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June 27, 2014

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Dear Mr. Unger:

SUBMITTAL OF WATERSHED MANAGEMENT PROGRAM FOR THE CITY OF LOS ANGELES AREA IN JURISDICTIONAL GROUP 7 OF THE SANTA MONICA BAY WATERSHED

Please find attached the Watershed Management Program (WMP) for the City of Los Angeles area in Jurisdictional Group 7 of the Santa Monica Bay watershed. The City of Los Angeles, as lead agency for this area, has prepared this WMP on behalf of itself and the Los Angeles County Flood Control District (LACFCD). LACFCD has reviewed the draft WMP prior to submission to the Regional Water Board, and we appreciate their collaboration in the preparation of the document.

The City of Los Angeles and LACFCD originally intended to develop an Enhanced Watershed Management Program (EWMP) for the City of Los Angeles area in Jurisdictional Group 7, as indicated in our Notice of Intent jointly submitted with the Notice of Intent or Jurisdictional Groups 2 and 3 on June 27, 2013. However, Regional Board staff requested the City of Los Angeles and LACFCD to develop a WMP instead of an EWMP because of antidegradation conditions in Jurisdictional Group 7 and limited opportunities for implementation of regional projects capable of capturing and retaining runoff from the 85th percentile storm event. Accordingly, the City of Los Angeles and LACFCD submitted a revised Notice of Intent for a WMP for the City of Los Angeles area in Jurisdictional Group 7 on December 16, 2013.

The WMP for the City of Los Angeles area in Jurisdictional Group 7 mostly relies on implementing the Minimum Control Measures as provided by section VI.D of the new MS4 Permit (Order No. R4-2012-0175), because of the aforementioned antidegradation conditions and limited opportunities for regional projects with groundwater recharge. In addition, water quality data pertaining to this area and information of potential sources and quantities of urban runoff pollutants are very limited at this

time. Accordingly, implementation of the Coordinated Integrated Monitoring Program will indicate if there is a need to identify additional structural watershed control measures through the adaptive management process for the WMP for the City of Los Angeles area in jurisdictional Group 7.

We appreciate the discussions with and the input received from Regional Water Board staff during the development of this WMP and we look forward to the comments on the WMP by your staff and finalizing this document.

Should you have any questions about this submittal, please contact me at Shahram.Kharaghani@lacity.org or phone (213) 485-0587, or your staff may contact Dr. Huub Cox at Hubertis.Cox@lacity.org or phone (213) 485-3984.

Sincerely,

Robert Vega for
SHAHRAM KHARAGHANI, Ph.D., P.E., BCEE
Program Manager

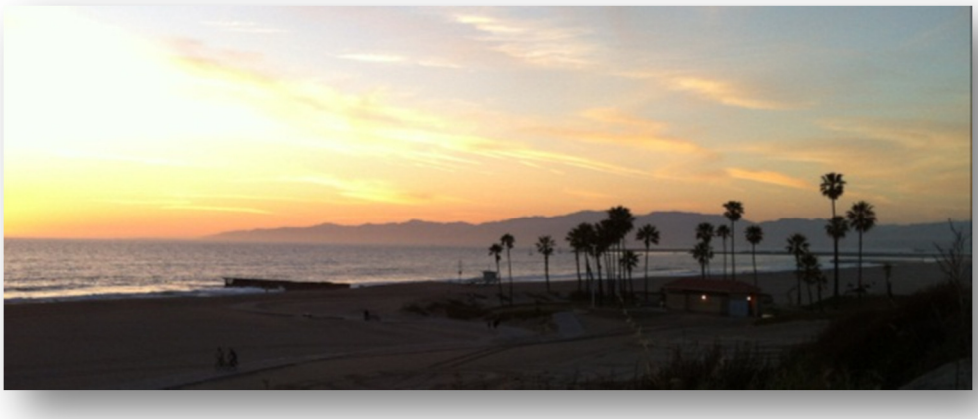
SK:HC
WPDCR9133

Attachment

cc: Renee Purdy, California Regional Water Quality Board, Los Angeles Region
Ivar Ridgeway, California Regional Water Quality Board, Los Angeles Region
Adel Hagekhalil, City of Los Angeles, Bureau of Sanitation
Donna Chen, City of Los Angeles, Bureau of Sanitation
Gary Hildebrand, County of Los Angeles, Department of Public Works

Watershed Management Program for Santa Monica Bay Jurisdictional Group 7 with the City of Los Angeles

Prepared by:
City of Los Angeles
Los Angeles County Flood Control District



The MWH Team

MWH | Geosyntec consultants | CWE | M2 Resource Consulting, Inc.

Table of Contents

Section Name **Page Number**

List of Acronyms

Acronym	Definition
AED	Allowable Exceedance Day
ASBS	Areas of Special Biological Significance
Basin Plan	Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties
BIOL	Preservation of Biological Habitats of Special Significance Beneficial Use Designation
BMP	Best Management Practice
CALTRANS	California Department of Transportation
CASQA	California Stormwater Quality Association
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIMP	Coordinated Integrated Monitoring Program
City	City of Los Angeles
COMM	Commercial and Sport Fishing Beneficial Use Designation
CSMP	Coordinated Shoreline Monitoring Plan
CWA	Clean Water Act
DDT	Dichlorodiphenyltrichloroethane
ED	Exceedance Day
EMC	Event Mean Concentration
ES	Executive Summary
ESA	Environmentally Sensitive Area
ESCP	Erosion and Sediment Control Plan
EWMP	Enhanced Watershed Management Program
FC	Fecal Coliform
FIB	Fecal Indicator Bacteria
g/yr	Grams per Year
GM	Geometric Mean
IC/ID	Illicit Connections and Illicit Discharges
IND	Industrial Service Supply Beneficial Use Designation
JG	Jurisdictional Group
JG7	Jurisdictional Group 7 of the City of Los Angeles
L-SWPPP	Local Storm Water Pollution Prevention Plan
LACFCD	Los Angeles County Flood Control District
LFD	Low-Flow Diversion
LID	Low Impact Development
MAR	Marine Habitat Beneficial Use Designation

List of Acronyms

Acronym	Definition
MCM	Minimum Control Measure
mg/l	Milligrams per Liter
MIGR	Migration of Aquatic Organisms Beneficial Use Designation
MPN/ml	Most Probable Number of Organisms per Milliliter
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
MWH	MWH Americas, Inc.
N	Nitrogen
NA	Not Applicable
NAICS	North American Industry Classification System
NAV	Navigation Beneficial Use Designation
ND	Non-Detects
ng/L	Nanograms per Liter
NH_3	Ammonia
NO_3	Nitrate
NPDES	National Pollutant Discharge Elimination System
OPTI	Online Project Tracking and Integration System
PCB	Polychlorinated Biphenyl
Permit	Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175
PIPP	Public Information and Participation Program
PMRP	Plastic Pellet Monitoring and Reporting Program
POTW	Publically-Owned Treatment Works
PR	Percent Removal
QA/QC	Quality Assurance/Quality Control
RAA	Reasonable Assurance Analysis
RARE	Rare, Threatened, or Endangered Species Beneficial Use Designation
Regional Board	Los Angeles Regional Water Quality Control Board
RWL	Receiving Water Limitation
SCBPP	Southern California Bight Pilot Project
SCCWRP	Southern California Coastal Water Research Project
SHELL	Shellfish Harvesting Beneficial Use Designation
SIC	Standard Industrial Classification
SMB	Santa Monica Bay
SMBB	Santa Monica Bay Beaches
SMB JG7 WMP Group	Santa Monica Bay Jurisdictional Group 7 Watershed Management Program Group
SMB WMA	Santa Monica Bay Watershed Management Area
SMURRF	Santa Monica Urban Runoff Recycling Facility
SPWN	Spawning, Reproduction, and/or Early Development Beneficial Use Designation

List of Acronyms

Acronym	Definition
SQMP	Stormwater Quality Management Plan
SUSMP	Standard Urban Stormwater Mitigation Plan
SWAMP	Surface Water Ambient Monitoring Program
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
TMRP	Trash Monitoring and Reporting Plan
TP	Total Phosphorus
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
WBPCs	Water Body-Pollutant Combinations
WDID	Waste Discharger Identification
WILD	Wildlife Habitat Beneficial Use Designation
WMA	Watershed Management Area
WMP	Watershed Management Program
WQBEL	Water Quality-Based Effluent Limitation

1 Introduction

1.1 Background and Regulatory Framework

The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. R4-2012-0175 (Permit) was adopted November 8, 2012 by the Los Angeles Regional Water Quality Control Board (Regional Board) and became effective December 28, 2012. The purpose of the Permit is to ensure the MS4s in Los Angeles County are not causing or contributing to exceedances of water quality objectives set to protect the beneficial uses in the receiving waters in the Los Angeles region.

The Permit allows Permittees to customize their stormwater programs through the development and implementation of a Watershed Management Program (WMP) or an Enhanced Watershed Management Program (EWMP) to achieve compliance with receiving water limitations (RWLs) and water quality-based effluent limits (WQBELs). The City of Los Angeles (City) has been a participating agency of Jurisdictional Group 7 (JG7) of the Santa Monica Bay Watershed since the adoption of the Santa Monica Bay Beaches Bacteria Total Maximum Daily Loads (TMDLs) in 2003. However, the City of Los Angeles and the other MS4 permittees in JG7 could not reach an agreement for a collaborative approach to satisfying the requirements of the MS4 permit. Therefore, on November 26, 2013 the Regional Board requested that the City and the Los Angeles County Flood Control District (LACFCD), collectively referred to as the Santa Monica Bay JG7 WMP Group (SMB JG7 WMP Group), pursue a WMP instead of an EWMP. The primary reasons for this request included: 1) MS4 discharges to Santa Monica Bay are anticipated to be minimal due to the small contributing drainage areas; and 2) opportunities for structural best management practice (BMP) implementation are limited due to the geography of the WMP area (e.g., cliffs at outfalls, landslide and liquefaction hazards, etc.). In December of 2013, the SMB JG7 WMP Group submitted a revised Notice of Intent to develop a WMP for the City of Los Angeles land area within the JG7 area to fulfill the requirements of the Permit.

This WMP, in combination with the JG7 Coordinate Integrated Monitoring Program (CIMP), was prepared to satisfy Part C.1.f of the Permit, which includes the following tasks:

1. Prioritize water quality issues resulting from stormwater and non-stormwater discharges from the MS4 to receiving waters within each Watershed Management Area (WMA);
2. Identify and implement strategies, control measures, and BMPs to achieve the outcomes specified in Part VI.C.1.d;
3. Execute an integrated monitoring program and assessment program pursuant to Attachment E – MRP, Part VI to determine progress towards achieving applicable limitations and/or action levels in Attachment G;
4. Modify strategies, control measures, and BMPs as necessary based on analysis of monitoring data collected pursuant to the monitoring and reporting program (MRP) to ensure that applicable WQBELs, RWLs and other milestones set forth in the WMP are achieved in the required timeframes; and
5. Provide appropriate opportunity for meaningful stakeholder input, including but not limited to, a permit-wide watershed management program technical advisory committee (TAC) that will advise and participate in the development of the WMPs and EWMPs from month 6 through the date of program approval.

