	--	3	--	Copper analyzed on a subset of PCBs/Hg stormwater runoff samples
Total / MRP Minimum by Year Four	3 / 20 ^b	--	--	--	3 / 4	0 / 4	
Nutrients							
SMCWPPP	2	--	--	--	2	--	Water samples collected from bottom-of-the-watershed stations
Total / MRP Minimum by Year Four	2 / 20 ^b	--	--	--	2 / 20	--	

a. Individual samples can address more than one Management Question simultaneously.

b. Total number of samples required over the five-year permit term.

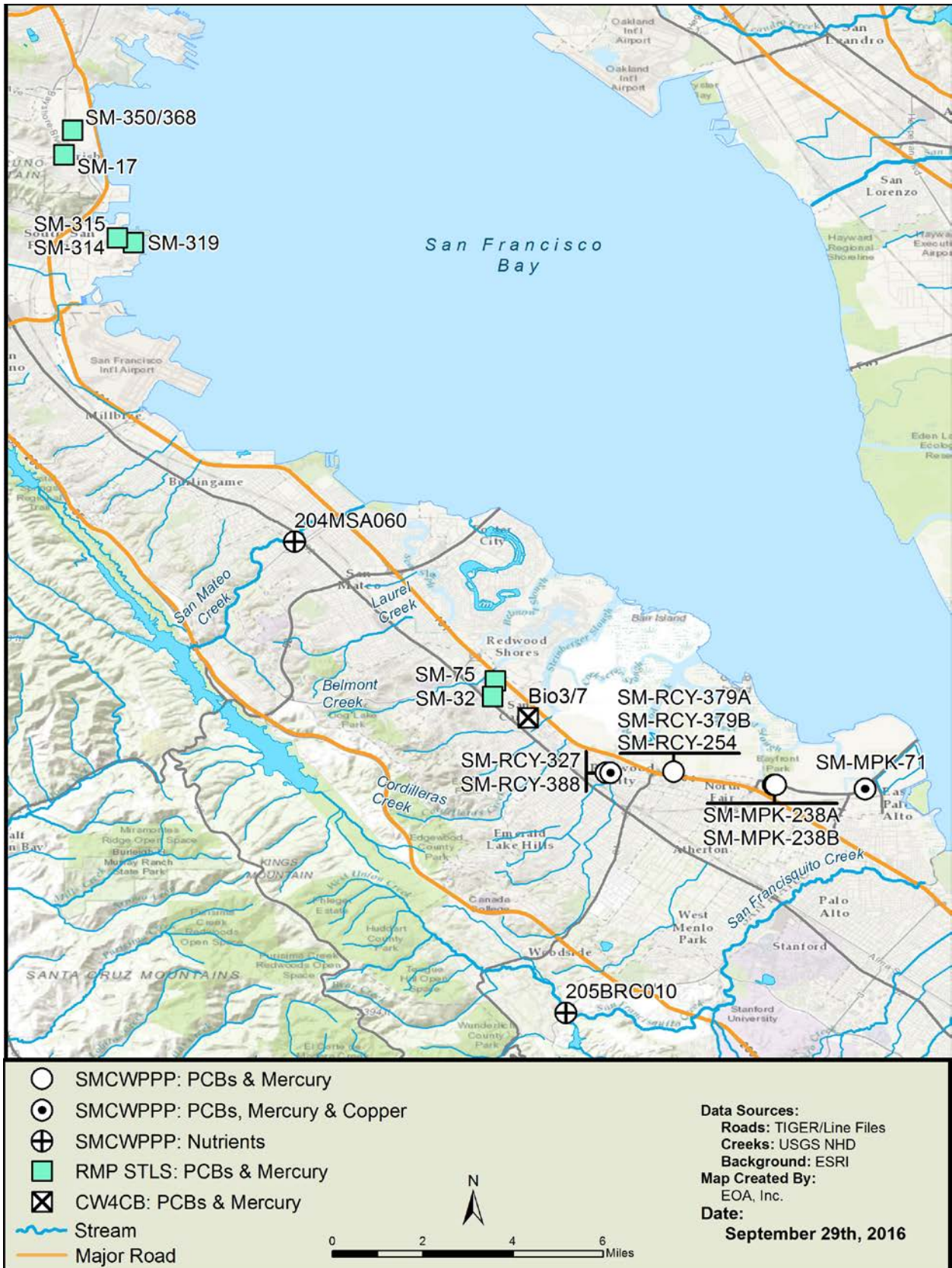


Figure 1. POC Monitoring Stations in San Mateo County, WY 2016.

