Los Angeles County Municipal Storm Water Permit
(Order No. R4-2012-0175 as amended by State Board Order WQ 2015-0075)
NPDES No. CAS004001

Annual Report
Watershed Form
Reporting Year 15-16

This form includes items to be reported by each group of Permittees

WMP / EWMP Group	North Santa Monica Bay Coastal Watersheds
Permittees	County of Los Angeles, Los Angeles County Flood Control District*, City of Malibu
Reporting Year	15-16
Date	December 15, 2016

* The Los Angeles County Flood Control District will submit a separate Annual Report summarizing its MS4 activities throughout the District's areas.

1. WMP/EWMP CHANGES AND WATERSHED UPDATES

1.1 **WMP and EWMP Modifications Requiring Approval**: Clearly state any proposed WMP or EWMP modifications that require Regional Water Board or Regional Water Board Executive Officer approval:

Not Applicable (NA)

1.2 **Watershed Summary Information Updates**: Provide and/or include an attachment with the information below (or any updates to the information below if the information was previously provided) in the odd year Annual Report (e.g., Year 1, 3, 5)[1].

Groups participating in a Watershed Management Program (WMP) or Enhanced Watershed Management Program (EWMP) that have provided this information through the development and submission of these programs do not have to provide this information again if there have been no changes.

(a) Watershed Management Area: Provide the following information related to the Watershed Management Area.

- Description of effective TMDLs, applicable WQBELs, receiving water limitations, implementation and reporting requirements, and compliance dates.
- CWA Section 303(d) listings not addressed by TMDLs.
- Results of regional bioassessment monitoring.
- Description of known hydromodification effects to receiving waters.
- Description and location of natural drainage systems.
- Description of groundwater recharge areas, including number and acres.
- Maps and/or aerial photographs identifying ESAs, ASBS, natural drainage systems, and groundwater recharge areas.

(b) Subwatershed (HUC-12) Descriptions: Provide the following information related to the Subwatershed (HUC-12).

- Description including HUC-12 number, name and a list of all tributaries named in the Basin Plan.
- Jurisdiction map of the HUC-12 subwatershed, and corresponding table with acreages for each jurisdiction.
- Land Use map of the HUC-12 subwatershed, and corresponding table with acreages.
- 85th percentile, 24-hour rainfall isohyetal map for the HUC-12 subwatershed, with identification of 85th percentile, 24-hour volume for the HUC-12 subwatershed.
- One-year, one-hour storm intensity isohyetal map for the HUC-12 subwatershed, with identification of the one-year, one-hour storm intensity for the HUC-12 subwatershed.
- MS4 map for the subwatershed, including major MS4 outfalls (as defined in Attachment A of the permit) and all low flow diversions, and corresponding table with identification numbers, geographic coordinates, jurisdiction, size of outfall, outfall catchment area (as available), and size and operational period/conditions of corresponding low-flow diversions.

(c) Description of the Permittee(s) Drainage Area within the HUC-12 Subwatershed:

- Provide the estimated baseline percent of effective impervious area (EIA) within the Permittee(s) jurisdictional area(s) as existed at the time that this Order became effective. (If EIA not available, provide % impervious area and a process for quantifying EIA).

This subsection of the Annual Report Watershed Form is applicable to odd year annual reports (e.g., Year 1, 3, 5). As this Annual Report (Year 2015-16) is an even year report, the information requested is not required.

In compliance with Part XVII.B of the Monitoring and Reporting Program, all of the above information was provided in detail as part of the development of the Enhanced Watershed Management Program (EWMP) for the North Santa Monica Bay (NSMBCW). No changes or updates to the EWMP have been made to date because the required summary information has remained the same.

[1] Year 1 = 2012-13 Annual Report; Year 2 = 13-14; Year 3 = 14-15; Year 4 = 15-16; Year 5 = 16-17;…

See also response to Section 2.1.

2. Storm Water Control Measures

Include the following information on Storm Water Control Measures as required in Section XVIII.A.1 of the Monitoring and Reporting Program. If any of the requested information is contained in other sections of the Annual Report, provide the reference.

The tables within this section outline minimum information for reporting. The Permittee may reformat the sections regarding projects completed in the reporting year to include additional project descriptions and information (e.g. pictures, maps, funding information, etc.).

If any of the requested information cannot be obtained, please note in Subsection 2.10 below.

2.1 Effective Impervious Area (EIA)
Summarize the estimated cumulative change in percent EIA since the effective date of the Permit for the entire area covered by the WMP/EWMP and, if possible, the estimated change in the stormwater runoff volume during the 85th percentile, 24-hour storm event for the entire area covered by the WMP/EWMP.

Table 2a: Summary of Effective Impervious Area[2] within Group Area

Receiving Water	Date	Effective Impervious Area (acres)	Estimated Stormwater Runoff Volume During 85th Percentile, 24-hour Storm (if available)
Santa Monica Bay - All	**Dec. 28, 2012 (baseline)**	Information not available	Information not available
	Current	Information not available	Information not available

Reporting of Effective Impervious Area (EIA) requires information that is not currently available and is difficult to accurately derive. Therefore, the information for the County of Los Angeles and the City of Malibu is not reportable at this time. Nonetheless, pursuant to Part XVIII.A.1.i of the Monitoring and Reporting Program, the Agencies participating in the NSMBCW EWMP Group provide the following discussion (along with the discussion in Section 2.10 below) of the factors limiting the acquisition of the requested EIA information.

The Agencies participating in the NSMBCW EWMP Group have jurisdictions that encompass over 85 square miles of various types of developments and land use. The information required to derive the baseline EIA from the inception of the 2012 Permit will require numerous assumptions about land use categories with respect to their impervious area ratio and numbers of parcels with hydrologically disconnected impervious areas. Additionally, field work would be required to verify assumptions when possible.

To evaluate the change in EIA, the NSMBCW EWMP Group is working to track project features for completed new development and redevelopment projects, including area addressed by best management practices (BMPs) that intercept runoff. To improve the NSMBCW EWMP Group's ability to estimate the baseline EIA and cumulative change in percent EIA, the NSMBCW EWMP Group request the Los Angeles Regional Water Quality Control Board (Regional Board) provide guidance regarding the calculation of EIA in the future, for consistent application among all Permittees.

2.2 Summary of Projects that Retain Runoff (including New and Redevelopment Projects)
Complete the summary tables below.

[2] Effective Impervious Area (EIA) is the portion of the surface area that is hydrologically connected to a drainage system via a hardened conveyance or impervious surface without any intervening median to mitigate the flow volume.

Table 2b: Summary of Projects that Retain Runoff Completed in the Reporting Year				
Receiving Water	**Number of New Development/Re-development Projects Completed in Reporting Year**	**Number of Other Projects Designed to Intercept Runoff Completed in Reporting Year**	**Area Addressed by Projects (acres)**	**Total BMP Retention Capacity of Projects (ac-ft)***
Santa Monica Bay - All	2	0	0.321	0.002

* Onsite retention of the SWQDv, as stated in Section VI.D.6.c.i.2 of the Permit, is very challenging for most projects in Malibu due to high groundwater, geotechnical hazards and geologic instability, or where there are adjacent onsite wastewater treatment systems. As discussed in Section 5.2.4.4 of the Regional Board approved-NSMBCW EWMP, offsite infiltration or bioretention is also usually infeasible for similar reasons, while onsite biofiltration is one feasible option for most projects in the City.

Table 2c: Cumulative Summary of Projects that Retain Runoff Completed since the Permit Effective Date					
Receiving Water	**Number of New Development/Re-development Projects Completed Since Permit Start**	**Number of Other Projects Designed to Intercept Runoff Completed Since Permit Start**	**Area Addressed by Projects Completed Since Permit Start (acres)**	**Total BMP Retention Capacity of Projects Completed Since Permit Start (ac-ft)**	**Est. Total Runoff Volume Retained Onsite for the Reporting Year (ac-ft)**
Las Flores Canyon	1		0.42	0.005	0.03
Marie Canyon	2		7.28	0.197	0.591
Santa Monica Bay Offshore/Nearshore	5		15.55	0.63	3.785
Topanga Canyon Creek	5		1.54	0.003	0.018
Trancas Canyon	1		0.74	0.008	0.048

2.3 <u>New and Redevelopment Projects</u>: Complete the summary tables below.

Table 2d: Summary of New and Redevelopment Projects Completed in the Reporting Year				
Type of Projects	**Number of Projects Completed[3]**	**Number of Projects Addressed by Alternative Compliance Measures**	**Area Addressed by Projects (acres)**	**Est. Total Volume (Sc) Retained Onsite (Not Including Alternative Compliance Projects)**
New Development Projects	City of Malibu: 1	City of Malibu: 1	City of Malibu: 1.54	City of Malibu: 0*
	County of Los Angeles: 0	County of Los Angeles: 0	County of Los Angeles: NA	County of Los Angeles: NA
Redevelopment Projects	2	0	0.32	0.002
TOTAL	3	1	1.86	0.002
* Alternative compliance project reported here used biofiltration.				

[3] "Number of Projects Completed" should only include projects that are completed and signed off by the Permittee during the reporting year. In progress projects that have been issued a permit but are not completed should not be included.

Table 2e: Summary of Alternative Compliance Measures for Development/Redevelopment Projects (where onsite retention of the SWQDv is infeasible)					
Category[4]	**Number of Projects Constructed**	**Area Addressed by Projects (acres)**	**Est. Volume Retained**	**Area Addressed by Biofiltration (acres)**	**Volume Addressed by Biofiltration[5]**
Onsite Biofiltration	City of Malibu: 1	City of Malibu: 1.54	City of Malibu: none	City of Malibu: 1.54	City of Malibu: unknown*
	County of Los Angeles: 0	County of Los Angeles: NA	County of Los Angeles: NA	County of Los Angeles: NA	County of Los Angeles: NA
Offsite Infiltration	0	0	NA	NA	NA
Ground Water Replenishment Projects	0	0	NA	NA	NA
Offsite Project – Retrofit Existing Development	0	0	NA	NA	NA
Regional Storm Water Mitigation Program	0	0	NA	NA	NA
TOTAL	1	1.54	none	1.54	unknown
*Please note that plans for the reported project were approved in 2008, before City LID ordinance required redevelopment projects' BMPs to be designed using SWQDv.					

2.4 Regional Project Implementation

Complete the table below for any regional projects completed in the reporting year.

Table 2f: Regional Projects Completed in the Reporting Year					
Receiving Water	**Name of Project**	**Completion Date**	**Capacity of BMP**	**Drainage Area Addressed by Project (acres)**	**Est. Total Runoff Volume Retained for the Reporting Year (if available)**
Santa Monica Bay - All	NA	NA	NA	NA	NA

2.5 Green Street Project Implementation

Complete the table below for any green streets projects completed in the reporting year.

[4] Alternative Compliance Measures refer only to the alternative measures used to comply with Planning and Land Development Program requirements as described in Part VI.D.7.c.iii.(1)-(7)

[5] Volume Addressed by Biofiltration should represent the biofiltration volume (Bv), not the Storm Water Quality Design Volume (SWQDv).

Table 2g: Green Streets Projects Completed in the Reporting Year						
Receiving Water	**Name of Project**	**Completion Date**	**Miles of Street Addressed by Project**	**Capacity of BMP (cfs)**	**Drainage Area Addressed by Project (in acres)**	**Est. Total Runoff Volume Retained for the Reporting Year (if available)**
Santa Monica Bay- All	Broad Beach Rd. Biofiltration	7/1/2015	1.5	0.0373	12.3	NA
Santa Monica Bay- All	Wildlife Rd. Storm Drain Improvements	7/1/2015	NA	1.62	16.8	NA
Santa Monica Bay- All	Malibu Rd. Biofiltration	7/1/2015	NA	0.0386	1.85	NA
Santa Monica Bay- All	Las Flores Cyn. Rd. Biofiltration	7/1/2015	.65	0.055	4.2	NA

2.6 Riparian Buffer/Wetland Restoration Projects

Complete the table below for any riparian buffer or wetland restoration projects completed in the reporting year.