1.2 SMB JG7 WMP Group Geographical Area

The SMB JG7 WMP Group area is located within the southern portion of the Santa Monica Bay WMA, which encompasses an area of approximately 414 square miles and includes the Santa Monica Bay and land area that drains into the Bay. The boundary of the Santa Monica Bay, as defined for the National Estuary Program, extends from the Los Angeles/Ventura County line to the northwest, southeast toward Point Fermin located on the Palos Verdes Peninsula. The land area that drains into the Bay follows the crest of the Santa Monica Mountains on the north to Griffith Park; then extends south and west across the Los Angeles coastal plain to include the area east of Ballona Creek and north of the Baldwin Hills. South of Ballona Creek, the natural drainage is a narrow coastal strip between Playa del Rey and Palos Verdes (Regional Board, 2011). **Figure 1-1** depicts the location of the SMB JG7 WMP Group within the Santa Monica Bay Watershed.

The full JG7 area includes the Cities of Rancho Palos Verdes, Palos Verdes Estate, Rolling Hills, Rolling Hills Estate, and the City of Los Angeles. This SMB JG7 WMP only addresses the area owned by the City and LACFCD within JG7, which includes the following water bodies as listed in the Basin Plan:

- Los Angeles County Coastal Nearshore Zone
- Royal Palms Beach
- Whites Point County Beach

The SMB JG7 WMP area, which consists of land owned by the City and includes any LACFCD infrastructure, totals approximately 977 acres, which is approximately 9% of the entire JG7 area within the Santa Monica Bay Watershed. **Figure 1-1** illustrates the extent of the SMB JG7 WMP Group Area. The geographical scope of the SMB JG7 WMP Group area excludes areas of land totaling approximately 47 acres for which the MS4 permittees do not have jurisdiction, including land owned by the Los Angeles Air Force Base Pacific Crest Housing Area. With the exclusion of these areas, the SMB JG7 WMP area covers 907 acres. The majority of the land uses within the WMP area consist of residential (approximately 69%) and vacant/open space (approximately 26%), with the remaining area consisting of a mixture of commercial, educational, and industrial land uses. There are no designated transportation or agricultural land uses in the WMP area. The open space area includes 102 acres of restored coastal sage scrub habitat and hiking trails located within the White Point Nature Preserve Wild Park.

Table 1-1
SMB JG7 WMP Land Use Summary

Land Use	% of Total
Commercial	3%
Industrial	0.1%
Education	3%
Multi-Family Residential	12%
Single Family Residential	56%
Open Space	26%
Total	100%

The City of Los Angeles JG7 WMP area includes 218 catch basins and seven storm drain outfalls owned and operated by either the City of Los Angeles or the LACFCD. The majority of the storm drain outfalls in the SMB JG7 WMP area are circular pipes extending from the Cliffside, around one hundred feet above the rocky shoreline. The majority of the outfalls themselves are inaccessible at the pipe outlet.

Introduction

The coastline along, and several inland sites within, the SMB JG7 WMP area is characterized as being subject to landslide and liquefaction hazards (City of Los Angeles Bureau of Engineering, 2014). This characterization was exemplified by the destruction of the SMB 7-7 TMDL shoreline monitoring site due to landslide in 2009.

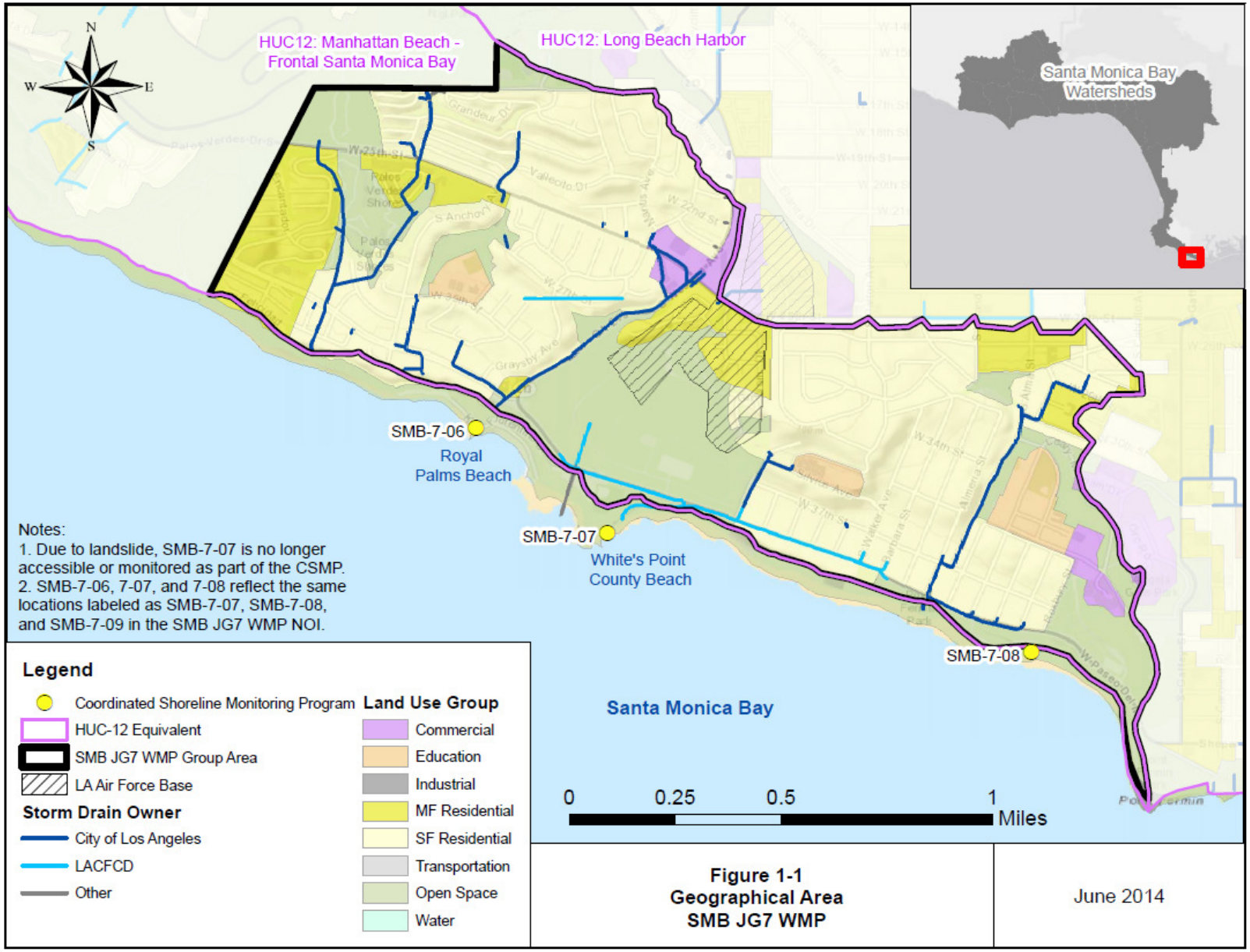


Figure 1-1
Geographical Area
SMB JG7 WMP

June 2014

1.3 Watershed Management Program Development Process

The WMP for the SMB JG7 WMP Group includes four major components, as follows:

1. **Water Quality Priorities:** The identification of water quality priorities is an important first step in the WMP process. Water quality priorities, described in Section 2, are defined for individual constituents within a specific water body, termed as Water Body-Pollutant Combinations (WBPCs). Categories of the WBPCs are defined in the Permit. Priorities are assigned to the WBPCs based on the categorization. The water quality priorities will provide the basis for prioritizing implementation activities within the WMP.

2. **Watershed Control Measures/Minimum Control Measures:** Development of the WMP requires identification of control measures/BMPs, as described in Section 4, expected to be sufficient to meet receiving water and effluent limitations set forth in the MS4 Permit (Regional Board, 2012). BMPs vary in function and type, with each BMP providing unique design characteristics and benefits from implementation. The overarching goal of BMPs in the WMP is to reduce the impact of stormwater and non-stormwater runoff on receiving water quality.

3. **Reasonable Assurance Analysis:** A key element of each WMP is the reasonable assurance analysis (RAA), described in Section 4, which is used to demonstrate *"…that the activities and control measures…will achieve applicable WQBELs and/or RWLs with compliance deadlines during the Permit term"* (Section C.5.b.iv.(5), page 63). The Permit prescribes the RAA as a quantitative demonstration that control measures, specifically BMPs, will be effective. In other words, the RAA not only demonstrates the cumulative effectiveness of BMPs to be implemented, but it also supports their selection. However, due to zero target load reductions and alternative compliance measures for the identified WBPCs, a quantitative analysis is not necessary at this time. Therefore, the SMB JG7 WMP group has decided to present a qualitative RAA discussion, acknowledging that a quantitative RAA may become necessary in the future based on results of future CIMP monitoring.

4. **Adaptive Management Process:** The WMP is intended to be implemented as an adaptive program as described in Section 5. As new program elements are implemented and information is gathered over time, the WMP will undergo modifications to reflect the most current understanding of the watershed and present a sound approach to addressing changing conditions. As such, the WMP will employ an adaptive management process that will allow the WMP to evolve over time.

1.4 Watershed Management Program Overview

This WMP has been prepared to outline the steps that will be taken by the SMB JG7 WMP Group in compliance with the requirements and deadlines set forth within the MS4 Permit. This document is organized into the following sections:

- **Section 1 –** Introduction
- **Section 2** – Identification of Water Quality Priorities
- **Section 3** – Watershed Control Measures
- **Section 4** – Reasonable Assurance Analysis Approach
- **Section 5** – Adaptive Management Process
- **Section 6** – References

2 Identification of Water Quality Priorities

To develop the WMP, the Permit requires that SMB JG7 WMP Group establish water quality priorities within their WMA. In accordance with the Permit Section IV.C.5(a), this section characterizes the water quality conditions within the SMB JG7 WMP area, identifies water quality priorities, determines water body-pollutant classifications, and assesses pollutant sources. The water quality priorities identified in this section provide the basis for prioritizing project implementation; selecting and scheduling BMPs (if needed); and focusing monitoring activities developed in the CIMP.

2.1 Water Quality Characterization

Figure 2-1 identifies the receiving waters in the SMB JG7 WMP Group area, as depicted in the Water Quality Control Plan, Los Angeles Region (Basin Plan) (Regional Board, 1995, Updated 2011). **Table 2-1** summarizes the beneficial uses for each of these water bodies, as designated in the Basin Plan. As beneficial uses designated as "potential" have not yet been established, these uses will not be evaluated further in the WMP. The SMB JG7 WMP Group area includes the water bodies listed below.

- Los Angeles County Coastal Nearshore Zone
- Royal Palms Beach
- Whites Point County Beach

Beneficial use designations for these water bodies include the following:

- **Water Contract Recreation (REC-1):** Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC-2):** Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Industrial Services Supply (IND):** Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, firs protection, or oil well re-pressurization.
- **Navigation (NAV):** Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.
- **Commercial and Sport Fishing (COMM):** Uses of water for commercial or recreational collection of fish, shellfish, or other organisms intended for human consumption or bait purposes.
- **Marine Habitat (MAR):** Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
- **Preservation of Biological Habitats (BIOL):** Uses of water that support designated areas of habitats, such as Areas of Special Biological Significance (ASBS), established refuges, parks,

sanctuaries, ecological reserves, or other areas where the preservation or enhancement of natural resources requires special protection.