Table 3. POC Monitoring Stations in San Mateo County, WY 2016.

Organization	Station Code	Sample Date	Latitude	Longitude	Matrix	PCBs	Mercury	Suspended Sediment	Total Copper	Dissolved Copper	Hardness as CaCO3	Nutrients ^b
SMCWPPP	SM-MPK-71	2/17/2016	37.4836	-122.1451	water	x	x	x	x	x	x	
SMCWPPP	SM-RCY-327	2/17/2016	37.4887	-122.2282	water	x	x	x	x	x	x	
SMCWPPP	SM-RCY-388	2/17/2016	37.4888	-122.2266	water	x	x	x	x	x	x	
SMCWPPP	SM-MPK-238A	3/5/2016	37.4848	-122.1744	water	x	x	x				
SMCWPPP	SM-MPK-238B	3/5/2016	37.4849	-122.1738	water	x	x	x				
SMCWPPP	SM-RCY-254	3/5/2016	37.4892	-122.2065	water	x	x	x				
SMCWPPP	SM-RCY-379A	3/5/2016	37.4891	-122.2065	water	x	x	x				
SMCWPPP	SM-RCY-379B	3/5/2016	37.4891	-122.2065	water	x	x	x				
RMP STLS	SM-319	(a)	37.6589	-122.3800	water	x	x	x				
RMP STLS	SM-315	(a)	37.6603	-122.3850	water	x	x	x				
RMP STLS	SM-314	(a)	37.6603	-122.3851	water	x	x	x				
RMP STLS	SM-75	(a)	37.5183	-122.2637	water	x	x	x				
RMP STLS	SM-32	(a)	37.5132	-122.2647	water	x	x	x				
RMP STLS	SM-350/368	(a)	37.6949	-122.3995	water	x	x	x				
RMP STLS	SM-17	(a)	37.6869	-122.4022	water	x	x	x				
SMCWPPP	204MSA060	6/23/2016	37.5628	-122.3282	water							x
SMCWPPP	205BRC010	6/23/2016	37.4117	-122.2412	water							x
CW4CB	Bio3 - Influent	WY 2016 (c)	(c)	(c)	water	x	x	x				
CW4CB	Bio7 - Influent	WY 2016 (c)	(c)	(c)	water	x	x	x				
CW4CB	Bio7 - Effluent	WY 2016 (c)	(c)	(c)	water	x	x	x				

a. Specific sample dates have not yet been provided by the RMP STLS.

b. Ammonia (for ammonium), nitrate, nitrite, total Kjeldahl nitrogen, orthophosphate, and total phosphorus are analyzed concurrently in each nutrient sample.

c. Specific sample dates and locations will be provided in the CW4CB project report, which is anticipated to be available by April 2017.

2.1. PCBs and Mercury

During WY 2016 the Program collected eight stormwater runoff samples for PCBs and mercury analysis. An additional seven stormwater runoff samples were collected in San Mateo County through the RMPs Small Tributary Loading Strategy (STLS). These combined 15 samples address Management Questions #1 (Source Identification) and #2 (Contributions to Bay Impairment). Data will also be used by the RMP STLS to improve calibration of the Regional Watershed Spreadsheet Model (RWSM) which is a land use based planning tool for estimation of overall POC loads from small tributaries to San Francisco Bay at a regional scale (i.e., Management Question #4 – Loads and Status). Three samples were collected by the CW4CB project to address Management Question #3 (Management Action Effectiveness).

2.1.1. SMCWPPP WY 2016 Accomplishments and WY 2017 Effort Allocation

PCBs and mercury monitoring by the Program in **WY 2016** was conducted in accordance with the Water Year 2016 POC Monitoring Plan (SMCWPPP 2016). The primary goal of the monitoring, as described in the Monitoring Plan, was to inform identification of WMAs where control measures could be implemented to comply with MRP requirements for load reductions of PCBs and mercury. WY 2016 PCBs and mercury monitoring was focused on collection of storm composite samples from “catchments of interest” (i.e., catchments containing high interest parcels with land uses associated with PCBs such as old industrial, electrical and recycling). Catchments were identified and prioritized for sampling by evaluating several types of data, including: PCBs and mercury concentrations from prior sediment and water sampling efforts, land use data, municipal storm drain data showing pipelines and access points (e.g., manholes, outfalls, pump stations), catchment areas delineated from municipal storm drain data, and logistical/safety consideration (SMCWPPP 2015).