Table 2h: Riparian Buffer/Wetland Restoration Projects Completed			
Receiving Water	**Name of Project**	**Completion Date**	**Description of Project[6]**
RW 1	NA	NA	NA

2.7 Additional Projects Completed During the Reporting Year

Complete the table below for other projects (not included above) that were completed in the reporting year.

Table 2i: Additional Projects (e.g. Biofiltration) Completed in the Reporting Year						
Receiving Water	**Name of Project**	**Type of Project**	**Completion Date**	**Drainage Area Addressed by Project (in acres)**	**Est. Total Runoff Volume Retained for the Reporting Year (if available)**	**BMP Capacity and Additional Notes**
Malibu Creek and Lagoon	Optimization of Collection Pumps for Legacy Park	Retention	7/1/2015	310	not available	Collection system optimized to increase stormwater capture.
(Add rows as needed)	*(Add rows as needed)*					

2.8 Summary of Minimum Control Measures: Provide a summary of other Minimum Control Measures implemented during the reporting year, including, at a minimum, all commitments related to MCM implementation specifically identified in a WMP/EWMP with deadlines within the reporting year. Individual Forms submitted by individual Group members may be referenced in the response.

Refer to Section 5 of respective Individual Forms for responses from the City of Malibu and the County of Los Angeles.

2.9 Status of Multi-Year Efforts: Provide the status of multi-year efforts, including TMDL implementation (not including trash TMDLs), that were not completed in the current year and will continue into subsequent year(s).

For multi-year efforts, report on progress towards future milestones related to multi-year projects. Include the status of the project, which includes the status with regard to standard project implementation steps. These steps include, but are

[6] For riparian buffer projects include width, length and vegetation type; for wetland restoration projects include acres restored, enhanced or created

not limited to, adopted or potential future changes to municipal ordinances to implement the project, site selection, environmental review and permitting, project design, acquisition of grant or loan funding and/or municipal approval of project funding, contractor selection, construction schedule, start-up, and effectiveness evaluation (once operational), where applicable.

If applicable, for green streets implementation, Permittees shall report on progress toward a structured approach identifying a sufficient number of green streets projects to meet compliance milestones (e.g., a green streets master plan).

Also, include the following information:

- Name
- Subwatershed
- Project Type
- Location / Latitude and Longitude
- Permittee(s) Involved
- Status
- Expected Completion Date

The NSMBCW EWMP establishes multi-year implementation milestones for structural distributed BMPs, trash capture devices, and downspout retrofit incentives. The implementation status of each of these projects provided below demonstrates compliance with the proposed implementation schedule presented in the NSMBCW EWMP approved by the Regional Board.

Project	Funding Status[1]	Anticipated Planning/ Design Schedule[2]	Anticipated Construction/ Implementation Schedule[3]
Trash Capture Systems	Funding for storm drain trash screens allocated in FY 16-17 CIP budget	Dec. 2016 – Dec. 2018	Apr. 2017 – Mar. 2020
Downspout Retrofit Program	Part of regular staff budget	Dec. 2016 – Mar. 2018	Apr. 2018 – Jun. 2021
Ramirez Cyn. Green Street	Pending	Jul 2017. – Dec. 2019	Jan. 2020 – Jun. 2021
Latigo Cyn. Green Street	Pending	Jul 2017. – Dec. 2019	Jan. 2020 – Jun. 2021
Corral Cyn. Green Street	Pending	Jul 2018. – Dec. 2019	Jan. 2020 – Jun. 2021
Marie Cyn. Green Street	Funding for initial BMP project allocated in FY 16-17 CIP budget	Dec. 2016 – Dec. 2019	Jan. 2020 – Jun. 2021
Winter Cyn. Green Street	Funding for initial BMP project allocated in FY 16-17 CIP budget (part of Civic Center Way improvements)	Dec. 2016 – Dec. 2019	Jan. 2020 – Jun. 2021
Sweetwater Cyn. Green Street	Pending	Jul 2018. – Dec. 2019	Jan. 2020 – Jun. 2021
Las Flores Cyn. (W1-14)	Pending	Jul 2018. – Dec. 2019	Jan. 2020 – Jun. 2021
Las Flores Cyn. (S1-14)		Jul 2018. – Dec. 2019	Jan. 2020 – Jun. 2021
Viewridge Super Green Street (Topanga Canyon)	Funding allocated FY 17-18	Jan 2017 – Dec 2018	Jan 2019 – May 2019

[1] Includes acquisition of grant or loan funding and/or municipal approval of project funding.

[2] Includes adopted or potential future changes to municipal ordinances to implement the project, site selection, environmental review and permitting, and project design.

[3] Includes contractor selection, construction schedule, start-up, and effectiveness evaluation.

2.10 **Data Limitations**: If any of the requested information cannot be obtained, provide a discussion of the factor(s) limiting its acquisition and steps that will be taken to improve future data collection efforts.

The NSMBCW EWMP Group seeks Regional Board guidance on: (a) the methodology that should be used to determine a City-wide baseline EIA value; (b) procedures that should be used to track the change in stormwater runoff volume (from the 85th percentile storm event) attributable to BMPs, development projects, and redevelopment projects; (c) methods for calculating runoff volumes retained by BMPs for particular years and cumulatively for the permit term.

Table 2a, "Summary of Effective Impervious Area within Group Area", is asking for information that is not available and is difficult to accurately derive. The Agencies participating in the NSMBCW EWMP Group have jurisdictions that encompass thousands of square miles of various types of developments and land use. To derive the baseline EIA from 2012 will require numerous assumptions about land use categories with respect to their impervious area ratio.

This might be an appropriate use of the EWMP Technical Advisory Committee (TAC) to collectively determine a consistent set of methodology options, similarly to how the Reasonable Assurance Analysis (RAA) committee of the TAC functioned. Please see Section 2.1 of the Watershed Form and Section 6.10 of the Individual Forms for data limitations related to EIA.

2.11 (optional) GIS Files: If available, the Permittee(s) may submit GIS project files that map all implementation of on-the-ground projects (e.g. riparian buffer/wetland restoration; distributed/green streets; regional projects; new development and redevelopment on-site; and new development and redevelopment off-site).

3. Effectiveness Assessment of Storm Water Control Measures

Include the following information on Effectiveness Assessment of Storm Water Control Measures as required in Section XVIII.A.2 of the MRP. This information should include:

- **Estimated pollutant load reductions by receiving water (and if applicable by Permittee)**
- **Additional information on the status multi-year efforts not provided in the previous sections of this report.**
- **Any additional information on storm water control measure effectiveness that the Permittee(s) would like to highlight.**

Optionally, the following information may be included if deemed relevant:

- **In areas where control measures were designed to reduce impervious cover or storm water peak flow and flow duration, provide hydrographs or flow data of pre- and post-control activity for the 85th percentile, 24-hour rain event, if available.**
- **For natural drainage systems, develop a reference watershed flow duration curve and compare it to a flow duration curve for the subwatershed under current conditions.**

(The following MRP requirements are addressed in Section 6 of this reporting template and do not need to be included in this section: Sections XVIII.A.2.a, XVIII.A.2.b, XVIII.A.2.e, and XVIII.A.2.f)

Implementation of the stormwater outfall monitoring as identified by the Coordinated Integrated Monitoring Program (CIMP) began in July 2016. Data needed to perform this assessment is not available for the current Annual Report, but will be addressed in the next Annual Report covering July 2016 through June 2017. Therefore, it is too early to evaluate the effectiveness of control measures implemented.

4. Non-Storm Water Control Measures

Include the following information on Non-Storm Water Control Measures as required in Section XVIII.A.3 of the MRP.

4.1 Non-Storm Water Based Screening and Monitoring: Complete the following tables regarding the Non-Storm Water Outfall Based Screening and Monitoring Program [*Attachment E – XVIII.A.3.a-g*]:

Table 4a: Summary of Non-Storm Water Based Screening and Monitoring Program							
Receiving Water	**No. of Major Outfalls**	**No. of Outfalls Screened**	**Total No. of Outfalls Screened Since Dec 28, 2012**	**Significant Non-Stormwater Discharges[7]**			
				Total Confirmed	**Total Abated**	**Total Attributed to Allowable Sources**	**Total No. Being Monitored**
Santa Monica Bay	10	3 (this reporting year)	10	0	NA	NA	0
Total	10	3	10	0	NA	NA	0

Table 4b: Summary of Non-Stormwater Discharges Abated	
Abatement Method	**Total No.**
Low Flow Diversion	0
IC/ID Eliminated	0
Permitted	0
Retention	0
Treatment	0
Other (describe below)	0

4.2 Summary of Non-Storm Water Control Measures: Summarize actions and projects related to addressing non-stormwater discharges. Include the specific non-stormwater actions completed within the WMG's jurisdictional area during the reporting year and, if applicable, the estimated total runoff volume retained on site by the implemented projects.

Provide a description of efforts that were taken to mitigate and/or eliminate all non-stormwater discharges that exceeded one or more applicable WQBELs, non-stormwater action levels, or caused or contributed to aquatic toxicity. Additionally, include any multi-year efforts, including TMDL implementation, that were not completed in the reporting year and will continue into subsequent year(s).

The non-stormwater outfall screening and monitoring program as described in the approved CIMPs is in progress. The first round of non-stormwater outfall monitoring yielded no significant discharges. Non-stormwater based screening was conducted in August 2014, October 2014, and November 2015. As part of the required identification process in Part IX.C of the Monitoring and Reporting Program and as outlined in Section 4 of the CIMP, the NSMBCW EWMP Group has determined that no significant non-stormwater flows were observed at the major outfalls; therefore, pursuant to Parts II.E.3 and IX.D.1 of the Monitoring and Reporting Program, no further assessment or monitoring was required or conducted. It is expected that future Annual Reports will include a detailed description of actions and projects to address non-stormwater discharges as more data is collected and analyzed. Any results found to not meet the applicable water

[7] "Significant Non-Storm Water Discharges" as identified by the Permittee per Part IX.C.1 of the MRP

quality objective (WQO), and are attributed to non-stormwater discharges, will be addressed through the EWMP's adaptive management process or the Illicit Connections/Illicit Discharges (IC/ID) Program.

5. Effectiveness Assessment of Non-Storm Water Control Measures

Include the following information on Effectiveness Assessment of Non-Storm Water Control Measures as required in Section XVIII.A.4 of the MRP.

Provide an assessment as to whether receiving water quality within the jurisdiction of the Permittee(s) is impaired, improving, staying the same or declining during dry-weather conditions. Each Permittee may compare water quality data from the reporting year to previous years with similar dry-weather flows, conduct trends analysis, draw from regional bioassessment studies, or use other means to develop and support its conclusions.

Additionally, include information quantifying the effectiveness of Storm Water Control Measures (Section 3 of this form) in addressing non-storm water discharges. This information should include the estimated amount of non-storm water flows captured by the storm water control measures implemented throughout the watershed and a description of the methodology and assumptions used to quantify effectiveness.

Since the source investigations from the Non-Stormwater Outfall Screening and Monitoring Program has not demonstrated the need to monitor outfalls during dry weather, it is too early to evaluate the effectiveness of implemented control measures.