- **Migration of Aquatic Organisms (MIGR):** Uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.
- **Spawning, Reproduction, and/or Early Development (SPWN):** Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.
- **Shellfish Harvesting (SHELL):** Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.
- **Wildlife Habitat (WILD):** Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Rare, Threatened, or Endangered Species (RARE):** Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

Table 2-1
Beneficial Uses of Water Bodies and Coastal Features Designated in the Basin Plan

Water Body (and Tributaries)	Beneficial Uses											
	REC-1	REC-2	WILD	RARE	IND	NAV	COMM	MAR	BIOL	MIGR	SPWN	SHELL
Los Angeles County Coastal Nearshore Zone^	E	E	E	Ee	E	E	E	E	Ean	Ef	Ef	E
Royal Palms Beach	E	E	E			E	E	E			P	E
Whites Point County Beach	E	E	E			E	E	E			P	E

E = Existing beneficial use

P = Potential beneficial use

e = One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f = Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas that are heavily influenced by freshwater inputs.

an = Areas of Special Biological Significance (along coast from Latigo Point to Laguna Point) and Big Sycamore Canyon and Abalone Cove Ecological Reserves and Point Fermin Marine Life Refuge.

^ = Nearshore is defined as the zone bounded by the shoreline or the 30-foot depth contours, whichever is further from the shoreline. Longshore extent is from Rincon Creek to the San Gabriel River Estuary.

2.1.1 Water Quality Objectives/Criteria

The Clean Water Act (CWA) requires that the State Water Resources Control Board (SWRCB) and Regional Boards conduct a water quality assessment that addresses the condition of its surface waters [required in Section 305(b) of the CWA] and provides a list of impaired waters [required in CWA Section 303(d)] that is then submitted to the U.S. Environmental Protection Agency (USEPA) for review and approval. The 2010 Integrated Report and updated 303(d) list were approved by the SWRCB on August 4, 2010 and by the USEPA on October 11, 2011. The 2010 303(d)-listed water bodies and associated pollutants within the SMB JG7 WMP Group area are summarized in **Table 2-2**.

Table 2-2
2010 303(d)-Listed Water Bodies in the SMB JG7 WMP Group Area

Water Body	Pollutant Class	Pollutant	Notes
Santa Monica Bay Beaches	Pathogens	Coliform Bacteria	Addressed by Bacteria TMDL
	Pesticides	DDT	Addressed by PCB/DDT TMDL
	Other Organics	PCBs	Addressed by PCB/DDT TMDL
Santa Monica Bay (Los Angeles County Coastal Nearshore Zone)	Trash	Debris Plastic Pellets	Addressed by Trash TMDL
	Pesticides	DDT (tissue & sediment)	Addressed by PCB/DDT TMDL
	Other Organics	PCBs (tissue & sediment)	Addressed by PCB/DDT TMDL
	Toxicity	Sediment Toxicity	Addressed by PCB/DDT TMDL
	Miscellaneous	Fish Consumption Advisory	Addressed by PCB/DDT TMDL

Water bodies are subject to water quality objectives in the Basin Plan, or Basin Plan Amendments, such as those to implement TMDLs. There are currently three TMDLs in effect for the water bodies within the SMB JG7 WMP Group area as listed in Attachment M of the Permit. These TMDLs are summarized in **Table 2-3**.

Table 2-3
Santa Monica Bay TMDLs

TMDL Name	Agency	Effective Date
SMB Beaches Bacteria TMDL, Reconsideration of Certain Technical Matters of the SMB Beaches Bacteria TMDL, Resolution R12-007[a]	Regional Board	Not yet effective
SMB TMDL for DDT and PCBs	USEPA	March 26, 2012
SMB Nearshore Debris TMDL, Resolution R10-010	Regional Board	March 20, 2012
SMB Beaches Bacteria TMDL, Dry Weather, Resolution 2002-004[b]	Regional Board	July 15, 2003
SMB Beaches Bacteria TMDL, Wet Weather, Resolution 2002-022[b]	Regional Board	July 15, 2003

[a] This TMDL revision is not yet approved by USEPA.
[b] This TMDL was revised pursuant to Resolution R12-2007.

Table 2-4 identifies the applicable WQBELs and/or RWLs established pursuant to TMDLs included in Attachment M of the Permit. The water quality objectives as listed in the Basin Plan are also applicable to water bodies based on the designated beneficial uses. The Trash TMDL final WQBELs are effective March 20, 2020. The effective date of the polychlorinated biphenyl (PCB) and

dichlorodiphenyltrichloroethane (DDT) final WQBELs will be specified later in this document, since the USEPA-developed TMDL lacks a compliance schedule. The Bacteria TMDL final WQBELs and RWLs are currently effective for both dry weather and wet weather[1].

Table 2-4
Final Permit RWLs and WQBELs for SMB TMDLs

Reference	Parameter	Effluent Limitation/ Receiving Water Limitation
SMB Nearshore Debris TMDL	Trash – WQBEL	Zero
	Plastic Pellets – WQBEL	Zero
TMDL for PCBs/DDTs (for LA County MS4)	DDT – WLA	27.08 g/yr (based on 3-year averaging period)[2]
	PCBs – WLA	140.25 g/yr (based on 3-year averaging period)[2]
SMB Beaches Bacteria TMDL	Total coliform (daily maximum) – WQBEL	10,000 Most Probable Number (MPN)/100 mL
	Total coliform (daily maximum), if the ratio of fecal-to-total coliform exceeds 0.1 – WQBEL	1,000 MPN/100 mL
	Fecal coliform (daily maximum) – WQBEL	400 MPN/100 mL
	Enterococcus (daily maximum) – WQBEL	104 MPN/100 mL
	Total coliform (geometric mean[1]) – WQBEL/RWL	1,000 MPN/100 mL
	Fecal coliform (geometric mean[1]) – WQBEL/RWL	200 MPN/100 mL
	Enterococcus (geometric mean[1]) – WQBEL/RWL	35 MPN/100 mL

[1]The rolling 30-day geometric mean is calculated based on the previous 30 days. The reopened 2012 TMDL, which has not yet been approved by USEPA, modified this to weekly calculation of a rolling six-week geometric mean using five or more samples, starting all calculation weeks on Sunday.
[2]Group load-based WQBELs that apply to all SMB MS4 dischargers; the individual load-based WQBELs for SMB JG7 WMP Group members would be an area-weighted fraction of this.
MPN/ml = most probable number of organisms per milliliter

Grouped RWLs for the Santa Monica Bay Beaches Bacteria TMDL are also expressed in the Permit in terms of allowable exceedance days (AEDs), which vary by season and by Coordinated Shoreline Monitoring Plan (CSMP) monitoring station. AEDs applicable to SMB 7-6 and 7-8 are summarized and discussed in **Table 2-6**, presented in the following Section 2.1.4.

[1] Per Resolution 2006-008, the J7 agencies elected to pursue a non-integrated water resources approach to SMB Beaches Bacteria TMDL compliance, which results in a final wet weather compliance deadline of at most 10 years, or July 15, 2013. http://63.199.216.6/larwqcb_new/bpa/docs/2006-008/2006-008_RB_RSL.pdf

2.1.2 QA/QC Criteria

Quality assurance/quality control (QA/QC) criteria have been established to verify that data referenced in this water body characterization are qualified for use. All data used have either been peer reviewed; were submitted as part of an official record, such as in an agency's Annual Report to the Regional Board; or have met QA/QC criteria established by another party, such as the County, City Environmental Health Division, Regional Board, or California Environmental Data Exchange Network (CEDEN), which includes the Bight Program. Data not meeting these criteria have not been used in this water body characterization.

2.1.3 Detailed Data Analysis

A detailed monitoring data analysis was conducted to:

1. Evaluate the status of TMDL compliance;
2. Evaluate the status of 303(d) listings (i.e., whether any WBPCs meet the SWRCB's 303[d] delisting criteria);
3. Identify other WBPCs that meet 303(d) listing criteria; and
4. Identify remaining WBPCs demonstrating exceedance(s) of applicable receiving water limitations.

Monitoring data analyzed are summarized in **Table 2-5**, and existing monitoring stations are shown in **Figure 2-1**. It should be noted that the data presented are receiving water quality data and do not imply MS4 contributions.

Table 2-5
Existing Monitoring Programs

Program Name	Monitoring Period	Monitoring Locations	Parameters Analyzed	Frequency
Coordinated Shoreline Monitoring Program	2004-2013	Santa Monica Bay Beaches	Bacteria	Varies by site, weekly or daily
Southern California Bight Regional Monitoring	1994 - 2013	Santa Monica Bay Offshore/Nearshore	General suite in 1995 and 1998; PCBs and DDTs in 2003 and 2008	Varies by site

2.1.4 TMDL Compliance Status

Table 2-6 summarizes the shoreline monitoring bacteria data for 2003 through 2013 with respect to the number of exceedance days (EDs) at SMB-7-06 and SMB-7-08, as defined in the TMDL (exceeding one of four single sample daily maximum REC-1 WQOs). Both sites are open beach locations, and as such, any exceedance is not necessarily directly attributable to the MS4. Compliance at SMB-7-07 is not reported here because it was destroyed in a landslide in 2009 and is neither accessible nor monitored. Geometric mean exceedance days are not reported here. A summary of the average, median, minimum, and maximum water quality results from sampling at SMB 7-06 and SMB 7-08 is included in Attachment A. If follow-up samples were collected for weekly sites then those were included in this analysis, which may increase the number of reported EDs. As shown in **Table 2-6**, the summer dry weather AEDs have been exceeded eight out of the eleven years (73%) and three out of the eleven years (27%) between 2003 and 2013 for stations SMB-7-6 and SMB-7-8, respectively. The winter dry weather AEDs have been exceeded six out of the eleven years (55%) and one out of the eleven years (9%) between 2003 and 2013 for stations SMB-7-6 and SMB-7-8, respectively. The wet weather AEDs have been exceeded four out of the eleven years (36%) and two out of the eleven years (18%) between 2003 and 2013 for stations SMB-7-6 and SMB-7-8, respectively. It should be noted that 2005 recorded the most annual rainfall in Los Angeles County history (34 inches), which likely contributed to the abnormal number of exceedances.