Composite samples consisting of six to eight aliquots collected during the rising limb and peak of the storm hydrograph (as determined through field observations) were analyzed for the “RMP 40” PCB congeners (method EPA 1668C), total mercury (method EPA 1631E), and SSC (method ASTM D3977-97). A subset of three samples were also analyzed for total and dissolved copper (method EPA 200.8) and hardness (method SM 2340C).

As stated above, WY 2016 PCBs and mercury monitoring conducted by the Program primarily focused on addressing Management Questions #1 (Source Identification) and #2 (Contributions to Bay Impairment), while contributing to the dataset being used to address Management #3 (Loads and Status). A similar focus is planned for **WY 2017**. The Program intends to collect 10 to 15 storm composite samples from catchments of interest, primarily to continue informing identification of WMAs. An additional 40 to 60 sediment samples will be collected within WMAs, primarily to identify specific source properties that may eventually be referred to the Regional Water Board for investigation and abatement by the Regional Water Board or another appropriate regulatory agency with investigation and cleanup authority. The specific coordinates for the WY 2017 samples are not yet known and will be influenced by several logistical field considerations such as tidal conditions during storm events (for storm samples) and the presence of sampleable sediment within the storm drain system and right-of-way (for sediment samples).

In subsequent years, PCBs and mercury monitoring conducted by the Program will likely include addressing Management Question #3 (Management Action Effectiveness). SMCWPPP is currently working with Bay Area Stormwater Management Agencies Association (BASMAA) partners (i.e., other countywide stormwater programs subject to the MRP) to develop a regional project to design a Monitoring Plan for POC Management Action Effectiveness. The goal is to finalize the Monitoring Plan/study design in WY 2017 and implement the plan in WY 2018. A major consideration for the regional Management Action Effectiveness Monitoring Plan and other future monitoring efforts will be collection of data in support of conducting the Reasonable Assurance Analysis (RAA) that is required by Provision C.12.c.iii.(3) of the MRP and which must be submitted with the 2020 Annual Report (September 30, 2020).

2.1.2. Third-Party WY 2016 Accomplishments and WY 2017 Effort Allocation

The **RMP’s STLS** Team typically conducts annual monitoring for POCs region-wide. SMCWPPP is an active participant in the STLS and works with other Bay Area municipal stormwater programs to identify opportunities to direct RMP funds and monitoring activities towards meeting both short- and long-term municipal stormwater permit requirements. Recent years’ POC monitoring activities by the STLS focused

on pollutant loading monitoring at six region-wide stations and wet weather characterization monitoring in catchments of interest. In **WY 2016**, the STLS Team continued wet weather characterization sampling using a similar approach to the PCBs and mercury sampling that was implemented by the Program. Seven catchments (i.e., seven storm composite samples) were sampled for PCBs and mercury by the RMP's STLS in San Mateo County in WY 2016.

RMP STLS monitoring in **WY 2017** will continue to focus on wet weather characterization. However, the number of stations in San Mateo County that will be targeted by the STLS Team is yet to be determined. In future years, RMP STLS monitoring is expected to shift towards Management Question #5 (Trends). The STLS Trends Strategy Team, initiated in WY 2015, is currently developing a regional monitoring program to assess trends in POC loading to San Francisco Bay from small tributaries. The STLS Trends Strategy will initially focus on PCBs and mercury, but will not be limited to those POCs. The preliminary design concept includes additional monitoring at one or two of the region-wide loadings stations to gain a better understanding of the variability in PCBs concentrations/loadings in the existing dataset. STLS Trends Strategy monitoring could begin as early as WY 2017 and will likely continue through the Permit term; however, the monitoring design is still being developed.

The **SPoT Monitoring Program** conducts annual dry season monitoring (subject to funding constraints) of sediments collected from a statewide network of large rivers. The goal of the SPoT Program is to investigate long-term trends in water quality (Management Question #5 – Trends). Sites are targeted in bottom-of-the-watershed locations with slow water flow and appropriate micromorphology to allow deposition and accumulation of sediments, including a station near the mouth of San Mateo Creek. In most years, sediments are analyzed for PCBs, mercury, toxicity, pesticides, and organic pollutants (Phillips et al. 2014). In WY 2016, SPoT monitoring in San Mateo Creek did not include PCBs or mercury; however, those constituents are anticipated for WY 2017. The most recent technical report prepared by SPoT program staff was published in 2014 and describes five-year trends from the initiation of the program in 2008 through 2012 (Phillips et al. 2014). An update to the report is anticipated in late 2016.