In Section 6.5, results from ongoing Total Maximum Daily Load (TMDL) compliance monitoring have been assessed as to whether receiving water quality within the watershed is improving, staying the same, or declining during dry weather conditions. The implementation of non-stormwater control measures as identified in the NSMBCW EWMP appears to correlate with an overall decrease in the number of sample days with indicator bacteria results above WQOs at Santa Monica Bay Beaches during dry weather. Trends in dry weather bacteriological water quality at Malibu Creek and Lagoon were not similarly discernable (i.e., water quality appears to be generally staying the same).

Information regarding the estimated amount of non-storm water flows captured by the storm water control measures is not readily available. Please note this information is not requested in Section XVIII.A.4 of the Monitoring and Reporting Plan (MRP) (or other sections of the MRP). The Watershed Group seeks Regional Board guidance on appropriate methodologies for estimating the amount of non-storm water flows captured by storm water control measures.

6. Integrated Monitoring Compliance Report

Include the following information for an Integrated Monitoring Compliance Report as required in Section XVIII.A.5 of the MRP.

6.1 Review of Reporting Year and Monitoring Events

This section will be utilized to summarize information regarding data collection, including summarizing monitoring events conducted as part of the Coordinated Integrated Monitoring Program (CIMP) or Integrated Monitoring Program (IMP)[8], data collected outside of the CIMP but used to meet monitoring specified within the CIMP, climatic and flow conditions, and regional and special studies.

(a) **Conditions During Reporting Year**: Summarize the climatic and flow conditions observed during the Reporting Year and include:

- Rainfall summary for the reporting year: Summarize the number of storm events, highest volume event (inches/24 hours), highest number of consecutive days with measureable rainfall, total rainfall during the reporting year compared to average annual rainfall for the subwatershed. Precipitation data may be obtained from Los Angeles County Department of Public Works rain gauge stations available at http://www.ladpw.org/wrd/precip/.

- Descriptive statistics of the measured flows at the nearest stream gauge and/or monitoring station during storm events and, where applicable, a comparison of these statistics to the corresponding statistics used in a Reasonable Assurance Analysis:
  - Maximum daily flow
  - 90th percentile daily flow
  - 10th percentile daily flow
  - Median daily flow
  - Average daily flow

A rainfall summary for NSMBCW and the rain gages used to define weather conditions for event monitoring are found in Appendix A. For reporting year July 2015 – June 2016 at rain gauge Big Rock Mesa (LA320):

- 10 storm events occurred
- Highest volume event over 24 hours: 1/5/16 event with 1.26 in. of rainfall
- Highest number of consecutive days with measureable rainfall: 1/5/16 to 1/7/16 with total of 2.2 in.
- Total rainfall during reporting year = 9.4 in. compared to average annual rainfall[a] for NSMBCW = 11.5 in.

RAA was completed as part of the EWMP submittal and was approved by the Regional Board in April 2016. An RAA is not included/discussed in this report because an updated RAA is not required by Part VI.C.8.b(i) of the Permit until June 30, 2021.

Note:

[a]Annual average rainfall calculated using past 10 years of data (2006-2016) for Big Rock Mesa rain gauge.

(b) **Summary of Events Conducted During Reporting Year**: Summarize the required monitoring for the year and the monitoring events conducted during the year. Also include the following summary table describing rainfall during stormwater outfall and wet-weather receiving water monitoring events:

Additionally, discuss any problems with samples not being collected and their resolution.

Monitoring was conducted for the Malibu Creek Watershed Trash TMDL, Santa Monica Bay Beaches Bacteria TMDL, and Malibu Creek and Lagoon Bacteria TMDL during the reporting year; details on these monitoring efforts are provided in Section 6.5.

[8] Use of the abbreviation "CIMP" will refer to both CIMPs and IMPs for the remainder of this form.

(c) **Identification of Non-Direct Measurements Utilized**: Identify the measurements utilized within the report that were not directly taken as part of the CIMP (e.g., wet weather flow data, precipitation data, etc.). Additionally, discuss any problems with obtaining non-direct measurements and their resolution.

NA

(d) **Regional and Special Studies**: Summarize any regional and/or special studies conducted as part of meeting the CIMP requirements. Include and/or attach to this report any data not previously submitted to the Regional Water Board.

The NSMBCW EWMP Group continues to participate in the regional bioassessment study for Southern California Stormwater Monitoring Coalition (SMC), the various studies conducted as part of the Southern California Bight 2013 (Bight '13) Regional Monitoring Program, and other relevant coastal studies overseen by the Southern California Coastal Water Research Project (SCCWRP). SCCWRP provides updates and presentations on all of their studies to their governing board, the SCCWRP Commission, of which the Los Angeles Regional Water Quality Control Board Executive Officer and State Water Resources Control Board staff are members. SCCWRP makes all of their research reports available on their website at the Documents link http://www.sccwrp.org/Documents.aspx, in particular Technical Reports and Bight Documents links. Additionally, because the State is also involved in many of the studies, SCCWRP also ensures all study data is formatted and submitted to California Environmental Data Exchange Network (CEDEN) http://www.ceden.org/. Both the City of Malibu and County of Los Angeles have actively participated in Bight '13 studies for ASBS and Shoreline Microbiology. The reports associated with studying the ASBS (Technical Reports 816- Bioaccumulation, 817- Plumes, 818- Rocky Intertidal, 852- Regional Monitoring Year 2, and 853- Post Storm Reference) were finalized in 2014 and 2015. The Shoreline Microbiology Study aims to assess the reliability of the rapid real-time polymerase chain reaction (qPCR) test method and the percentage of beach discharges with significant human fecal pollution. The monitoring portion is complete; however the report is anticipated to be finalized in 2017. Additionally, the Regional Bioassessment Survey of the SMC is still being conducted. The workplan is available here http://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/849_SMCWorkplan2015.pdf.

6.2 **Quality Assurance/Quality Control**: Summarize Quality Assurance/Quality Control (QA/QC) results and actions to address any QA/QC issues that arose during the year. Potential issues include:

- Holding Time
- Contamination
- Precision
- Summary of Qualified Data (if necessary)

There are no event monitoring data to report for this reporting period; therefore quality assurance/quality control (QA/QC) data and associated discussion will not be available until next year.

6.3 **Assessment of Monitoring Data**: Assess the results of receiving water and stormwater outfall data and summarize the implementation of the non-stormwater program and assess non-stormwater monitoring data. Include and/or attach to this report any data not previously submitted to the Regional Water Board.

All monitoring data and associated metadata must be summarized in an Excel spreadsheet and sorted by watershed, subwatershed, monitoring station/outfall identifier linked to a watershed map, and monitoring condition (wet weather receiving water, dry weather receiving water, storm water outfall, and non-stormwater outfall). The data summary must include the date, sample type, (flow-weighted composite, grab, field measurement), sample start and stop times, parameters, analytical method, value, and units.

Special Protections Monitoring for Areas of Special Biological Significance (ASBS) 24

For the 2015-2016 reporting period, the County of Los Angeles and the Los Angeles County Flood Control District performed Special Protections Monitoring for Areas of Special Biological Significance (ASBS) 24, which consisted of monitoring two outfalls (ASBS-016 and ASBS-028) and the corresponding ocean receiving water locations (ASBS-SO1 and ASBS-SO2, respectively).

An analysis of the monitoring data and the report is included with the County's Individual Form. The analysis indicated that alterations of natural water quality for selenium, polycyclic aromatic hydrocarbons (PAHs), and silver had occurred. Selenium and PAHs at similar concentrations had already been identified and addressed in the ASBS Compliance Plan, which is being fully implemented by the Permittees. The State Water Resources Control Board Resolution No. 2012-0031 Section A.2.h.4, amending the General Exception to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, states "As long as the discharger has complied with the procedures described above and is implementing the Storm Water Management Program (SWMP) or Storm Water Pollution Prevention Plan (SWPPP), the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent." Therefore, no actions beyond those identified in the ASBS Compliance Plans are necessary for selenium and PAHs. Although an alteration of natural water quality for silver was identified, the data shows that concentrations of silver in the stormwater discharges were lower than the corresponding concentrations in the ASBS, clearly indicating that the alteration was not due to stormwater discharges. The report and monitoring data were submitted to the Los Angeles Regional Water Quality Control Board on October 3rd, 2016.

The City of Malibu also conducted Special Protections Monitoring for ASBS 24 during the 2015-2016 reporting period. Two storm events were successfully monitored during 2016, which included the ocean receiving water location (24-BB-03R) and the corresponding outfall (24-BB-03Z), as well as one monitored event at an additional outfall (24-BB-02Z).

The monitoring results and analysis of compliance with the natural water quality is included with the City of Malibu's Individual Form. The analysis indicated that alterations of natural water quality for selenium occurred at receiving water location 24-BB-03R, which is consistent with Los Angeles County's receiving water sites. Selenium was already identified and addressed in the ASBS Compliance Plan. The concentrations of selenium in both the outfall and receiving water samples from the 2016 monitored events continued to be well below the Ocean Plan Table 1 Instantaneous Maximum limitations, so additional controls are not required to achieve pollutant load reductions, which is explained in detail in the ASBS Compliance Plan.

Monitoring was conducted for the Malibu Creek Watershed Trash TMDL, Santa Monica Bay Beaches Bacteria TMDL, and Malibu Creek and Lagoon Bacteria TMDL during the reporting year; details on these monitoring efforts are provided in Section 6.5. Any results above the WQOs will be addressed through the implementation of the EWMP or the adaptive management process.

(a) **Assessment of Receiving Water Monitoring Data**: Provide an assessment as to whether wet-weather receiving water quality within the watershed is improving, staying the same, or declining, when normalized for variations in rainfall patterns. The assessment may compare water quality data from the reporting year to previous years with similar rainfall patterns, trends analysis, draw from regional bioassessment studies, or use other means to develop and support conclusions. Also provide an assessment as to whether receiving water quality within the watershed management group is impaired, improving, staying the same, or declining during dry-weather conditions.

Data from all receiving water sites would be assessed in this section. Water quality improvements or degradation would be identified. If aquatic toxicity was confirmed and a TIE was conducted, the toxic chemicals as determined by the TIE, will be identified. All relevant data will be included in an appendix to allow the Regional Water Board to review the adequacy and findings of the TIE, including, but not be limited to, the sample(s) date, sample(s) start and end time, sample type(s) (flow-weighted composite, grab, or field measurement), sample location(s) as depicted on the map, the parameters, the analytical results, and the applicable limitation.

For WMPs/EWMPs, this assessment should focus on Category 1, 2, and 3 Water Body-Pollutant Combinations.

There are no event monitoring data to report for this reporting period. Monitoring was conducted for the Malibu Creek Watershed Trash TMDL, Santa Monica Bay Beaches Bacteria TMDL, and Malibu Creek and Lagoon Bacteria TMDL during the reporting year; details on these monitoring efforts are provided in Section 6.5. The NSMBCW EWMP Group is not aware of reliable methods for normalizing wet weather receiving water monitoring results for variations in rainfall patterns, but would welcome guidance from the Regional Board on how to address this issue in future annual reports.

Any results above the WQOs will be addressed through the implementation of the EWMP or the adaptive management process.

(b) **Assessment of Stormwater Outfall-based Monitoring Data**: Provide an assessment as to whether the quality of stormwater discharges as measured at designated outfalls is improving, staying the same, or declining. The assessment may compare water quality data from the reporting year to previous years with similar rainfall patterns, conduct trends analysis, or use other means to develop and support its conclusions (e.g., use of municipal action levels as provided in Attachment G of the Permit).