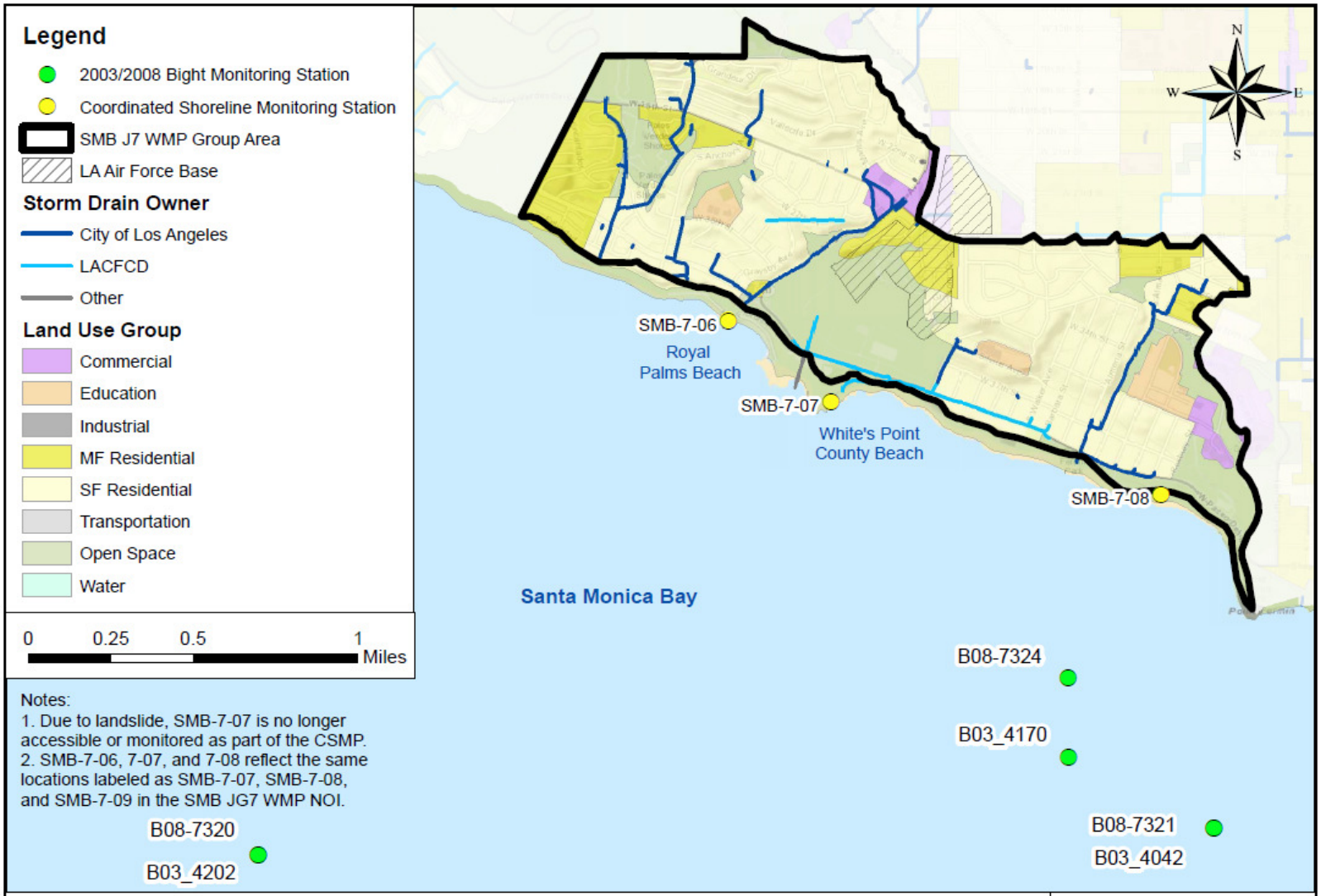


Figure 2-1
Existing Monitoring Stations
SMB JG7 WMP

June 2014

Table 2-6
Summary of Exceedance Days
(bold text signifies Exceedance Days > Allowable Exceedance Days)

Station (type)	Season	AEDs	Number of Exceedance Days per TMDL Year									
			2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
SMB-7-6 (open beach)	Dry-Summer[a]	0	**1**	**1**	**1**	**2**	0	**2**	0	**1**	0	**1**	**1**
	Dry-Winter[b]	1	**3**	1	**11**	1	**2**	0	**5**	1	**2**	**2**	0
	Wet[c]	1[d]	1	1	**28**	1	0	**2**	1	**3**	**2**	1	0
SMB-7-8 (open beach)	Dry-Summer[a]	0	**1**	**1**	0	0	0	0	0	0	0	**3**	0
	Dry-Winter[b]	1	0	0	**2**	0	0	0	1	0	1	0	0
	Wet[c]	1[d]	0	0	**13**	0	0	0	1	0	**2**	1	0

[a] Summer Dry Weather = April 1 – October 31
[b] Winter Dry Weather = November 1 – March 31
[c] Wet Weather = November 1 – October 31, days with >=0.1 inches of rain and the three days following
[c] 2012-2013 dataset is incomplete and ends on 9/18/2013.
[d] AEDs are based on weekly sampling. Exceedance days were calculated based on the raw data. For example, in cases where more than one sample was collected in a single week, those results were still compared against the weekly AEDs. This approach is consistent with annual monitoring reports, but overestimates actual exceedance weeks.

2.1.5 Other Water Body-Pollutant Combinations that meet 303(d) Listing Criteria

There were no WBPCs identified within the SMB JG7 WMP geographical scope that were found to meet the 303(d) listing criteria.

2.1.6 Remaining Water Body-Pollutant Combinations Demonstrating Exceedance(s) of Applicable Receiving Water Limitations

Water quality data were compared to WQBELs and/or water quality objectives to determine if exceedances occurred within the last five (5) years. Those constituents that either had no exceedances within the past five (5) years, or did not meet the 303(d) listing criteria for impairment, are discussed below but will not be considered in the prioritization process at this time.

USEPA's Santa Monica Bay DDTs and PCBs TMDL (USEPA, 2012) relies on a limited dataset to establish stormwater load allocations, relying on a single study (Curren *et al*, 2011) from a single creek (Ballona Creek, which is outside the SMB JG7 WMP area) to extrapolate MS4 wasteload allocations to other SMB watersheds based on percent urban area. The Santa Monica Canyon, Ballona Creek, and Hermosa Beach watersheds combined represent 94% of the developed area draining to Santa Monica Bay. The TMDL does not present sufficient data to assign MS4 contributions to the DDT and PCB concentrations observed in Santa Monica Bay.

The Bight Regional Monitoring program includes six[2] offshore sampling locations within the SMB JG7 WMP geographical scope that were sampled between 1994 and 2008. Two sites (1267_SCBPP and B98_2389) were only sampled in 1994 and 1998, respectively, which is outside the range of recent data (10 years). The other sampling locations include sediment-based data from 2003 and 2008. The only TMDL sediment-based targets applicable to the SMB JG7 WMP area are for DDTs and PCBs; therefore, DDTs and PCBs are the only analytes included in this analysis. The sampling sites containing these data from 2003 and 2008 were located between 0.5 and 2 miles off the coastline of the SMB JG7 WMP Area. **Table 2-7** summarizes the results from these sampling sites.

[2] There are eight station IDs; however, two of the locations include one Station ID from 2003 and one from 2008. Therefore, these four Station IDs represent two sampling locations, resulting in a total of six sampling locations during the entire monitoring period.

Table 2-7
Bight '03 and '08 PCB and DDT Monitoring Results[a]

Station ID	Station Description	Date	PCB[b] (ug/kg OC)	DDT[b] (ug/kg OC)
B08-7324	Approximately 0.5 miles off the coast of Point Fermin Park Beach	7/24/2008	103	**3,865**
B03-4042/ B08-7321	Approximately 0.6 miles off the coast of Point Fermin Park Beach	8/19/2003	**5,318**	**60,400**
		7/24/2008	**2,923**	**5,171**
B03-4170	Approximately 0.75 miles off the coast of Point Fermin Park Beach	8/21/2003	**1,051**	**22,984**
B03-4202/ B08-7320	Approximately 2 miles off the coast of White's Point Beach	8/20/2003	**9,419**	**111,497**
		7/24/2008	**19,420**	**125,515**

[a] Bold text signifies an exceedance of the sediment targets (normalized to total organic carbon) set forth in the PCBs and DDT TMDL for Santa Monica Bay. These established targets are 2,300 ug/kg OC for total DDT and 700 ug/kg OC for total PCBs.
[b] These are estimated values that assume one half of the method detection limit for all non-detect results.

Since the Bight samples were collected 0.5 to 2 miles off the coast away from any MS4 outfalls, this does not represent sufficient evidence to establish potential linkage of MS4 discharges to observed sediment concentrations.

2.2 Water Body-Pollutant Prioritization

Based on the water quality characterization, the WBPCs identified in **Table 2-8** have been classified into one of three categories, in accordance with Section IV.C.5(a)ii of the Permit. This categorization is intended to prioritize WBPCs in order to guide the implementation of structural and institutional BMPs.

Table 2-8
Water Body Pollutant Prioritization
(Listed in order of compliance deadline, interim and final are included, passed deadlines are shown in bold font)

Category	Water Body	Pollutant	Compliance Deadline
1	SMB Beaches	Summer dry weather bacteria	**7/15/2006 for single sample AEDs**
		Winter dry weather bacteria	**7/15/2009 for single sample AEDs**
		Wet weather bacteria	**7/15/2013 for single sample AEDs[1]**
			7/15/2013 for geometric mean (GM)[1]
	SMB Offshore/ Nearshore	Debris	3/20/2016 (20% load reduction)
			3/20/2017 (40% load reduction)
			3/20/2018 (60% load reduction)
			3/20/2019 (80% load reduction)
			3/20/2020 (100% load reduction)
	SMB	DDTs	[No compliance deadline specified in TMDL][2]
		PCBs	[No compliance deadline specified in TMDL][2]
2	No Category 2 WBPCs have been identified at this time		
3	No Category 3 WBPCs have been identified at this time		

[1] Per Resolution 2006-008, the J7 agencies elected to pursue a non-integrated water resources approach to SMB Beaches Bacteria TMDL compliance, which results in a final wet weather compliance deadline of at most 10-years, or July 15, 2013. http://63.199.216.6/larwqcb_new/bpa/docs/2006-008/2006-008_RB_RSL.pdf

[2] Although the TMDL lacks a formal compliance schedule for the WLAs, Table 6-5 of the TMDL does specify a timeline for the DDT/PCB targets in water and sediment. Additionally, the WLA target was set at existing waste load, so antidegradation conditions exist.

As part of the adaptive management process, categorization of future WBPCs may be adjusted based on data obtained from monitoring, source evaluations, and BMP implementation. Data collected as part of the approved CIMP may result in future Category 3 designations in instances when receiving water limits are exceeded and MS4 discharges are identified as contributing to such exceedances. Under these conditions, the appropriate agencies will adhere to Section VI.C.2.a.iii of the Permit.

2.2.1 Category 1 – Highest Priority

WBPCs under Category 1 (highest priority) are defined in the Permit as *"water body-pollutant combinations for which water quality-based effluent limitations and/or receiving water limitations are established in Part VI.E and Attachments L through R [of the Permit]."*

The WMPC of bacteria (wet and dry weather) at the Santa Monica Bay Beaches within the SMB JG7 WMP area (including Royal Palms Beach, White Point Beach, and Point Fermin Park Beach) fall within Category 1 because they are listed in the Santa Monica Bay Beaches Bacteria TMDL.

Similarly, a Debris TMDL exists for Santa Monica Bay. Section VI.E.5.b(i) of the Permit states, *"Pursuant to California Water Code section 13360(a), Permittees may comply with the trash [debris] effluent limitations using any lawful means. Such compliance options are broadly classified as full capture, partial capture, institutional controls, or minimum frequency of assessment and collection… and any combination of these may be employed to achieve compliance."* While trash will not be modeled as

part of the RAA, the RAA will address how the JG7 agencies will comply with the TMDL WQBELs by providing details on the planned implementation of the methods listed above, primarily through their Trash Monitoring and Reporting Program.

Although a USEPA TMDL exists for DDTs and PCBs for Santa Monica Bay, the TMDL relies on a limited dataset outside of the JG7 watershed area to establish stormwater load allocations. The TMDL mass-based waste load allocations for DDTs and PCBs are equivalent to the estimated existing stormwater loads (i.e., based on data used in the TMDL, zero MS4 load reduction is required). As a result, it is anticipated that for the WMP RAA, no reductions in DDT and PCB loading from the JG7 MS4s are required to meet the TMDL WQBELs. And while DDTs and PCBs cannot be modeled as a stormwater pollutant for the RAA (due to the lack of land use event mean concentrations and BMP performance data), it will be qualitatively evaluated. It is also noted that the implementation of future institutional and/or structural BMPs throughout the SMB JG7 WMP area will lead to a reduction in runoff volume and suspended sediment loading from the MS4s, thereby further reducing the existing mass load of any sediment-bound DDTs and/or PCBs to the Santa Monica Bay. For these reasons, while DDT and PCBs will be included as Category 1 pollutants, they will be prioritized lower than bacteria and debris within Category 1, and will continue to be evaluated further through the CIMP monitoring effort.