During WY 2016 the EPA grant-funded **CW4CB** project collected three BMP effectiveness samples at two bioretention facilities along Bransten Road in San Carlos, CA. During storm events, an urban runoff influent sample was collected at the facility designated "Bio3" and paired influent and effluent samples were collected at the facility designated "Bio7." Flow through the bioretention facilities and bypass flows were also measured. Analytes for all three samples included PCBs, mercury and SSC. CW4CB does not plan to collect any additional samples during WY 2017 or subsequent years.

2.2. Copper

In WY 2016, SMCWPPP collected copper samples concurrently with a subset (three) of the PCBs and mercury storm composite samples. The goal of this approach is to address Management Question #4 (Loads and Status) by characterizing copper concentrations in stormwater runoff from highly urban catchments. A similar allocation of effort (i.e., four samples) and sampling approach is planned for WY 2017.

2.3. Nutrients

Nutrients were included in the POC monitoring requirements to support Regional Water Board efforts to develop nutrient numeric endpoints (NNE) for the San Francisco Bay Estuary. The "Nutrient Management Strategy for San Francisco Bay" is part of a statewide initiative to address nutrient over-enrichment in State waters (Regional Water Board 2012). The suite of nutrients required in the MRP (i.e., ammonium, nitrate, nitrite, total Kjeldahl nitrogen, orthophosphate, and total phosphorus) closely

reflects the list of analytes measured by the RMP and BASMAA partners at the six regional loading stations (including a San Mateo County station at the Pulgas Creek Pump Station in the City of San Carlos) monitored in WY 2012 and WY 2013. The prior data were used by the Nutrient Strategy Technical Team to develop and calibrate nutrient loading models.

In WY 2016, POC monitoring for nutrients in San Mateo County was conducted during the dry season at two bottom-of-the-watershed stations with mixed land uses. Nutrient monitoring addresses Management Question #4 (Loads and Status). A similar approach is planned for WY 2017; however, a minimum of four samples will be collected. At this time, the specific watersheds that will be targeted are unknown. The process for identifying watersheds will include land use analysis and logistical considerations related to stream access and field crew safety.

2.4. Emerging Contaminants

Emerging contaminant monitoring is being addressed through Program participation in the RMP. The RMP has been investigating Chemicals of Emerging Concern (CECs) since 2001 and established the RMP Emerging Contaminants Work Group (ECWG) in 2006, to identify CECs that have the potential to impact beneficial uses in the Bay and to develop cost-effective strategies to identify and monitor, and minimize impacts. The RMP published a CEC Strategy “living” document in 2013 (Sutton et al. 2013; Sutton and Sedlak 2015) which is scheduled for a full revision in late 2016. The CEC Strategy document guides RMP special studies on CECs using a tiered risk and management action framework.

Details of the emerging contaminant special study are still being developed.

Table 4. Summary of Planned Allocation of POC Monitoring Effort in San Mateo County, WY 2017.

Pollutant of Concern/ Organization	Planned Number of Samples (WY 2017)	Yearly Minimum	Management Question Addressed ^a					Sample Type and Comments
			1. Source Identification	2. Contributions to Bay Impairment	3. Management Action Effectiveness	4. Loads and Status	5. Trends	
PCBs & Mercury								
SMCWPPP	10 to 15	8	X	X	--	X	--	Stormwater runoff samples primarily to characterize catchments of interest
SMCWPPP	40 to 60		X	--	--	--	--	Urban sediment samples primarily to identify source properties
RMP STLS	4 to 8		X	X	--	X	--	Stormwater runoff samples primarily to characterize catchments of interest
SPoT	1		--	--	--	--	X	Long-term trends monitoring program (sediment samples from creek bed)
Copper								
SMCWPPP	4	2	--	--	--	X	--	Copper analyzed on a subset of PCBs/Hg stormwater runoff samples
Nutrients								
SMCWPPP	4	2	--	--	--	X	--	Water samples collected from bottom-of-watershed stations

a. Individual samples can address more than one Management Question simultaneously.

3.0 REFERENCES

- Phillips BM, Anderson BS, Siegler K, Voorhees J, Tadesse D, Webber L, Breuer, R. (2014). Trends in Chemical Contamination, Toxicity and Land Use in California Watersheds: Stream Pollution Trends (SPoT) Monitoring Program. Third Report - Five-Year Trends 2008-2012. California State Water Resources Control Board, Sacramento, CA.
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- Sutton, R. and Sedlak, M. (2015). Contaminants of Emerging Concern in San Francisco Bay: A Strategy for Future Investigations. 2015 Update. San Francisco Estuary Institute, Richmond, CA. Contribution # 761.