Data from all stormwater outfalls sites shall be assessed in this section. If aquatic toxicity was confirmed and a TIE was conducted, the toxic chemicals as determined by the TIE, will be identified. All relevant data will be included in an appendix to allow the Regional Water Board to review the adequacy and findings of the TIE, including, but not be limited to, the sample(s) date, sample(s) start and end time, sample type(s) (flow-weighted composite, grab, or field measurement), sample location(s) as depicted on the map, the parameters, the analytical results, and the applicable limitation.

For WMPs/EWMPs, this assessment should focus on Category 1, 2, and 3 Water Body-Pollutant Combinations.

Implementation of the stormwater outfall monitoring as identified by the CIMP began in July 2016. Data needed to perform this assessment is not available for this reporting period but will be addressed in the next Annual Report covering July 2016 through June 2017. Any results above the WQOs will be addressed through the implementation of the EWMP or the adaptive management process.

(c) **Non-stormwater Outfall Screening and Monitoring Program Implementation and Assessment of Monitoring Data**: Summarize the implementation of the non-stormwater outfall screening and monitoring program and assess monitoring data collected as part of the program. The summary of program implementation shall include:

- The number and percentage of source identifications completed and their outcome.
- The number of outfalls where significant non-stormwater discharge was attributed to other NPDES permitted discharges; other authorized non-stormwater discharges; or conditionally exempt discharges pursuant to Part III.A of the Permit.
- An assessment of the effectiveness of the Permittee(s) control measures in effectively prohibiting non-stormwater discharges through the MS4 to the receiving water.
- The status of multi-year efforts related to the non-stormwater outfall screening and monitoring program that were not completed within the current year and will continue. Further details may be included in individual forms submitted by Permittees.

Data from all non-stormwater outfalls sites shall be assessed in this section. If aquatic toxicity was confirmed and a TIE was conducted, the toxic chemicals as determined by the TIE, will be identified. All relevant data will be included to allow the Regional Board to review the adequacy and findings of the TIE, including, but not be limited to, the sample(s) date, sample(s) start and end time, sample type(s) (flow-weighted composite, grab, or field measurement), sample location(s) as depicted on the map, the parameters, the analytical results, and the applicable limitation.

Refer to Table 4a. Ten major outfalls were screened, of which 3 were screened this reporting year. There were no significant non-stormwater discharges.

The non-stormwater outfall screening and monitoring program as described in the approved CIMPs is in progress. Pursuant to Parts II.E.3 and IX.D.1 of the Monitoring and Reporting Program and Section 4 of the CIMP, no further assessment or monitoring of the major outfalls was required because no significant non-stormwater flows were observed. As a result, there were no conditionally exempt non-stormwater discharges, as identified in Part III.A.2.b of the Permit, that were determined to cause or contribute to an exceedance of receiving water limitations or water quality based effluent limits (WQBELs). If significant non-stormwater discharges are found during outfall screening it is expected that future Annual Reports will include a detailed description of efforts made to eliminate discharges that do not meet applicable WQOs as more data are collected and analyzed.

6.4 **Identification of Exceedances**: Summarize all identified exceedances of (1) outfall-based stormwater monitoring data, (2) wet weather receiving water monitoring data, (3) dry weather receiving water data, and (4) non-stormwater outfall monitoring data against all applicable receiving water limitations, water quality-based effluent limitations, non-stormwater action levels, and aquatic toxicity thresholds (as defined in Sections XII.F and G of the MRP).

Cause or Contribute
Where Receiving Water Limitations were exceeded, a description of efforts that were taken to determine whether discharges from the MS4 caused or contributed to the exceedances shall be provided. The Group shall summarize all receiving water exceedances (as shown in Example Table 3); the Group shall also summarize monitoring results for all outfalls upstream of the receiving water monitoring site with an exceedance (Example Table 4). Any of the conditionally exempt non-stormwater discharges identified in Section 4.3 that are a source of pollutants that causes or contributes to an exceedance of applicable receiving water limitations and/or water quality-based effluent limitations shall be identified in this section.

Outfall Data
Additionally, outfall-based stormwater monitoring data will be compared to municipal action levels (MALs), and those sub watersheds with a running average of twenty percent or greater of exceedances of the MALs listed in Attachment G of the Permit in discharges of stormwater from the MS4 will be identified. All sample results that exceeded one or more applicable thresholds shall be identified (e.g. all outfalls exceeding receiving water limitations shall be summarized whether or not there is a downstream receiving water exceedance, as shown in Example Table 5).

The NSMBCW EWMP Group understands this question to apply only to event monitoring data for paired outfall and receiving water sites identified in the CIMP. TMDL monitoring has been ongoing and is reported in Section 6.5. Implementation of the receiving water and outfall event monitoring as defined by the CIMP began in July 2016, after the reporting period. Data applicable to Section 6.4 is not available to summarize. Actions taken in response to TMDL coordinated monitoring observations are described in the response to Section 6.6 in the Watershed Form.

6.5 **TMDL Provisions and WMP/EWMP Milestones**: Report on progress towards achieving interim or final milestones, water quality-based effluent limitations, and receiving water limitations based on applicable compliance schedules in Attachments L-R of the LA County MS4 Permit and any additional milestones and corresponding deadlines in an approved WMP/EWMP.

TMDL reporting items required per the applicable schedules outlined in Attachment E, Section XIX.A through XIX.G of the Permit may be provided here or as an attachment to this report.

Malibu Creek Trash TMDL Reporting Requirements

The Malibu Creek Trash Monitoring and Reporting Plan (TMRP) began as a collaborative effort between the Cities of Calabasas, Malibu, Westlake Village, Agoura Hills, and Hidden Hills, and the County of Los Angeles. With the implementation of the two CIMPs, monitoring is still being conducted similarly, but is now under separate agreements, and agencies will continue to communicate amongst each other regarding the program for consistency where possible. Please note that the following statements apply to all sites in the Malibu Creek Watershed, and not just NSMBCW, because the agencies were all cost sharing under a memorandum of understanding for implementation of this program through June 30, 2016, the end of this reporting year. Only narrative and data specific to the NSMBCW EWMP will be reported in the Annual Report in the future, unless otherwise noted.

The Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL) requires several items to be included in each annual report, which are to be submitted beginning one year after approval of the required TMRP. The responsible jurisdictions submitted their TMRP in April 2010 and it was approved in May 2014 by the Regional Board. The TMRP detailed the Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program the responsible jurisdictions planned on implementing. Implementation of the TMRP began as required by the Trash TMDL (*i.e.*, six months after approval of the program) with execution of a Memorandum of Understanding in November 2014 and the first monitoring events occurring in December 2014. The approved Malibu Creek TMRP stated that a monitoring report would be prepared one year from the start of the required monitoring (December 2015) and the Monitoring and Reporting Program of the Permit (Attach. E, Section XIX.B., p. E-47) states a due date of December 15, 2013, and annually thereafter. December 2013 was actually prior to the TMRP being approved by the Regional Board; therefore, the responsible jurisdictions provided a progress report in the annual report of December 2015 with the first full year of data. Additionally, the NSMBCW and Malibu Creek CIMPs and EWMPs were still in development during December 2015, so the following

information is now being provided to meet the reporting requirements of the Trash TMDL and the Permit. This current Annual Report also includes results of monitoring at sites in the NSMBCW EWMP only through June 30, 2016.

Baseline WLA Establishment

Per the Trash TMDL, the required TMRP shall include a plan to establish the trash baseline waste load allocations (WLAs) for non-Caltrans entities, or an alternative to the default trash baseline established for Caltrans to prioritize installation of full capture devices, as per the TMDL. The responsible jurisdictions submitted their TMRP with a plan to establish a baseline WLA. The TMRP stated that data from the first year of monitoring would be used to establish a baseline WLA and the baseline WLA would be provided in the first annual report. As the TMRP was not approved until May 2014, after the date indicated in the TMDL schedule, the responsible jurisdictions began installing full capture devices to meet the point source requirements of the Trash TMDL without establishing a baseline WLA. Full capture device installation was prioritized based on the known high trash generating areas within each jurisdiction or, in the case of City of Malibu, full capture devices were included in the construction of the Civic Center Stormwater Treatment Facility project which was completed prior to adoption of the TMDL. The responsible jurisdictions will continue to install full capture devices to meet the point source requirements of the Malibu Creek Trash TMDL and are not proposing to use a baseline WLA to prioritize installation. In addition, as the responsible jurisdictions are using full capture devices to address point sources, they do not need a baseline WLA value from which they would assess compliance (*e.g.*, showing a 100 percent reduction in trash from a baseline WLA value by July 2017).

MFAC/BMP Program Effectiveness Assessment

As required by the Trash TMDL and outlined in the TMRP, a further assessment of MFAC/BMP Program effectiveness was to be conducted after each year of monitoring. As the TMRP was not approved until 2014, the responsible jurisdictions did not submit annual monitoring reports between 2010 and 2014 and did not conduct a MFAC/BMP Program effectiveness assessment during this period. However, the responsible jurisdictions modified their BMP implementation to address trash in the Malibu Creek Watershed based on trash monitoring data as a form of adaptive management. The TMRP listed the following process for documenting the implementation of BMPs and identifying their effectiveness:

1. Identification of the BMP (*e.g.*, street sweeping, trash collection, trash cans, full or partial capture device) and general location(s) of the activity.
2. Documentation of the time frame for specific BMPs (*i.e.*, when the activity was initiated or when device was installed, frequency of activity if applicable).
3. Assessment of the number and types of BMPs occurring in the drainage area for each of the monitoring locations.
4. Comparison of monitoring results between monitoring locations (i.e., comparing types and numbers of BMPs and the volumes of trash accumulated across the drainage areas).
5. Comparison of monitoring results between events before and after BMP implementation.

An attempt was made to assess differences between trash levels at monitoring sites with BMPs in the associated drainages and monitoring sites without BMPs. By comparing and contrasting sites with BMPs to those without, it was thought the responsible parties might be able to identify the most effective BMPs and/or where additional BMP implementation may be needed. Additionally, as BMPs were implemented during the monitoring period, trash levels before and after BMP implementation were to be assessed to determine effectiveness. Subsequently, to measure the effectiveness of BMPs over a period of time, attempts were made to determine if a correlation existed between the amount of trash collected at a site to the number (and type) of BMPs being implemented between each event at or near that site.

Given the broad nature of most of the BMPs implemented to date (*e.g.*, education programs, ordinances, street sweeping, etc.), the highly variable amounts of trash collected from December 2014 to June 2016, and the relatively short time frame that full capture devices have been installed, trends were not identified in the monitoring data that could be used to determine effectiveness of individual BMPs. In addition, trash monitoring from the past two years indicates that trash levels are highly variable. **Table 1** lists the trash pieces collected per monitoring year from December 2014 to June 2016. As such, the implementation of the MFAC/BMP Program is not clearly reflected in the trash monitoring results and program implementation continues to be evaluated to consider these results. However, the MFAC Program resulted in zero trash in-stream and on-bank immediately after all monitoring events as required by the Trash TMDL for non-point sources. Therefore, the MFAC/BMP Program is effective for meeting the non-point source requirements of the Trash TMDL.