2.2.2 Category 2 – High Priority

Category 2 (high priority) WBPCs are defined as *"pollutants for which data indicate water quality impairment in the receiving water according to the State's Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Listing Policy) and for which MS4 discharges may be causing or contributing to the impairment."*

There are no WBPCs within the SMB JG7 WMP area that currently qualify as Category 2.

2.2.3 Category 3 – Medium Priority

Category 3 (medium priority) designations are to be applied to WBPCs that are not 303(d)-listed but which exceed applicable receiving water limitations contained in the Permit and for which MS4 discharges may be causing or contributing to the exceedance.

There are no WBPCs within the SMB JG7 WMP area that currently qualify as Category 3.

2.3 Source Assessment

The following data sources have been reviewed as part of the source assessment for bacteria and DDT/PCBs in the Santa Monica Bay subwatersheds:

- Findings from the Permittees' Illicit Connections and Illicit Discharge (IC/ID) Elimination Programs;
- Findings from the Permittees' Industrial/Commercial Facilities Programs;
- Findings from the Permittees' Development Construction Programs;
- Findings from the Permittees' Public Agency Activities Programs;
- TMDL source investigations;
- Watershed model results;
- Findings from the Permittees' monitoring programs, including but not limited to TMDL compliance monitoring and receiving water monitoring; and
- Any other pertinent data, information, or studies related to pollutant sources and conditions that that contribute to the highest water quality priorities.

Since the only receiving water in the SMB JG7 WMP area is the Santa Monica Bay, the following source assessment is broken down by pollutant.

2.3.1 Indicator Bacteria

Wet weather runoff event mean concentrations (EMCs) for fecal coliform, based on the Southern California Coastal Water Research Project (SCCWRP) land use data for the Los Angeles region (Stein *et al*, 2007), indicate that the highest concentrations are expected from agricultural land uses (there are none in the SMB JG7 WMP area), followed by commercial and educational, single family residential, multi-family residential, open space, industrial, and transportation. The SCCWRP study also found that in some cases the levels of fecal indicator bacteria at the recreational (horse) and agricultural land use sites were as high as those found in primary wastewater effluent in the United States. Tiefenthaler *et al* (2011) also found that horse stable sites contributed to significantly higher wet weather EMCs than other land use types.

The Santa Monica Bay Beaches Bacteria TMDL for both dry and wet weather was the first bacteria TMDL adopted by the Regional Board in the State of California. The Santa Monica Bay Beaches Bacteria TMDL was recently opened for reconsideration, although the source assessment was not part of this update. As a result, the general findings from the original source assessment remain unchanged. These findings are summarized in the 2012 Basin Plan Amendment for the reopened Santa Monica Bay Beaches Bacteria TMDL (Attachment A to Resolution No. R12-007):

> *"With the exception of isolated sewage spills, dry weather urban runoff and stormwater runoff conveyed by storm drains and creeks is the primary source of elevated bacterial indicator densities to beaches. Limited natural runoff and groundwater may also potentially contribute to elevated bacterial indicator densities during winter dry weather"* (Regional Board, 2012).

The Santa Monica Bay Beaches Bacteria TMDL source assessment maintains that dry weather urban runoff and stormwater runoff is the primary source of elevated bacteria concentrations at Santa Monica Bay beaches. Although definitive information regarding the specific sources of bacteria within the watershed is not presented, speculation provided in the dry weather staff report provides some insight into possible sources:

> *"Urban runoff from the storm drain system may have elevated levels of bacterial indicators due to sanitary sewer leaks and spills, illicit connections of sanitary lines to the storm drain system, runoff from homeless encampments, illegal discharges from recreational vehicle holding tanks, and malfunctioning septic tanks among other things. Swimmers can also be a direct source of bacteria to recreational waters. The bacteria indicators used to assess water quality are not specific to human sewage; therefore, fecal matter from animals and birds can also be a source of elevated levels of bacteria, and vegetation and food waste can be a source of elevated levels of total coliform bacteria, specifically"* (Regional Board, 2002).

The 2010-2011 and 2011-2012 Los Angeles County Municipal Stormwater Permit Individual Reports[3] for the JG7 agencies report that both sanitary sewer overflows and IC/ID, while eliminated shortly after being reported, do sometimes occur in their jurisdiction (but not necessarily within the SMB JG7 WMP area).

Additionally, information on non-MS4 sources of surfzone bacteria were compiled and based on a comprehensive review of Southern California published literature, as part of comments on the reopened Bacteria TMDL (City of Malibu, 2012):

> *"A number of recent Santa Monica Bay studies have further identified and confirmed natural (non-anthropogenic) sources of fecal indicator bacteria (FIB) including plants, algae, decaying organic matter, beach wrack and bird feces – implicating these as potentially significant contributors to exceedances (Imamura et al, 2011; Izbicki et al, 2012). Beach sands, sediments*

[3] The available Annual Reports were reviewed for 2010-2011 and 2011-2012.

and beach wrack have been shown to be capable of serving as reservoirs of FIB, possibly by providing shelter from ultra violet (UV) inactivation and predation by allowing for regrowth (Imamura et al, 2011;, Izbicki et al, 2012; Lee et al, 2006; Ferguson et al, 2005; Grant et al, 2001; Griffith, 2012; Litton et al, 2010; Phillips et al, 2011; Jiang et al, 2004; Sabino et al, 2011; and Weston Solutions, 2010). In fact, enterococci include non-fecal or "natural" strains that live and grow in water, soil, plants and insects (Griffith, 2012). Thus, elevated levels of enterococci in water could be related to input from natural sources. The phenomenon of regrowth of FIB from either anthropogenic or natural sources has been suggested by several studies as a possible source of beach bacteria exceedances (Griffith, 2012; Litton et al, 2010; Weston Solutions, 2010; Izbicki et al, 2012; Weisberg et al, 2009)."

Other sources of bacteria during wet weather are anticipated to include other non-MS4 permitted stormwater discharges such as Industrial General Permit sites, Construction General Permit sites, Phase II MS4 Sites (e.g., college campuses), State/Federal owned lands, non-MS4 open space areas such as wildlife habitat, and the California Department of Transportation (Caltrans).

2.3.2 DDT and PCBs

As stated previously, limited data are available to characterize DDT and PCBs within Santa Monica Bay, particularly since direct discharges of these pollutants from publically-owned treatment works (POTWs) have ceased. The largest concentration of DDT and PCBs within Santa Monica Bay is contained within the Palos Verdes shelf, which is being addressed by the USEPA as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. Loadings from the shelf to the Bay are large and have been well characterized (USEPA, 2012).

With respect to stormwater, the TMDL does not specifically characterize MS4 loadings, though it does recognize that *"DDT and PCBs are no longer detected in routine stormwater sampling from Ballona Creek or Malibu Creek."* However, the TMDL also states that current detection limits used to analyze DDT and PCB concentrations are too high to appropriately assess the water quality.

No other data or source information is available at this time. Once three years of water quality data are collected from Ballona Creek and Santa Monica Canyon Channel and evaluated consistent with the recommendations by USEPA in the TMDL to utilize a three-year averaging period[4], then further source assessment will be considered and the categorization and prioritization of PCB and DDTs as MS4-related pollutants of concern will be reevaluated.

[4] The three-year averaging period is recommended by the USEPA TMDL in Section 8.2, which reads, *"We recommend that stormwater waste load allocations be evaluated based on a three year averaging period"* (USEPA, 2012). Additionally, Permit Attachment M states that compliance with the PCB and DDT waste load allocations shall be determined based on a three-year averaging period.

3
Watershed Control Measures

The Permit specifies that control measures, also referred to as BMPs, shall be identified to ensure that stormwater discharges meet RWLs and WQBELs as established in the Permit and to reduce overall impacts to receiving waters from stormwater and non-stormwater runoff.

BMPs are typically grouped into two broad categories, structural and institutional. Structural BMPs are physically-constructed control measures that alter the hydrology or water quality of stormwater or non-stormwater within the MS4 and are designated as either centralized or distributed based on their location within a watershed and size of contributing drainage area. Institutional BMPs are source control measures that prevent the release of flow/pollutants or transport of pollutants within the MS4 area, but do not involve construction of physical facilities. Minimum control measures (MCMs) are a subset of institutional BMPs.

Due to the zero required load reductions and the SMB JG7 WMP geography (outfalls are located on unstable cliffs and there are landslide and liquefaction hazards throughout the SMB JG7 WMP area), there are currently no centralized or distributed BMPs planned in the SMB JG7 WMP area at this time. In the event that CIMP monitoring demonstrates a need for quantitative RAA modeling and BMP implementation, BMPs may be selected based on performance data, subsurface conditions, land uses within the contributing drainage areas, and other relevant characteristics.

3.1 Minimum Control Measures/Institutional BMPs

The Permit requires the implementation of MCMs in Parts VI.D.4 through VI.D.10. These MCMs are similar to the programs required under the previous MS4 Permit (Order No. 01-182).

Although the previous MS4 Permit required implementation of MCMs, some of the key modifications introduced by the current MS4 Permit related to MCMs include:

- The Permit calls for more outreach and education as part of the Public Information and Participation Program (PIPP). Permittees, for example, will be required to maintain a website with stormwater-related educational materials.
- Permittees are expected to record additional information on industrial and commercial facilities within their jurisdiction as part of their Industrial/Commercial Facilities Program. For example, industrial/commercial facilities records will need to list receiving waters for which each respective facility is tributary to.
- The Permit provides more detailed criteria on BMP sizing and specification for use in the Permittees' Planning and Land Development Program, formerly the Development Planning Program, and calls for annual reporting of implemented mitigation projects.
- An Erosion and Sediment Control Plan (ESCP), which includes elements of a Storm Water Pollution Prevention Plan (SWPPP), replaces the Local SWPPP (L-SWPPP) as a required document for construction activities meeting certain criteria as a prerequisite to building/grading permit issuance.
- The Permit also requires Permittees to use an electronic tracking system to track construction activities within their jurisdiction and mandates slightly more aggressive inspection schedules.
- The Public Agency Activities Program remains largely unchanged with the exception of requiring Permittees to inventory existing developments for BMP retrofitting opportunities.

A comprehensive comparison between program requirements of the previous and current MS4 Permits is summarized in **Table 3-1**. Permittee activities under the Storm Water Management Program are summarized in the Los Angeles County Unified Annual Stormwater Reports; the report for the most recent reporting year is available at http://ladpw.org/wmd/npdesrsa/annualreport/index.cfm (Los Angeles County Department of Public Works, 2012).

As required by the Permit, the agencies in the SMB JG7 WMP group are continuing to implement the MCMs required under the 2001 MS4 Permit until the WMP is approved by the Regional Board. Applicable new MCMs will be implemented by the time the WMP is approved by the Regional Board. A brief description of each Program MCM and the tasks associated with each are summarized next. The implementation summaries of the Program MCM tasks identified are available in the Unified Annual Stormwater Report published by the Los Angeles County Department of Public Works.

The agencies in the SMB JG7 WMP group have also developed mechanisms for tracking information related to new development/re-development projects that are subject to post-construction BMP requirements in Part VI.D.7 of the MS4 Permit.