Table 1. Trash Data Collected December 2014 to June 2016 for the Entire Malibu Creek Watershed TMRP

Year/Month	Total Volume (Gallons)	Total Weight (Pounds)
2014		
December	11.7	471
Annual Total	**11.7**	**471**
2015		
January	7.9	217.1
February	4.5	87.1
March	5.2	172.5
April	7	57.5
May	3.5	19.6
June	4.3	27.3
July	4.9	56.5
August	3.9	87.4
September	9.6	135.9
October	1.9	17.9
November	3.7	32.7
December	3.4	48.4
Annual Total	**59.6**	**959.9**
2016		
January	7.4	155
February	4.6	57.1
March	9.1	182
April	4.4	41
May	4.6	88.3
June	1.7	8.5
Annual Total	**31.6**	**531.9**

Malibu Creek Watershed trash monitoring sites specifically within the NSMBCW EWMP Area

Compliance Monitoring Sites (CMS) are specific locations within listed waterbodies. CMS_ML_1 was selected for its proximity to the only major MS4 outfall in the Malibu Creek Watershed within the City of Malibu and to determine effectiveness of the BMPs installed. General Assessment Sites (GAS) are monitoring locations chosen to further identify high trash generating areas and supplement the information gathered at the CMS. GAS_ML_1 was chosen as a site not near an outfall and due to its proximity to Malibu Lagoon and a shopping plaza. These two sites have been monitored from December 22, 2014 until present.

For the reporting period presented in this annual report, trash was monitored from July 13, 2015 to June 27, 2016. Sampling occurs at CMS_ML_1 every two weeks and at GAS_ML_1 twice per reporting year. At each site, trash is collected at two points: in-stream and on-bank. Trash count, weight, and volume were recorded during each sample event at all locations. Trash volume (non-compacted) was measured using 42-gallon contractor garbage bags. See **Table 1Table 2** for summary statistics of the trash volume and weight collected at the two sites from July 13, 2015 to June 27, 2016.

Table 2. Statistics for Total Trash Data Collected at CMS_ML_1 and GAS_ML_1 from July 2015 to June 2016

CMS_ML_1				
	On-Bank (gal)	**On-Bank (lbs)**	**In-Stream (gal)**	**In-Stream (lbs)**
Min	0	0	0	0
Max	10.5	2	4.2	1.5

Mean	1.23	0.18	0.87	0.08
Mode	0	0	0	0
Total	35.7	5.35	25.2	2.3

GAS_ML_1				
	On-Bank (gal)	**On-Bank (lbs)**	**In-Stream (gal)**	**In-Stream (lbs)**
Min	42	10	0	0
Max	84	75	0	0
Mean	70	36.33	0	0
Mode	84	NA	0	0
Total	210	109	0	0

At CMS_ML_1, a total of 35.7 gallons of trash (0.85 of a bag) was collected from the bank, and a total of 25.2 gallons of trash (0.6 of a bag) was collected in-stream for the entire year. September 14, 2015 yielded the greatest volume on-bank with 10.5 gallons (0.25 of a bag). For in-stream, 6 events each had 4.2 gallons (0.1 of a bag) of trash as the greatest volume. At GAS_ML_1, a total of 210 gallons of trash was collected from the bank, and no trash was found in-stream. Two events each had 84 gallons of trash as the greatest volume on-bank.

The results indicate that on average, less than a pound of litter needs to be collected per event either on-bank or in-stream of CMS_ML_1. Therefore, trash is not accumulating in a deleterious amount. A reduction in the frequency of collection and assessment is warranted and may be considered. Additionally, State Parks will be notified and encouraged again to participate in this monitoring program on their property. GAS_ML_1 is only monitored twice per year, so this data provides an indication of how much litter may accumulate over the course of a year in an area without an MS4 outfall, and known for illegal dumping and vagrancy. The City will contact the private property owner to determine the best course of action to address this site.

As demonstrated in the data, there is no clear pattern or correlation observed for source of materials or effectiveness of the BMPs installed or implemented. Further, the variety and types of materials identified is indicative of general littering by people recreating or illegally camping on State parkland and vacant property. The trash sampling data is provided in Appendix B.

Since all City and County MS4s in the area tributary to Malibu Creek and Lagoon within the EWMP area are diverted to the Civic Center Stormwater Treatment Facility and Legacy Park, compliance with the WLA is being met for these agencies by full capture. In addition, the County of Los Angeles completed the installation of 29 Connector Pipe Screens through the Phase 8 Trash TMDL Catch Basin Retrofit Project in June 2015 for the Malibu Creek Watershed.

Santa Monica Bay Beaches Bacteria TMDL

Fecal Coliform (analyzed as *E. coli*), Enterococcus, and Total Coliform water sampling data, collected by the City of Los Angeles and Los Angeles County Department of Public Health under the Santa Monica Bay Beaches Coordinated Shoreline Monitoring Program (SMBB CSMP), were compiled and reviewed to assess results against applicable WQOs. The sampling data was obtained at 24 receiving water locations within TMDL jurisdiction groups 1, 4 and 9 between April 1, 2005 and March 31, 2016. *E. coli* samples were collected to indicate Fecal Coliform concentrations while Enterococcus and Total Coliform matched their prescribed analytical requirements. Sample data was compiled and compared with respect to sampling periods according to the TMDL and individual locations. Results are described in relation to total populations for sampling periods. Where applicable, individual receiving water locations are detailed. Detection levels, results detected above the WQOs, and trends are further compared to goals set forth by the TMDL.

The following three sub-sections detail the concentration results pertaining to each bacteria type.

Fecal Coliform (E. coli)

Summer dry weather Fecal Coliform samples totaled 9,583 from the 24 receiving water locations over the 11-year period. Summer dry weather values range between non-detect (ND) to 24,192 most probable number per 100 milliliters (MPN/100 ml). Seven percent of samples (n = 644) were above the marine water fecal coliform WQO (400 MPN/100ml). Of the 24 receiving water sample locations, 21 sites had at least one Fecal Coliform result above the WQOs. Site SMB-MC-2 has a frequency of results higher than the WQO of 39% (n = 254) while SMB-1-02, SMB-1-03, and SMB O-2 did not have a single value above the WQO. Linear trend analysis depicts a negative slope trend (m = -0.0677) with an r-squared value (R^2

[population fit]) of 0.0114. The negative trend may be biased by accelerated sampling methodologies; however, Fecal Coliform detection frequency and results above the WQO are lower in recent years (2013-2015).

Winter dry weather Fecal Coliform results (n = 6,902) range from ND to 13,000 MPN/100 ml over the 11-year period. Eleven percent (n =749) of samples from 23 of the 24 receiving water locations were above the WQO. SMB-4-1 is the only location not to have a winter dry weather Fecal Coliform result above the WQO. The majority of results higher than the WQO are scattered and do not show cyclic trends. Linear trend analysis calculates a negative flat slope trend (m = -.0019) with a less than 1% population fit ($R^2 = 9X10^{-6}$).

Wet weather results amounted to 2,823 samples with results ranging from ND to 13,000 MPN/100ml. Eleven percent of the population (n = 304) was above the WQO from 21 receiving water sites. Linear trend analysis shows clustering related to rainfall events with a mildly negative linear trend (m = -0.1038) and a 1% population fit (R^2= 0.0177).

Review of all captured data depicts mild increases in fall and winter months. Linear trend analysis depicts an overall mildly negative slope trend (m= -0.0501) with a less than 1% population fit (R^2= 0.0058). Overall, a 4% increase above WQOs occurs during winter wet weather periods.

Enterococcus

Summer dry weather sampling totaled 10,505 results from the 24 receiving water locations over the 11-year period. Enterococcus values range between ND and 12,997 MPN/100 ml. All 24 receiving waters contain two or more sample results above the Enterococcus WQO (104 MPN/100ml). A total of 1,131 results higher than the WQO occurred over the 11-year period. SMB-1-18 has the highest number (n = 253 [22% of population of values above the WQO]). Random spikes are observed at SMB-1-05 and SMB-1-08. Linear trend analysis shows a mild negative trend (m = -0.0228) with a population fit of about 1% (R^2= 0.0108). The frequency of results higher than the WQO decreases from 2013 onward. Mild frequency decreases are also present in years prior to 2013 (2007 and 2009).

Winter dry weather results for Enterococcus (n = 5,971) range from ND to 24,192 MPN/100ml over the 11-year period. Sixteen percent (n = 948) of samples were higher than the WQO with SMB-1-18 having the highest frequency (n = 172 [18% of population]). Linear trend analysis shows a scattered, mildly negative trend (m = -0.0144) with a less than 1% population fit (R^2 = 0.0021). Concentration spikes are observed at SMB-1-01 and SMB-MC-3 during 2015.

Enterococcus results from wet weather sampling (n = 2,825) range from ND to 24,196 MPN/100ml. All 24 receiving water sites show at least 3 or more results above the WQO. SMB-MC-2 has the highest frequency with 256 occurrences, equaling 84% of the population for the 11-year period. Linear trend analysis of wet weather sampling indicates a negative sloped trend (m = -0.0798) and a population fit of less than 1% (R^2= 0.0075).

Review of all captured data depicts a mild increase in detection frequency in fall and winter months. Linear trend analysis displays an overall mildly negative slope (m= -0.0325) with a less than 1% population fit (R^2= 0.0057).

Total Coliform

Total Coliform summer dry sampling totaled 10,083 with results ranging from ND to 24,196 MPN/200ml. There was a total of 325 results above the WQO (10,000 MPN/100ml) out of the 24 receiving water locations. The majority of results above the WQO are from SMB-MC-2 (n = 158 [49%]). Other sites with results higher than the WQO have concentrations that double those of SMB-MC-2. Linear trend analysis shows a mild negative trend (m = -0.4353) with a 3% population fit (R^2= 0.0337). There are periods of lower frequencies of results above water quality objectives in the years 2007, 2009, and 2013.

Winter dry sampling values show a decrease in frequency of values above the WQO from summer dry sampling. The sample population (n = 5,697) has values ranging from ND to 24,196 MPN/100ml. Seven percent (n = 32) of the sample population had results above the WQO. Linear trend analysis of the data shows a negative sloped trend (m= -0.3251) with a 3% population fit (R^2= 0.033). Frequency spikes occur periodically for multiple sites.

Wet weather results totaled 2,706 events with values ranging from ND to 24,196 MPN/100ml. Results above the WQO are concentrated at SMB-MC-2 (n = 123 [33% of the population above the WQO]) but occur at every site. Linear trend analysis shows the largest negative trend (m = -0.9616) with the highest data fit (R^2 = 0.0498). Individual receiving water results are scattered but do show a mild negative trend.

Review of all captured data depicts mild increases in fall and winter months. Linear trend analysis shows an overall negative slope (m= -0.5102) with at least 3% population fit (R^2= 0.037).

Trends, Goals & Conclusions

Results that were higher than the associated bacteria water quality objectives for Fecal Coliform, Enterococcus and Total Coliform were identified within all 24 receiving water sites populations. A total of 3,068, 1,697, and 788 results that were above the WQO occurred during the 11-year period for Enterococcus, Fecal Coliform, and Total Coliform, respectively.

Number and percentages of results that are above WQO per site are listed below.