Table 3-1
Comparison of Stormwater Management Program MCMs

Program Element	Activity	Previous Permit (Order No. 01-182)	Current Permit (Order No. R4-2012-0175)
Public Information and Participation Program	Public Education Program - advisory committee meeting (once per year)	X	
	"No Dumping" message on storm drain inlets (by 2/2/2004)	X	
	Reporting hotline for the public (e.g., 888-CLEAN-LA)	X	X
	Outreach and education	X	X
	Make reporting info available to public	X	X
	Public service announcements, advertising, and media relations	X	X
	Public education materials - proper handling	X	X
	Public education materials - activity specific	X	X
	Educational activities and countywide events	X	X
	Quarterly public outreach strategy meetings (by 5/1/2002)	X	
	Constituent-specific outreach information made available to public	X	X
	Business Assistance Program	X	
	Educate and inform corporate managers about stormwater regulations	X	
	Maintain storm water websites		X
	Provide education materials to schools (50 percent of all K-12 children every two years)	X	X
	Provide principle permittee with contact information for staff responsible for storm water public educational activities (by 4/1/2002)	X	X
	Principal permittee shall develop a strategy to measure the effectiveness of in-school education programs	X	
	Principle permittee shall develop a behavioral change assessment strategy (by 5/1/2002)	X	
	Educate and involve ethnic communities and businesses (by 2/3/2003)	X	X
	Reporting hotline for the public (e.g., 888-CLEAN-LA)	X	X
Industrial/Commercial Facilities Program Industrial/Commercial Facilities Program	Track critical sources – Restaurants	X	X
	Track critical sources - Automotive service facilities	X	X
	Track critical sources – RGOs	X	X
	Track critical sources - Nurseries and nursery centers		X
	Track critical sources – USEPA Phase I facilities	X	X
	Track critical sources - Other federally-mandated facilities [40 Code of Federal Regulations (CFR) 122.26(d)(2)(iv)(C)]	X	X
	Track critical sources - Other commercial/industrial facilities that Permittee determines may contribute substantial constituent load to MS4		X
	Facility information - Name of facility	X	X
	Facility information - Contact information of owner/operator	Name only	X
	Facility information - Address	X	X
	Facility information – North American Industry Classification System (NAICS) code		X
	Facility information – Standard Industrial Classification (SIC) code	X	X
	Facility information - Narrative description of the activities performed and/or principal products produced	X	X
	Facility information - Status of exposure of materials to storm water		X
	Facility information - Name of receiving water		X
	Facility information - ID whether tributary to 303(d) listed water and generates constituents for which water is impaired		X
	Facility information - NPDES/general industrial permit status	X	X
	Facility information - No Exposure Certification status		X
	Update inventory of critical sources annually	X	X
	Business Assistance Program	Optional	X
	Notify inventoried industrial/commercial sites on BMP requirement		Once in 5 years
	Inspect critical commercial sources (restaurants, automotive service facilities, retail gasoline outlets and automotive dealerships)	Twice in 5 years	Twice in 5 years
	Inspect critical industrial sources (phase 1 facilities and federally-mandated facilities)	Twice in 5 years[1]	Twice in 5 years[2]
	Verify No Exposure Certifications of applicable facilities		X
	Verify Waste Discharge Identification (WDID) Number of applicable facilities	X	X
	Source control BMPs	X	X
	Provisions for Significant Ecological Areas (SEAs) (Environmentally Sensitive Areas (ESAs)	X[3]	X
	Progressive enforcement of compliance with stormwater requirements	X	X
	Interagency coordination	X	
Planning and Land Development Program	Peak flow control (post-development stormwater runoff rates, velocities, and duration)	X	X[4]
	Hydromodification Control Plan	In lieu of countywide peak flow control	
	SUSMP (by 3/3/03)	X	
	Volumetric treatment control (SWQDv) BMPs	X	X
	Flow-based treatment control BMPs	X	X
	Require implementation of post-construction Planning Priority Projects as treatment controls to mitigate storm water pollution (by 3/10/2003)	X	X
	Require verification of maintenance provisions for BMPs	X	X
	California Environmental Quality Act process update to include consideration of potential stormwater quality impacts	X	
	General Plan update to include stormwater quality and quantity management considerations and policies	X	
	Targeted employee training of development planning employees	X	
	Bioretention and biofiltration systems		X
	SUSMP guidance document	X	
	Annual reporting of mitigation project descriptions		X
Development Construction Program	Erosion control BMPs	X	X
	Sediment control BMPs	X	X
	Non-storm water containment on project site	X	X
	Waste containment on project site	X	X
	Require preparation of a Local SWPPP for approval of permitted sites	X	X
	Inspect construction sites on as-needed basis		X
	Inspect construction sites equal to or greater than one acre	Once during wet	Once every two

Watershed Control Measures

Program Element	Activity	Previous Permit (Order No. 01-182)	Current Permit (Order No. R4-2012-0175)
		season	weeks[5], monthly
	Electronic tracking system (database and/or Geographic Information System)		X
	Required documents prior to issuance of building/grading permit	L-SWPPP	ESCP/SWPPP
	Implement technical BMP standards		X
	Progressive enforcement	X	X
	Permittee staff training	X	X
Public Agency Activities Program	Public construction activities management	X	X
	Public facility inventory		X
	Inventory of existing development for retrofitting opportunities		X
	Public facility and activity management	X	X
	Vehicle maintenance, material storage facilities, corporation yard management	X	X
	Landscape, park, and recreational facilities management	X	X
	Storm drain operation and maintenance	X	X
	Streets, roads, and parking facilities maintenance	X	X
	Parking facilities management	X	X
	Emergency procedures	X	X
	Alternative treatment control BMPs feasibility study	X	
	Municipal employee and contractor training		X
	Sewage system maintenance, overflow, and spill prevention	X	
Illicit Connection/Illicit Discharge (IC/ID) Elimination Program	Implementation program	X	X
	MS4 Tracking (mapping) of permitted connections and illicit connections and discharges	X	X
	Procedures for conducting source investigations for IC/IDs	X	X
	Procedures for eliminating IC/IDs	X	X
	Procedures for public reporting of ID		X
	IC/ID response plan	X	X
	IC/IDs education and training for staff	X	X

[1] Tier 2 facilities may be inspected less frequently if they meet certain criteria
[2] Subject to change based on approved JG7 WMP strategy
[3] For environmentally sensitive areas and impaired waters
[4] Maintain pre-project runoff flow rates via hydrologic control measures
[5] Sites of threat to water quality or discharging to impaired water; frequency dependent on chance of rainfall

3.1.1 Customization of MCMs

In lieu of the requirements of Parts VI.D.4 through VI.D.10 of the Permit, the SMB JG7 WMP Group may customize MCMs within each of the general categories. The motivation for considering customization is made more apparent in the Regional Board's response to a comment that the Permit should establish criteria that will be used to support any customization of MCMs; the Regional Board responded with the following:

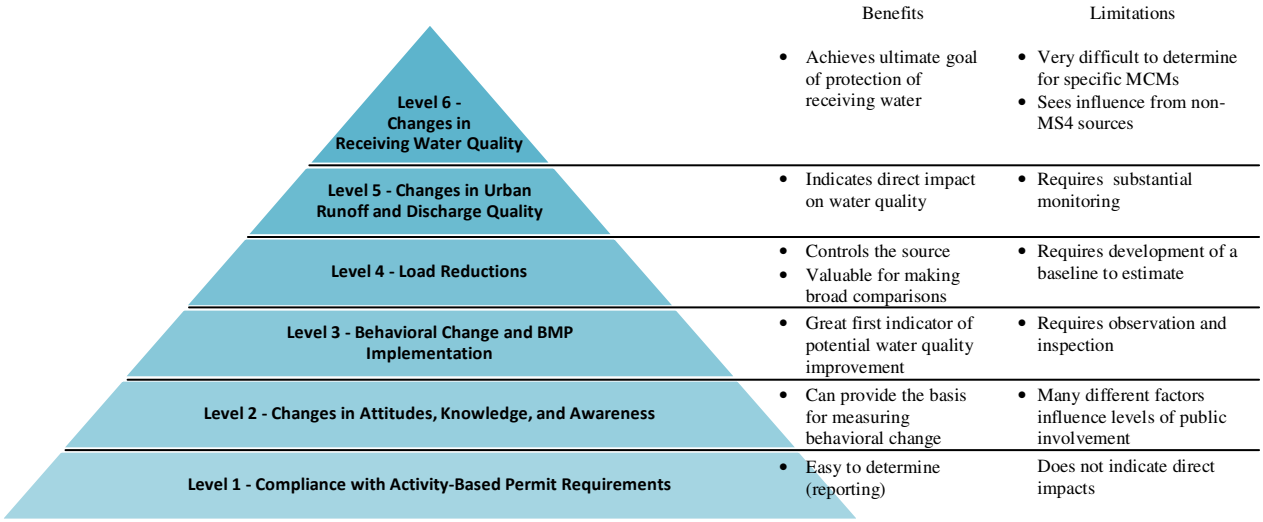
> *The Order specifies that at a minimum, Permittees' programs shall be consistent with 40 CFR section 122.26(d)(2)(iv)(A)-(D). In response to comments that the Order is overly prescriptive, specifying criteria could restrict customization within these categories of minimum control measures. The criterion to allow customization is based on showing equivalent effectiveness, for example, a municipality who has identified a group of facilities within their jurisdiction as the largest source of constituents could be allowed to focus their inspection efforts on controlling the constituents from this subset of facilities.*
> (http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/StormSewer/CommentLetters/E_MCM%20Matrix%2010-26-12%20Final.pdf)

The opportunity for customization may provide benefit by allowing the SMB JG7 WMP Group to assess the effectiveness of their current programs and to modify their programs to better serve local conditions and objectives. If an effectiveness assessment is conducted on a specific MCM activity and it can be reasonably shown that customization of the MCM would result in equal or improved effectiveness on attitudes or knowledge, behavior or implementation, load reduction, or water quality, then a defensible recommendation for modification of that activity can be made, resulting in greater resources available for more effective activities.

The SMB JG7 WMP Group is not planning to customize MCM activities at this time. However, in the event that MCM customization would be beneficial to the identified WBPCs or if CIMP results indicate adjustments would be beneficial and/or needed, the first step in customizing MCM activities would be the development of a framework to assess the effectiveness of each MCM in its current implementation. For each MCM that can be assessed in this manner, recommendations for customizations can be developed with reasonable assurance of impact to effectiveness.

The California Stormwater Quality Association (CASQA) provides such a framework for the effectiveness assessment of Stormwater Management Programs (CASQA, 2006). The outcome is a hierarchy that categorizes the classification of outcome types (levels) that will allow MCMs to be placed into one or more categories for subsequent outcome assessment. The outcome levels, Level 1 through Level 6, are summarized in **Figure 3-1**.

Figure 3-1
General Classification of Outcome types (adapted from CASQA)



3.1.2 MCMs and Outcome Levels

The outcome types in this effectiveness assessment framework are interrelated. The Permit's stormwater management program is, by design, intended to improve the water quality in receiving waters. The means by which this goal is intended to be met is through the implementation of compliance measures by the SMB JG7 WMP Group. Compliance with these activity-based measures results in Level 1 outcomes. Assessments of these activities can provide further understanding of the outcomes they have. Ideally, each activity will contribute to the improvement at the Level 6 receiving water quality level; however, tracking effectiveness at this level is difficult.

A summary of the MCM activities of the agencies within the SMB JG7 WMP Group is included in the 2011-12 Annual Stormwater Report (Los Angeles County Department of Public Works, 2012). In addition to the standard reporting, the agencies answered a list of questions in an Assessment of Program Effectiveness. This summary largely includes responses that may be considered as Level 1 outcomes (compliance) with Level 2, Level 3, and Level 4 outcomes for select MCMs. Several obstacles inhibit the ability to achieve a Level 5 or Level 6 assessment, including:

- Available budget;
- Lack of comprehensive monitoring;
- Timing of MCM activities and corresponding runoff events; and/or
- General complexity of the hydrology and conveyance.