Receiving Water Site	Fecal Coliform Number of Results Above WQO	Fecal Coliform Percentage of Results Above WQO	Enterococcus Number of Results Above WQO	Enterococcus Percentage of Results Above WQO	Total Coliform Number of Results Above WQO	Total Coliform Percentage of Results Above WQO
SMB O-1	9	0.5%	38	1.2%	3	0.4%
SMB O-2	3	0.2%	23	0.7%	2	0.3%
SMB-1-01	56	3.3%	83	2.7%	9	1.1%
SMB-1-02	4	0.2%	15	0.5%	2	0.3%
SMB-1-03	2	0.1%	13	0.4%	3	0.4%
SMB-1-04	8	0.5%	65	2.1%	19	2.4%
SMB-1-05	16	0.9%	58	1.9%	10	1.3%
SMB-1-06	21	1.2%	44	1.4%	12	1.5%
SMB-1-07	45	2.7%	164	5.3%	23	2.9%
SMB-1-08	121	7.1%	186	6.1%	43	5.5%
SMB-1-09	17	1.0%	93	3.0%	11	1.4%
SMB-1-10	34	2.0%	113	3.7%	16	2.0%
SMB-1-11	10	0.6%	57	1.9%	9	1.1%
SMB-1-12	90	5.3%	289	9.4%	104	13.2%
SMB-1-13	22	1.3%	73	2.4%	15	1.9%
SMB-1-14	20	1.2%	52	1.7%	16	2.0%
SMB-1-15	16	0.9%	84	2.7%	3	0.4%
SMB-1-16	5	0.3%	22	0.7%	4	0.5%
SMB-1-17	5	0.3%	16	0.5%	3	0.4%
SMB-1-18	410	24.2%	622	20.3%	132	16.8%
SMB-4-01	2	0.1%	21	0.7%	3	0.4%
SMB-MC-1	20	1.2%	54	1.8%	12	1.5%
SMB-MC-2	696	41.0%	715	23.3%	313	39.7%
SMB-MC-3	65	3.8%	168	5.5%	21	2.7%
Total Results Above WQOs	1,697		3,068		788	

SMB-MC-2 shows the highest frequency of results that are higher than the WQOs, though it does not always exhibit the highest concentration. Frequency is the lowest in summer dry sampling periods and increases, on average, in winter dry

weather periods (1 to 4% per sample population). Wet weather sampling shows the highest frequency, ranging between 4 and 15% per bacteria sample population.

At the moment, TMDL bacteria concentration results contain too high of a variance for accurate trend identification and calculation. Data sets for Fecal Coliform, Enterococcus, and Total Coliform have 3-orders of magnitude difference between minimum and maximum values within their respective data sets. High variance combined with rapid changes in the sample bacteria concentration inhibit identification of cyclic trends. Moreover, paucity of wet weather events and accelerated sampling methodologies may cause population variances and further inhibit future trend analysis.

The results for all bacteria types were summed for all locations, and trends were analyzed per weather period and overall. Summer dry results for all bacteria types from 2004-2016 display a high negative slope of m= -23.245, with a nearly 47% population fit (R^2= 0.4665). Winter dry results followed a negative slope (m= -5.8462) with a population fit of 21% (R^2= 0.2114). Results during wet weather events from 2004-2016 form a negative slope (m= -17.381) with a strong population fit (R^2= 0.4752). When looking at the aggregate of weather periods, the total data follows a high negative slope of m= -46.472 with a 49% population fit (R^2= 0.4909). Based on the linear trend analysis and population fit values, all four data sets show large decreases over time.

Malibu Creek and Lagoon Bacteria TMDL

Fecal Coliform, Enterococcus, and Total Coliform water sampling data, collected by the County of Los Angeles, were compiled and reviewed to assess results and trends with respect to TMDL requirements. The sampling data was obtained at 11 different locations between April 7, 2009 and March 29, 2016 in accordance with the compliance monitoring plan. Only one site is located in the NSMBCW Watershed: MCW-1. All other sites are located in the Malibu Creek Watershed and will not be analyzed herein. Sample data was compiled and compared with respect to sampling periods and individual locations.

Fecal Coliform

During the 7-year sampling period, 378 samples of Fecal Coliform were taken: 213 during summer dry, 118 during winter dry, and 47 during wet weather. Summer dry results range from 10 to 5,000 MPN/100ml with an average value of 255 MPN/100ml. Winter dry weather concentrations range between 10 and 9,000 MPN/100ml and hold an average of 378 MPN/100ml. Wet weather results range from 40 to 9,000 MPN/100ml with an average concentration of 1,356 MPN/100ml. Twenty-three percent (n= 86) of the sample population had results above the WQO (400 MPN/100ml). Results higher than the WQO were greater during winter dry and wet weather sampling. Linear trend analysis depicts flat to negative sloped trends with low population fits for summer dry, winter dry, and wet weather periods (m= -0.0165, m= 0.0826, and m= -0.4689, respectively; R^2= 0.0205, R^2= 0.0044, and R^2= 0.02, respectively).

Enterococcus

A total of 378 Enterococcus samples were collected: 214 during summer dry months, 118 during winter dry months, and 46 during wet weather events. For summer dry results, concentrations range between 5 and 2,909 MPN/100 ml and hold an average of 60 MPN/100 ml. Winter dry results range from 5 to 3,255 MPN/100ml with an average concentration of approximately 103 MPN/100ml. Wet weather concentrations range between 5 and 4,106 MPN/100ml and have an average result of about 321 MPN/100ml. Sixteen percent (n = 60) of the sample population had results higher than the WQO (104 MPN/100 ml). Results above the WQO per sample population were greater during winter dry and wet weather sampling. Linear trend analysis depicts flat to slightly negative sloped trends with low population fits for summer dry, winter dry, and wet weather periods (m= -0.0591, m= 0.107, and m= 0.1626, respectively; R^2= 0.0304, R^2= 0.0541, and R^2= 0.0162, respectively).

Total Coliform

Total Coliform samples totaled 378: 213 during summer dry months, 118 during winter dry months, and 47 during wet weather events. For summer dry results, concentrations range from 10 to 16,000 MPN/100ml with a mean result of 1,846 MPN/100ml. Winter results range between 40 and 16,000 MPN/100ml with an average result of 1,975 MPN/100ml. Lastly, wet weather concentrations range from 110 to 16,000 MPN/100ml with an average of 6,685 MPN/100ml. Twenty-two results were above the WQO (10,000 MPN/100ml), equaling about 6% of the sample population. Linear trend analysis shows flat to negative trends in summer and winter dry weather periods, while wet weather shows a positive sloped trend (m= -0.7035, m= 0.0791, and m= 3.6489, respectively; R^2= 0.027, R^2= 0.0005, and R^2= 0.1376, respectively).

Trends, Goals & Conclusions

The results for all bacteria types were summed for all locations, and linear trends were analyzed per weather period and overall. Summer dry results for all bacteria types from 2008-2016 display a slightly negative slope of m= -1.1786, with a 57% population fit (R^2= 0.5727). Winter dry results followed a slightly positive slope (m= 1.6429) with a population fit of 68% (R^2= 0.6768). Results during wet weather events from 2008-2016 form a negative, slightly flat slope (m= -0.1786) with a very low population fit (R^2= 0.0054). When looking at the aggregate of weather periods, the total data follows a flat, positive slope of m= 0.2857 with a 0.57% population fit (R^2= 0.0057). At this time, conclusions cannot be made about the trends over time due to paucity of data and poor linear trend population fit.

At the moment, TMDL bacteria results contain too high of a variance for accurate trend identification and calculation. Data sets for Fecal Coliform, Enterococcus, and Total Coliform have 3-orders of magnitude difference between minimum and maximum values within their respective data sets. High variance combined with rapid changes in the sample bacteria concentration inhibits identification of cyclic or secular trends. Moreover, paucity of wet weather events and accelerated sampling methodologies may cause population variances and further inhibit future trend analysis.

The City of Agoura Hills submitted the Coordinated Monitoring Plan (CMP) results monthly to the Regional Board on behalf of the Permittees.

Overall Summary about the Santa Monica Bay Beaches and Malibu Creek and Lagoon Bacteria TMDLs

Evaluation of priority water quality concerns in the EWMP identified bacteria levels at Santa Monica Bay Beaches and Malibu Creek and Lagoon as key indicators of overall water quality status in the jurisdictional area. The results of trend analyses performed using bacteria TMDL monitoring data, as presented in this section, provide a basis upon which to assess whether water quality is improving, staying the same, or declining. For bacteria in Santa Monica Bay during wet weather, the results of trend analyses suggest that water quality conditions are improving because, overall, bacteria concentrations are decreasing. Similar overall trends were observed for dry weather (both summer and winter). For Malibu Creek and Lagoon, overall trends in bacteria concentrations were less consistent. This suggests that water quality is generally staying about the same.

Despite the City's intensive and ongoing actions to control non-exempt non-stormwater flows, some bacteria concentrations in adjacent water bodies remain above dry weather WQOs. Some of these conditions may be due to factors beyond the City's control (e.g., natural sources), and staffs of the City and Regional Board have discussed ways that such conditions might be addressed from a regulatory perspective in the future.

Santa Monica Bay Nearshore and Offshore Debris TMDL

The Permit MRP requires the Permittees to develop a TMRP for Regional Board approval, which describes the methodologies that will be used to assess and monitor trash in their responsible areas within the Santa Monica Bay watershed management area (WMA) or along Santa Monica Bay. The County of Los Angeles submitted a TMRP to the Regional Board before the TMDL-specified deadline of September 20, 2012 and subsequently received a letter from the Regional Board on October 20, 2014 that approved the request for an exemption from preparing a TMRP. The letter also stated that the TMRP for Malibu Creek submitted by the County of Los Angeles qualifies as meeting requirements for the Santa Monica Bay Debris TMDL. In addition, for the plastic pellet portion of the TMDL, the City of Malibu submitted a request to the Regional Board on September 19, 2013 to be exempt from the TMDL requirement to conduct monitoring for plastic pellets because the City of Malibu has no industrial facilities or activities related to the manufacturing, handling, or transportation of plastic pellets within its jurisdiction, and has limited commercial and/or industrial transportation corridors related to such activities. The same is true of the County within the NSMBCW EWMP Area. As a result, in a letter dated October 20, 2014, the Regional Board approved the exemption request and monitoring for plastic pellets within the NSMBCW area will not be conducted by the NSMBCW EWMP Group.

Santa Monica Bay TMDL for DDTs and PCBs

The Permit MRP requires the Permittees to develop a Monitoring and Reporting Plan for Regional Board Executive Officer approval that describes the methodologies that will be used to monitor and assess suspended sediment for DDT and PCBs.

Santa Monica Bay Offshore/Nearshore is 303(d)-listed for sediment toxicity. However, the USEPA PCB and DDT TMDL states the following regarding sediment toxicity: "There is little evidence of sediment toxicity in Santa Monica Bay. Our evaluation of the data showed only 3 out of 116 samples exhibited toxicity. Following the California Listing Policy, Santa Monica Bay is meeting the toxicity objective and there is sufficient evidence to delist sediment toxicity. We therefore make a finding that there is no significant toxicity in Santa Monica Bay and recommend that Santa Monica Bay not be identified

as impaired by toxicity in the California's next 303(d) list." For this reason, sediment toxicity was excluded as a Category 2 pollutant, and excluded from the NSMBCW EWMP and RAA.

Further, the load-based WQBELs for DDTs and PCBs established by the TMDL were set equivalent to the estimated existing stormwater loads (i.e., based on data used in the TMDL, no MS4 load reduction is expected to be required). As a result, it is anticipated that no reductions in DDT and PCB loading from the NSMBCW MS4s are required to meet the TMDL WQBELs and compliance is being met.

6.6 **Efforts to Address Exceedances**: The previous sections summarized all activities completed during the Reporting Year. This section shall be used to link the aforementioned activities to specific exceedances identified within the Reporting Year. The section may reference activities discussed within Section 7 and would also include the following:

- A description of efforts that were taken to address stormwater discharges that exceeded one or more applicable water quality based effluent limitations, or caused or contributed to Aquatic Toxicity.
- Where Receiving Water Limitations were exceeded, a description of all efforts that were taken to control the discharge of pollutants from the MS4 to those receiving waters in response to the exceedances.
- For sub watersheds not part of a WMP or EWMP, and/or not subject to any TMDLs, where a running average of twenty percent or greater of exceedances of the MALs in any discharge of stormwater from the MS4 is present, a MAL Action Plan must be submitted with the Annual Report. Where applicable, the Action Plan should be included here.