All SMB JG7 WMP Group members were in compliance with the Permit during the 2011-12 reporting year (Level 1 outcome). **Table 3-2** summarizes effectiveness assessment metrics and potential outcomes associated with select MCMs within each Program Element of the Storm Water Management Program. The following is a brief description of the Program MCMs and outcome levels that can be achieved through the effectiveness assessment framework described.

3.1.2.1 Public Information and Participation Program

The PIPP is intended primarily to reach out and educate the general public, students, business owners, facility operators, city staff, and others on stormwater. This outreach is accomplished in many ways; examples include "No Dumping" messages on storm drain inlets; public education materials; information

websites; community events; reporting hotlines; and specialized awareness programs, such as the used oil program. The program elements are intended to directly impact awareness and the behavior of different target audiences (Level 2 and Level 3 outcomes). Consequently, these behavioral changes may impact constituent loads to the MS4 indirectly, but the actual Level 4 through Level 6 impact of a specific MCM in this category may be difficult to quantify.

3.1.2.2 Industrial/Commercial Facilities Program

Permittees are required to conduct an Industrial/Commercial Facilities Program designed to prevent illicit discharges, reduce discharges of stormwater, and prevent industrial/commercial discharges to the MS4 from causing or contributing to receiving water quality exceedances. These facilities are tracked and inspected to ensure use of BMPs to control stormwater discharges. In addition, the program aims to contribute to the education of business owners and facility operators regarding SWPPP. The effectiveness of this program can be assessed leading to insight on how awareness (Level 2) and BMP implementation (Level 3) are affected.

3.1.2.3 Planning and Land Development Program

The Planning and Land Development Program involves developers early in the land development stage, with the integration of BMPs and Low Impact Development (LID) controls to reduce constituent loading to the MS4 and minimize runoff intensity generated from impervious areas. Behavioral change (Level 3) can be assessed through permitting staff observations. Also, it may be possible to assess constituent load reductions (Level 4) through land developer BMP choices and water quality of runoff entering the MS4 (Level 5) if monitoring stations are considered during the planning stage of development and redevelopment.

3.1.2.4 Development Construction Program

Similar to the Planning and Land Development Program, the Development Construction Program establishes requirements for construction activities to eliminate illicit discharges and prevent water quality violations from stormwater discharges from the construction site. The Program establishes criteria for BMPs and controls through an Erosion and Sediment Control Plan, with elements of a SWPPP. The effectiveness of this program can be assessed through inspections to verify BMP implementation (Level 3). Level 2 awareness outcomes can be assessed through the use of a website that informs contractors on proper BMP selection and prerequisite checklists for permitting.

3.1.2.5 Public Agency Activities Program

Activities ranging from street sweeping, catch basin cleaning, public facility maintenance, and storm drain operation fall under the Public Agency Activities Program. These activities are essential MCMs that can also be measured for effectiveness. Level 3 through Level 5 outcomes (behavior, load reduction, MS4 water quality) can all be assessed through appropriate evaluation metrics. The impact to receiving water quality (Level 6) may be possible to determine if appropriate monitoring is in place, with phased implementation of MCM activities to isolate performance evaluation.

3.1.2.6 Illicit Connections and Illicit Discharges Elimination Program

IC/IDs are controlled through the IC/ID Elimination Program and by implementing a procedure for reporting, tracking, and responding to reports of IC/IDs, as well as establishing protocols for the regular inspection of storm drains. The effectiveness of the reporting procedure can be assessed on a Level 2 (awareness) basis, and response activities can have their effectiveness determined directly through monitoring of the MS4 water quality (Level 5). A quantitative analysis of behavioral change (Level 3) as a result of enforcement actions is also achievable.

3.1.3 Next Steps to MCM Customization

The assessment framework outlines the process to determine baseline MCM effectiveness, providing the foundation for customization. Pending the results of the approved CIMP, opportunities for modifying

MCM activities may be proposed by the SMB JG7 WMP Group as part of the adaptive management process.

It should be noted, however, that institutional BMPs (or MCMs) such as street and median sweeping implementations, drain inlet and conveyance system cleaning, pet waste program enhancements, etc. are anticipated to cumulatively result in a pollutant load reduction between 5% and 8%. Additionally, assuming past data also reflect future trends, it is anticipated that 0.1 – 0.2% of residential, commercial, and industrial properties will implement LID annually through development or redevelopment projects[5]. Although RWLs are currently being met, it is anticipated that implementation of LID will further enhance the water quality in this region.

[5] 0.1% annual estimate is based on a review of development/redevelopment projects within the SMB JG7 WMP Group area over the past 10 years assuming a 0.2 acre lot size. 0.2% annual estimate is based on the area-weighted projected development/redevelopment rate for residential, commercial, and industrial land uses reported by the City in the Ballona TMDL Implementation Plan.

Table 3-2
Effectiveness Assessment Measures for Various Activities under the Storm Water Management Program

Program MCM	Permittee Activity	Possible Assessment Metric	Outcome Level
Public Information and Participation Program	Advertising / media campaigns (e.g., Used Oil / Used Oil Filter Program)	Year-over-year change in no. of impressions	L2
		Survey results	L2, L3
	Educational programs (e.g., Generation Earth, Environmental Defenders, public workshops)	Year-over-year change in attendance	L2
		Quiz results	L2, L3
	E-Waste collection events	Amount of Household Hazardous Waste/E-Waste	L3, L4
	888-CLEAN-LA hotline	Change in no. of calls	L2
	www.888CleanLA.com	No. of unique visitors / document downloads	L2
Industrial/Commercial Facilities Program	Website on program details	No. of unique visitors / document downloads	L2
	Electronic tracking	Inspections: change in no. of Notices of Violation (NOV) / non-compliance	L3
Planning and Land Development Program	Pre-permitting assessment	No. of developers incorporating BMPs and LID in early-stage	L3
	Annual reporting	% of stormwater capture	L3, L4
	Integrated control measures	Measure performance through planned monitoring	L5
Development Construction Program	Website on program details	Number of hits / document downloads	L2
	Electronic tracking	Inspections: change in no. of NOV / non-compliance	L3
Public Agency Activities Program	Street sweeping	Street sweeper fleet (technology)	L3
		Year-over-year change in debris collected	L3, L4
	Catch basin cleaning	Year-over-year change in trash collected	L3, L4
	Installation of trash receptacles	Observations: cleanliness of public roadways	L3
	Sanitary sewer overflow response	Monitoring results of MS4 water quality	L5
IC/ID Elimination Program	IC/ID reporting hotline	Year-over-year change in no. of calls	L2
	Termination of IC/ID	Outfall monitoring: change in water quality	L5
	Enforcement actions	Change in occurrence	L3
Other	Support for Senate Bill (SB) 346 (Brake Pad Initiative)	% of vehicles with reduced-copper-content brake pads	L4

4
Reasonable Assurance Analysis

Typically, an important component of the WMP is the RAA. The RAA is a process that is used to demonstrate that institutional and structural control measures are expected to be sufficient for achieving applicable WQBELs and/or RWLs for the water body pollutant combinations that have compliance deadlines within the Permit term. In addition to using the RAA as a means to determine the efficacy of existing and potential control measures, the RAA also facilitates the selection of BMPs as well as the prioritization of BMP implementation.

For the SMB JG7 WMP, there are currently zero required load reductions for the Category 1 WBPCs: bacteria at the Santa Monica Bay Beaches and PCBs/DDTs in the Santa Monica Bay. Compliance with the Trash TMDL is being demonstrated through retrofitting of catch basins as outlined in the Trash Monitoring and Reporting Program (City of Los Angeles Department of Public Works, 2012). No Category 2 or Category 3 WBPCs have been identified based on currently available monitoring data. Furthermore, it is anticipated that implementation of MCMs and related activities will progressively improve water quality.

Therefore, no quantitative RAA modeling is required for this WMP. For purposes of completeness, however, each Category 1 WBPC is qualitatively discussed below.

4.1 Bacteria

The Implementation Plan for compliance with the Wet Weather Santa Monica Bay Beaches Bacteria TMDL for the larger JG7 documents historical monitoring at eight sampling locations between 1997 – 2000 for indicator bacteria. Based on the historical monitoring having fewer exceedances than the reference beach, the Implementation Plan concluded that *"as JG7 already meets the baseline goals and only needs to implement provisions to prevent "backsliding"; the non-integrated approach will be selected. No milestones are proposed, as existing conditions are the equivalent of compliance with the TMDL"* (Regional Board, 2012). As a result, the Implementation Plan states that JG7 should continue to implement BMPs, review the LA County Sanitation Districts' data, and perform investigations as necessary. Tables M-1 and M-2 of Attachment M to the MS4 Permit also show that the compliance monitoring locations within the SMB JG7 WMP geographical area, SMB 7-6 and SMB 7-8 are subject to antidegradation conditions because the beaches have fewer exceedance days than the reference beach. Therefore, there is a zero required load reduction for bacteria, and reasonable assurance is demonstrated.

As part of the adaptive management process based on monitoring data collected through the approved CIMP, structural and/or nonstructural BMPs may be proposed if needed.

4.2 PCBs and DDTs

The Santa Monica Bay TMDL for DDTs and PCBs developed WLAs for stormwater throughout the Santa Monica Bay watershed. Because the SMB JG7 WMP group area is not distinctly defined in the TMDL, the WLAs assigned to the entire Santa Monica Bay WMA are being used for this discussion. Table 6-3 in the TMDL lists the existing annual DDT and PCB loads as compared to the annual maximum allowable loads. The existing estimated loads for all of Santa Monica Bay and most of the individual watersheds are lower than the maximum allowable loads. As such, the WLAs for the entire Santa Monica Bay WMA were set equal to the existing annual loads for DDTs and PCBs as 28 grams per year (g/yr) and 145 g/yr, respectively. Therefore, there is a zero required load reduction for PCBs and DDTs, and reasonable assurance is demonstrated.

As part of the adaptive management process based on monitoring data collected through the approved CIMP, additional structural and/or nonstructural BMPs may be proposed if needed.

4.3 Debris, and Plastic Pellets

Compliance with the Debris TMDL will be met through a phased retrofit of all 218 catch basins throughout the JG7 WMP area (182 City owned and 38 County owned) by 2016, ahead of the Regional Board implementation goals for 2020 completion date. Consistent with the City's Trash Monitoring and Reporting Plan (TMRP) (City of Los Angeles Department of Public Works, 2012), *"vertical insert[s] with 5-mm openings and flow activated opening screen covers are the best suited for implementation within the City to achieve compliance with Trash TMDLs"*.

There are no industrial facilities within the SMB JG7 WMP area that use, store, transport, manufacture, or handle plastic pellets. Therefore, the City's Plastic Pellet Monitoring and Reporting Plan (PMRP) will only include an emergency response plan.

5
Adaptive Management Process

The Notice of Intent submitted to the Regional Board in December 2013 provided a schedule of interim milestones for the development of the CIMP and WMP Plan. At this time, the SMB JG7 WMP Group does not anticipate any deviations from the schedule. Completed milestones and projected completion dates for future milestones are presented in **Table 5-1.** The catch basin retrofit schedule, as provided in the TMRP, is also included in the table.

Table 5-1
WMP Schedule of Interim and Final Milestones

Deliverable	Planned Date of Completion
Submit Final Draft WMP to the Regional Board	June 2014
Submit Final Draft CIMP to the Regional Board	June 2014
57 catch basin opening cover and/or insert retrofits (cumulative) (26%)	December 2015
161 catch basin opening cover and/or insert retrofits (cumulative) (100%)	July 2016

The WMP is intended to be implemented as an adaptive program. As new program elements are implemented and information is gathered over time, the WMP will undergo modifications to reflect the most current understanding of the watershed and present a sound approach to addressing changing conditions. As such, the WMP will employ an adaptive management process that will allow the WMP to evolve over time.