The Watershed Group continues to implement measures to address constituents of concern as identified in the EWMP and in the report forms. Additional data collected as part of CIMP implementation will provide a better understanding of the concerns within the watershed and actions will be taken appropriately where issues are identified.

Several response actions have been taken with respect to Santa Monica Bay and Malibu Creek and Lagoon receiving water monitoring sites where results above applicable bacteria WQOs have been observed. The description of these actions presented below is organized according to specified objectives of the EWMP Group.

The following efforts were taken by the Watershed Group to eliminate MS4 discharges that may cause or contribute to results that do not meet WQOs, or to determine whether discharges from the MS4 caused or contributed to these results:

- Leo Carrillo (SMB-1-01): This reference site has been recognized as being minimally developed.

- Paradise Cove (SMB-1-07): There is no County or City MS4 tributary to this compliance site. All streets are private. Source identification studies were performed and could not identify a single source, but indicated that naturally decaying organic material was a predominant contributor to indicator bacteria. Nevertheless, the City operates a stormwater treatment facility here.

- Marie Canyon (SMB-1-12): The Los Angeles County Flood Control District installed a filtration and ultraviolet disinfection facility at the outfall of this watershed in 2008. Additionally, the EWMP discusses the various runoff prevention and elimination programs that are being implemented. The City of Malibu and County of Los Angeles are also coordinating with Pepperdine University to gain a better understanding of what improvements have been made to the campus property to reduce runoff and protect water quality, as well as any BMPs being implemented. Such information may be included in future Annual Reports where applicable.

- Surfrider Beach (SMB-MC-2): All MS4 drains have been diverted to Legacy Park in this area. There are no dry weather discharges as a result of: 1) extensive outreach and inspections of this area; and 2) any rare incidental runoff would be treated by the Civic Center Stormwater Treatment Facility, and retained and reused in Legacy Park. Wet weather discharges would only occur as a result of extraordinary back-to-back rain events that exceed the 85th percentile storm event and capacity of the Legacy Park pond. If such conditions prompted the discharge of stormwater runoff, it would be following the water being filtered and disinfected through the Civic Center Stormwater Treatment Facility.

- Malibu Pier (SMB-MC-3): There is no County or City MS4 in the tributary area. Attempts to identify sources at this site have been made by the Los Angeles County Department of Public Health and non-governmental organizations but have been minimally successful.

- Las Flores Canyon (SMB-1-14): There is limited MS4 in this area, and no major outfall. The EWMP discusses the various runoff prevention and elimination programs that are being implemented.
- Topanga Canyon (SMB-1-18): County of Los Angeles has begun design of the EWMP Viewridge Super Green Streets Project and applied for Prop 84 and Prop 1 grants to partially fund the project.
- Additionally, the EWMP, this Watershed Report, and the EWMP Group's Individual Reports discuss the various BMPs, activities, outreach, and runoff elimination programs that are being implemented continuously throughout the EWMP area which help to prevent the discharge of pollutants.

The following efforts were taken by the Watershed Group to address the discharge of pollutants from the MS4 in response to the results not meeting WQOs:

- Leo Carrillo (SMB-1-01): There is no County or City MS4 tributary to this compliance site, so no actions were taken by the EWMP Group.
- Paradise Cove (SMB-1-07): There is no County or City MS4 tributary to this compliance site. The City operates a stormwater treatment facility here, nevertheless, as a way of addressing uncontrollable sources of non-point source pollutants. The facility is capable of gross solids and sediment filtration of flows up to 3,600 gallons per minute (gpm), and ultraviolet disinfection up to 900 gpm.
- Marie Canyon (SMB-1-12): The Flood Control District has operated a low flow treatment facility that removes bacteria and sediment from Marie Canyon dry weather discharges. Although water quality sampling of discharges from the treatment facility consistently meet the dry weather bacteria WQOs, the receiving waters are still occasionally above these same objectives. Since MS4 dry weather discharges are effectively treated to eliminate bacteria and elevated bacteria levels still occur in the receiving waters (approximately 100 feet from the discharge point), natural sources probably account for the site's elevated bacteria levels.
- Surfrider Beach (SMB-MC-2): All MS4 drains that would otherwise discharge to Malibu Creek and Lagoon are diverted to the Civic Center Stormwater Treatment Facility, and the treated flows are retained or reused at Legacy Park.
- Malibu Lagoon (MCW-1): All MS4 drains that would otherwise discharge to Malibu Creek and Lagoon are diverted to the Civic Center Stormwater Treatment Facility, and the treated flows are retained or reused at Legacy Park.
- Malibu Pier (SMB-MC-3): State Parks repaired their wastewater treatment system, which is not related to the MS4. The EWMP and this report discuss the various other runoff prevention and elimination programs that are being implemented by the City of Malibu and County of Los Angeles.
- Las Flores Canyon (SMB-1-14): The City of Malibu installed a biofilter on an inlet on Las Flores Canyon Road closest to PCH. It is outfitted with a flow meter. No dry weather discharges have been observed.
- Topanga Canyon (SMB-1-18): The EWMP RAA identified this area for a Regional BMP that the County of Los Angeles is proceeding with at Viewridge. Water quality will be addressed through the adaptive management process.
- Additionally, the EWMP, this Watershed Report, and the EWMP Group's Individual Reports discuss the various BMPs, activities, outreach, and runoff elimination programs that are being implemented continuously throughout the EWMP area which help to prevent the discharge of pollutants.

The following are BMPs being implemented, modified, or proposed to be implemented to prevent or reduce the discharge pollutants from causing or contributing to results observed to not meet WQOs:

- Leo Carrillo (SMB-1-01): There is no County or City MS4 tributary to this compliance site, so no actions were taken by the EWMP Group. It is important to note that this watershed is minimally developed and is considered the reference watershed that is most representative of water quality from a natural watershed.

- Paradise Cove (SMB-1-07): There is no County or City MS4 tributary to this compliance site. The City operates a stormwater treatment facility here nevertheless.

- Marie Canyon (SMB-1-12): The assessment conducted during development of the EWMP identified this area for a wet weather BMP. Any modifications to existing BMPs or new BMPs will be addressed through implementation of the EWMP. The EWMP Group is currently working with Pepperdine University to better understand current university efforts and identify opportunities for collaboration.

- Surfrider Beach (SMB-MC-2): The Civic Center Stormwater Treatment Facility and Legacy Park prevent any pollutants from contributing to exceedances of WQOs. Pumps in the individual catchment areas were upgraded this past year to increase the diversion capacity of the system. If CIMP data indicates changes are necessary, these will be addressed through the adaptive management process.

- Malibu Lagoon (MCW-1): The Civic Center Stormwater Treatment Facility and Legacy Park prevent any pollutants from contributing to exceedances of water quality goals. Pumps in the individual catchment areas were upgraded this past year to increase the diversion capacity of the system. If CIMP data indicates changes are necessary, these will be addressed through the adaptive management process.

- Malibu Pier (SMB-MC-3): The assessment conducted during development of the EWMP identified this area for future installation of a wet weather BMP. Any additional BMPs or modifications will be addressed through the adaptive management process.

- Las Flores Canyon (SMB-1-14): The assessment conducted during development of the EWMP identified this area for future installation of a wet weather BMP. Any additional BMPs or modifications will be addressed through the adaptive management process.

- Topanga Canyon (SMB-1-18): The assessment conducted during development of the EWMP identified this area for a wet weather BMP. The County of Los Angeles is proceeding with a project at Viewridge. If CIMP data indicates that modifications are necessary, these will be addressed through the adaptive management process.

The responses in this question relate strictly to those sites where some fecal indicator monitoring results above WQOs have still been observed in adjacent receiving waters. There is additional discussion about the effectiveness of some of these BMPs included in the response to Section 7.1a of this Watershed Report. The EWMP, this Watershed Report, and the EWMP Group's Individual Reports broadly discuss the various BMPs, activities, outreach, and runoff elimination programs that are being implemented continuously throughout the EWMP area which help to prevent the discharge of pollutants overall.

- Section 12 of the City's Individual Report elaborates further on many of the efforts listed above and other activities the City has undertaken to protect water quality and ensure it is not causing or contributing to discharges, or receiving water conditions that do not meet water quality objectives.

6.7 **CIMP Adaptive Management**: This section shall be utilized to describe adaptive management of the CIMP and include:

- Identification of changes to any aspect of the CIMP (including changes to the non-stormwater outfall-based screening and monitoring program if changes are determined to be necessary during the one re-assessment required during the Permit term);
- Reason(s) for the change(s);
- Timeframe for implementing the changes; and
- Identification of those changes that require Regional Board Executive Officer approval

Malibu Creek and Lagoon Trash TMDL Monitoring & Reporting Program

The Trash TMDL allows the responsible jurisdictions to propose any revisions to the MFAC/BMP Program in the annual reports. As full capture device installation is prioritized based on the known high trash generating areas within each

jurisdiction and a baseline WLA value for compliance is not required, the responsible jurisdictions are proposing a revision to the approved MFAC Program for the Trash TMDL.

The current MFAC Program approach assesses the amount of trash present in the waterbodies of the Malibu Creek Watershed through quantitative measures. This type of monitoring program is cost intensive and provides data that are not required for assessing MFAC/BMP program effectiveness. The responsible jurisdictions are proposing to modify the quantitative approach to conduct streamlined visual monitoring of trash levels within the Malibu Creek Watershed. This approach will significantly decrease the costs of the monitoring program and will provide information adequate to assess the effectiveness of the MFAC/BMP Program. The cost savings will allow the responsible jurisdictions to implement additional water quality improvement measures within the Malibu Creek Watershed, including those aimed at trash.

The proposed approach is to utilize the methods and monitoring procedures outlined in the Ventura River Estuary Trash TMDL revised TMRP/MFAC and Revolon Slough and Beardsley Wash TMRP - Addendum No. 1, which received preliminary approval by the Los Angeles Regional Water Quality Control Board (Regional Board) staff in June 2014 and June 2015, respectively. The alternate monitoring method will only address non-point sources as point sources are, and will be, addressed through the installation of full capture devices.

The visual monitoring will utilize a three-point scoring system based on the "Level of Trash" scoring category discussed in the Surface Water Ambient Monitoring Program (SWAMP) Protocol to estimate the presence of litter in a specific area. Training will be provided for individuals who will conduct visual trash monitoring to ensure consistency. The trained monitors will score each monitoring site by rating the amount of litter observed as follows:

- Category 1 represents the SWAMP Category "Optimal"
- Category 2 represents the SWAMP Category "Suboptimal"
- Category 3 represents the SWAMP Category "Poor"

The definition of Category 1 is:

"On first glance, no trash visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves."

The definition of Category 2 is:

"On first glance, low to medium levels of trash are evident (10-100 pieces). Stream, bank surfaces, and riparian zone contain some litter and debris. Possible evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, and clothing."

The definition of Category 3 is:

"Trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: scattered cans, bottles, food wrappers, blankets, and clothing."

The responsible jurisdictions will submit a revised TMRP to Regional Board staff detailing the proposed MFAC/BMP Program based on streamlined visual monitoring and will plan on working with Regional Board staff to ensure the revised TMRP will sufficiently meet the requirements of the Trash TMDL.

Malibu Creek and Lagoon TMDLs: Indicator Bacteria and Nutrient Water Quality Monitoring

The NSMBCW CIMP was intended to incorporate the requirements of the Malibu Creek and Lagoon Bacteria TMDL CMP. However, sampling at MCW-1 indicated that *E.coli* would be used for monitoring at the Lagoon, as opposed to Total Coliform, Fecal Coliform, and Enterococcus as required by the TMDL and CMP. The Lagoon is tidally influenced and represents a brackish environment. Therefore, *E. coli* is not recommended for marine waters as an indicator at this specific site, since *E. coli* is sensitive to changes in osmotic stress due to saline environments, and is best suited for monitoring freshwater waterbodies only. Enterococcus is recommended by USEPA 2012 Water Quality Criteria as the ideal indictor for monitoring in marine and brackish waters.

As a result, and with discussions with the Regional Board, analysis at this location was changed to Total Coliform, Fecal Coliform and Enterococcus in order to use the most appropriate indicators for the Lagoon monitoring location MCW-1 and also to provide consistency with the historic data collected at this location from previous monitoring efforts.

Additionally, the Permit requires Permittees to develop a Monitoring and Reporting Plan that demonstrates compliance with the WQBELs for total nitrogen and total phosphorus. The NSMBCW CIMP includes provisions for monitoring an outfall (NSMBCW-O2) and receiving water (NSMBCW-RW2) site in the Malibu Creek Watershed for total nitrogen and

total phosphorus, in accordance with the Permit. Inadvertently, the Monitoring Site Summary table in Appendix A of the NSMBCW CIMP indicated that nutrients would be sampled at the Malibu Creek and Lagoon Bacteria TMDL CMP monitoring site MCW-1.

No other adaptive management actions have been taken; therefore, there are no changes at this time.

6.8 **Information to Meet Additional Reporting Requirements Related to Monitoring**: Results for monitoring of any pollutant more frequently than required by the Permit using approved test procedures, or another method specified in the Permit shall be reported here.

This section will also include:

a. A full laboratory report for each chronic toxicity test prepared according to the appropriate test methods manual chapter on Report Preparation, including:
   i. The chronic toxicity test results for the t-test, reported as "Pass" or "Fail", and the "Percent Effect".
   ii. The dates of sample collection and initiation of each toxicity test.
   iii. Test species with biological endpoint values for each concentration tested.
   iv. Reference toxicant test results.
   v. Water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia).
   vi. TRE/TIE testing results.
   vii. A printout of CETIS (Comprehensive Environmental Toxicity Information System) program results.
b. A map of all sample location(s), including separate TIE sample locations (if any).

As noted previously, all monitoring data and associated metadata used to prepare the Annual Report must be summarized in an Excel spreadsheet and sorted by watershed, subwatershed and monitoring station/outfall identifier linked to the subwatershed map. The data summary must include the date, sample type, (flow-weighted composite, grab, field measurement), sample start and stop times, parameters, analytical method, value, and units.

There are no additional monitoring results to report for this reporting period.

7. Adaptive Management Strategies

Include the following information on Adaptive Management Strategies as required in Section XVIII.A.6 of the MRP.

7.1 Program Assessment

This section shall summarize the most effective and least effective control measures on a watershed scale as well as receiving water quality results in comparison to RAA projections.

(a) Control Measure Effectiveness

Assess the effect of control measures implemented within the watershed and include the following: • Identification of the most effective control measures and a description of why the measures were effective. • Identification of the least effective control measures and a description of why the measures were deemed ineffective.
Based on implementation of active disinfection technologies, the Paradise Cove Stormwater Facility and the Civic Center Stormwater Treatment Facility/Legacy Park are considered most effective at removing bacteria. However, despite these most intensive actions, some fecal indicator monitoring results above WQOs have still been observed in adjacent receiving waters, and may be due to factors beyond the control of the EWMP Group (e.g., natural sources). Provided below are examples of why the measures are considered effective, and yet conditions exist that research has shown cause increased levels of fecal indicator bacteria. Paradise Cove The City can attest to improved water quality discharging from Ramirez Canyon Creek at Paradise Cove beach as a result of the treatment facility that the City installed there in 2010 to treat runoff from the Ramirez Canyon watershed. Ramirez Canyon watershed overall is 78% undeveloped, with 2.3 % high density residential development and 18.5% low density residential development focused in the bottom third of the watershed.[9] Several years of data show that water discharging from the outlet of the facility (which consists of diverted and then treated creek water at a privately owned channelized portion of the creek) consistently exhibits testing results for fecal indicator bacteria below or close to the laboratory method detection limits. The treatment facility has a total treatment capacity of 3,600 gpm for gross solids and sediment removal, and up to 900 gpm capacity for disinfection.[10] The treatment facility was designed to meet the WQOs set forth in the Santa Monica Bay Beaches Bacteria TMDL for summer and winter dry weather, and wet weather periods for all but the wettest of rainfall years.[11] Flow monitoring in the channel upstream of the facility in the first wet season post-construction showed that the facility has the capacity to treat all dry weather flows and most wet weather events, with highest flows peaking around 4,000 gpm with some isolated un-sustained peaks of 10,000 gpm or greater (suspected due to higher storm flows or debris fouling the measurements). City staff made note while inspecting the facility of whether there was any flow beyond the sump (inlet to the facility), and observed that in dry weather the channel was regularly dry with the exception of extreme tides exhibiting “reverse flow” and thereby filling the channel with ocean water, sand, and kelp. Even with all dry weather flows being treated, exceedances in the wave wash at the beach occur on occasion. Additional sampling conducted showed that once the treated water contacted the sand and kelp wrack, fecal indicator bacteria levels increased dramatically. Any exceedances of fecal indicator bacteria on the beach at this creek outlet are a result of outside influences, in particular bacteria generated from the accumulation of natural organic material such as kelp wrack or bird feces.

[9] Los Angeles Regional Water Quality Control Board, January 24, 2002, Santa Monica Bay Beaches Bacteria TMDL-Attachment A to Resolution No. 02-004.

[10] Prior to construction of the facility in 2006, daily stream flows (as measured by LA Waterkeeper (formerly Santa Monica Baykeeper) only exceeded 900 gpm following rain storms of greater than 1 inch, and stream flows dropped below 900 gpm approximately 24 hours following the rain events.

[11] October 2011. Brown. Final Project Certification for the Paradise Cove Stormwater Treatment System Project. Prepared for: State Water Resources Control Board State Revolving Fund Project No. C-06-6969-110, Agreement No. 08-354-550 (Previously Agreement No. 06-298-550-0).

Civic Center Stormwater Treatment Facility & Legacy Park

The City constructed both the Civic Center Stormwater Treatment Facility (SWTF) and Legacy Park in 2006 and 2010, respectively, to divert drains in the Civic Center area that capture runoff from the 337-acre subwatershed (a portion of the Malibu Creek Watershed) that would otherwise discharge to lower Malibu Creek and Lagoon. Malibu Creek Watershed overall is about 80% undeveloped, with a mixture of 13% residential, 4% commercial, and 3% agricultural land uses[12]. Flows from runoff are detained in the 8 acre-foot pond in the park, then filtered and disinfected through ozonation by the SWTF for use in irrigation or to be circulated back to the detention pond. This has resulted in the diversion of all County and City MS4 drains that could otherwise potentially affect water quality observed at sampling sites at Surfrider Beach and adjacent areas. Because of this system, there is no discharge to lower Malibu Creek and Lagoon, except in extreme circumstances where treated flows exceed the capacity of the detention pond, which would generally occur during large back-to-back storms rain events that exceed the 85th percentile and when irrigation water cannot be used. Even then, only treated water would be discharged to the County box culvert and then to the Creek. There was not sufficient rain during this reporting period to cause a discharge to the Creek. Yet, exceedances of fecal indicator bacteria persist in the Lagoon and at the beach in absence of MS4 discharges.

The United States Geological Survey (USGS) completed a study[13] evaluating the occurrence, distribution and sources of fecal indicator bacteria and nutrients in shallow groundwater, Malibu Lagoon and near-shore ocean waters in dry and wet weather. The final peer reviewed manuscript can be viewed here http://iris.lib.neu.edu/aes/vol6/iss1/4/. The results show that in dry weather, fecal indicator bacteria was coming from surface deposits along the berm and nearby sand, as well as from the bottom of the Lagoon, as it was disturbed during tidal activity. The USGS is learning that bacteria in the near-shore ocean were associated with tidal fluxes, with highest bacteria concentrations occurring during high tide. This is consistent with wave run-up on the beach washing fecal indicator bacteria from the wrack line and beach sands. This is another example of high levels of fecal indicator bacteria on the beach at a creek outlet as a result of uncontrollable outside influences and not due to discharges from an MS4. This, and more information on natural sources, has been provided to the Regional Board staff in various letters, including the City's response to request for information regarding exceedances observed at shoreline monitoring sites on April 30, 2012, and the comments on the Santa Monica Bay Beaches Bacteria TMDLs reconsideration on May 7, 2012.

EWMP Area Overall

Existing CIMP data are insufficient to evaluate the effectiveness of all control measures implemented because CIMP event monitoring began in July 2016. Future annual reports will address this as more data become available.

(b) Assessment of Milestones

In years where milestones as defined in the WMP/EWMP are included within the permit year, compare data collected from the CIMP with water quality endpoints as projected in the reasonable assurance analysis. Comparison may be captured in a table similar to the one presented below.
The data needed for assessing storm water control measures is not yet available. Therefore, it is too early to evaluate the effectiveness of control measures implemented.

7.2 Modifications and Changes to Control Measures

[12] February 2007. CDM. Integrated Total Maximum Daily Load Implementation Plan for the Malibu Creek Watershed. Prepared for the Los Angeles County Department of Public Works.
[13] 2009. Preliminary Summary Letter from P. Martin of USGS Regarding Cooperative Water-Resources Study. Malibu, California.

Describe changes to control measures, including the following (where applicable):

- For those control measures identified as least effective, describe how the control measures will be modified or replaced.
- Identification of significant changes to control measures during the prior year and the rationale for the changes.
- Description of all significant changes to control measures anticipated to be made in the next year and the rationale for the changes. **Those changes requiring approval of the Regional Board or its Executive Officer shall be clearly identified at the beginning of the Annual Report.**
- The status of all multi-year efforts that were not completed in the current year and will continue into the subsequent year(s).
- Description of additional BMPs, including modifications to current BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of receiving water limitations.
- An implementation schedule for additional BMPs, including modifications to current BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of receiving water limitations.
- Any modifications, including where appropriate, new compliance deadlines and interim milestones, with the exception of those compliance deadlines established in a TMDL, necessary to improve the effectiveness of the WMP/EWMP.

It is too early to evaluate the effectiveness of control measures implemented due to limited availability of data. However, projects constructed and programs implemented by the City of Malibu prior to the adoption of the current permit and development of the EWMP have shown that they are effective at preventing discharges and reducing the discharge of pollutants.

7.3 Adaptive Management Process

(a) Answer the following questions:

	Yes	No
Did the Group implement an adaptive management process during this reporting year?	☐	☒
If no, what date will the Group implement an adaptive management process?	To be determined based on monitoring data	

(b) Adaptive Management Reporting: If the Group implemented an adaptive management process during this reporting year, provide the following information as an attachment to this annual report:

- On-the-ground structural control measures completed
- Non-structural control measures completed
- Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality
- Comparison of the effectiveness of the control measures to the results projected by the RAA
- Comparison of control measures completed to date with control projected by the RAA
- Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the EWMP
- Control measures proposed to be completed in the next two years pursuant to the EWMP and the schedule for completion of those control measures
- Status of funding and implementation for control measures proposed to be completed in the next two years

No adaptive management processes were implemented in this reporting year.