5.1 Compliance Schedule

The compliance deadlines in the Santa Monica Bay Beaches Bacteria TMDL are currently in effect for SMB 7-6 and SMB 7-8. The TMDL for PCBs and DDTs does not include a compliance schedule for the WLAs for the Santa Monica Bay WMA, but because the WLAs were set based on the existing loads, the Santa Monica Bay WMA is considered to be in compliance, and therefore a compliance schedule for this TMDL is not being proposed at this time. The compliance schedule for the Santa Monica Bay Nearshore and Offshore Debris TMDL is provided in **Table 5-1**.

Part VI.C.8 of the Permit details the adaptive management process to be included in the WMP that includes the following requirements:

i. Permittees shall adapt the WMP to become more effective every two years from the date of program approval based on, but not limited to, a consideration of:

   (1) Progress toward achieving WQBELs and/or RWLs;

   (2) Permittee monitoring data;

   (3) Achievement of interim milestones;

   (4) Re-evaluation of water quality priorities and source assessment;

   (5) Non-Permittee monitoring data;

   (6) Regional Board recommendations; and

(7) Recommendations through a public participation process.

ii. Permittees shall report any modifications to the WMP in the annual report.

iii. Permittees shall implement any modifications to the WMP upon approval by the Regional Board or within 60 days of submittal if the Regional Board expresses no objections.

The adaptations to the WMP as called for in the adaptive management process essentially include a re-evaluation of water quality priorities, an updated source assessment, an effectiveness assessment of watershed control measures, and a RAA. The CIMP will gather additional data on receiving water conditions and stormwater/non-stormwater quality to inform these analyses. This process will be repeated every two years as part of the adaptive management process.

5.2 Re-Characterization of Water Quality Priorities

Water quality within the SMB JG7 WMP Group will be re-characterized using data collected as part of the approved CIMP. WBPCs may be updated as a result of changing water quality. Category 3WBPCs will be identified based on data collected as part of the approved CIMP. These classifications will be important for refocusing improvement efforts and informing the selection of future watershed control measures.

Demonstration that MS4 discharges have caused or contributed to the exceedance of receiving water limitations will be made by meeting both of the following criteria:

- Simultaneously collected water samples, as consistent with the CIMP, exceed the receiving water limitations as sampled in the receiving water and exceed the WQBELs, action levels as defined in Appendix G, or receiving water limits, in that order, at the MS4 outfall and
- The number of simultaneous samples and simultaneous exceedances meet the criteria in Tables 3.1 and 3.2 in California's Water Control Policy (Regional Board, 2004).

5.3 Source Assessment Re-evaluation

The assessment of possible sources of water quality constituents will be re-evaluated based on new information from the CIMP implementation efforts. The identification of non-MS4 and MS4 pollutant sources is an essential component of the WMP because it determines whether the source can be controlled by watershed control measures. As further monitoring is conducted and potential sources are better understood, the assessment becomes more accurate and informed.

5.4 Effectiveness Assessment of Watershed Control Measures

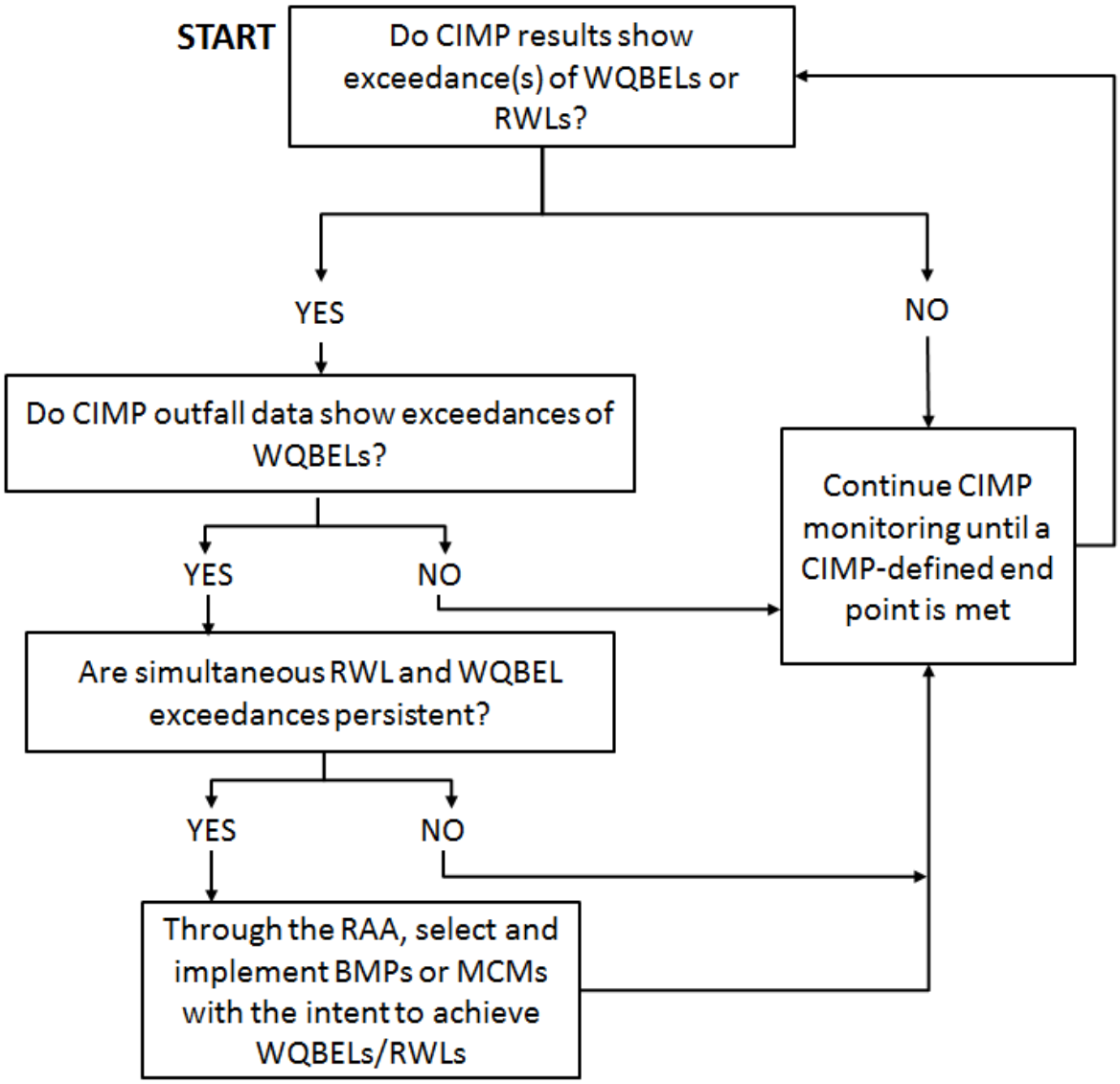
The evaluation of BMP effectiveness is an important part of the adaptive management process and the overall WMP. Implementation of the CIMP can provide a quantitative assessment of structural BMP effectiveness, if BMPs are implemented in the future, as it relates to actual pollutant load reduction to determine how selected BMPs have performed at addressing established water quality priorities. In addition, the adaptive management process is a required step for the customization of MCMs as detailed previously. Effectiveness assessment becomes important for the selection of future control measures to be considered.

5.5 Update of Reasonable Assurance Analysis

The RAA is an iterative process that depends on the continuous refinement and calibration of the watershed models when used. Data gathered as a result of the CIMP will support adaptive management at multiple levels, including (1) generating data not previously available to support model updates (if through the course of the CIMP, modeling becomes necessary in the SMB JG7 WMP), and (2) tracking

improvements in water quality over the course of WMP implementation. This process is illustrated in **Figure 5-1**.

Figure 5-1
Adaptive Management Process



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Wright Water Engineers (WWE) and Geosyntec Consultants, 2007. FAQ: Why does the International Stormwater BMP Database Project omit percent removal as a measure of BMP performance?

Table A1 – Average, Median, Minimum, and Maximum of Results for Santa Monica Bay Shoreline Monitoring Data (SMB JG7 WMP Group Area)

Analyte	Event Type	Station	Average (MPN/100ml)						Median (MPN/100ml)						Min (MPN/100ml)						Max (MPN/100ml)					
			2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013
Total Coliform	Dry-Summer	SMB 7-6	82.6	34.2	42.9	28.1	102.1	94.7	12	18	31	18	36	59	1	3	3	1	1	4	950	140	240	120	1400	340
Total Coliform	Dry-Winter		21	391.1	29.2	131.3	91.1	39.3	8.5	30.5	16	19.5	33.5	18	3	1	1	4	5	8	160	3600	78	570	540	120
Total Coliform	Wet		101.6	352.3	244.1	172.6	796.1	93.8	98	230	73	71	90	65.5	4	18	4	4	4	12	240	1000	1600	800	8000	310
Fecal Coliform	Dry-Summer		24.8	9.6	9.3	11.6	41.3	14.2	2.5	3.5	4	5.5	9	6	1	1	1	1	1	1	580	50	56	72	580	110
Fecal Coliform	Dry-Winter		9.9	34	13.3	101.4	52.4	16.4	2	8.5	3.5	7	15.5	8	1	1	1	1	1	4	100	250	78	480	470	62
Fecal Coliform	Wet		11.3	26.5	21.2	23.6	43	35.3	6.5	31.5	5	13	11	8	1	5	1	3	1	1	44	40	100	78	260	160
Enterococcus	Dry-Summer		24.7	11.6	16.2	17.1	17.4	11.1	2	3	4	7.5	4	4	1	1	1	1	1	1	360	78	260	90	120	160
Enterococcus	Dry-Winter		11.1	197	38.5	158.1	34.5	12.8	4	16	14	7.5	10	4	1	1	1	1	1	1	44	2600	140	1700	190	62
Enterococcus	Wet		119.4	75.8	82	99	141.8	6.8	46	69	24	14	42	6	1	12	1	1	1	3	560	170	270	1000	1200	16
Total Coliform	Dry-Summer	SMB 7-8	53.4	23.2	12.3	47	460.8	46.2	9	4	6.5	10	18	12	1	1	1	1	1	1	1200	200	73	200	8800	600
Total Coliform	Dry-Winter		22.9	60.1	11.4	1210	102.6	97.9	15.5	12	8	35	14	27	1	1	1	1	1	1	120	600	36	13000	1000	410
Total Coliform	Wet		73	126.2	59	230.3	95.5	193	55	82	36	115.5	54.5	27.5	1	18	1	1	3	8	200	290	200	1200	200	690
Fecal Coliform	Dry-Summer		4.8	3.1	1.8	5.1	35.3	6.6	1	1	1	1	4	1	1	1	1	1	1	1	30	27	5	33	660	74
Fecal Coliform	Dry-Winter		6.8	16.4	1.8	2.4	3	2.8	4	1	1	1	2	1	1	1	1	1	1	1	20	170	4	8	8	15
Fecal Coliform	Wet		4.6	16.5	6.9	25	13.5	10.4	5	11	3	4.5	4	3	1	4	1	1	1	1	9	46	36	200	100	50
Enterococcus	Dry-Summer		5	5.2	2.9	6.7	32.5	2	1	1	1	1	1	1	1	1	1	1	1	1	44	62	19	97	780	19
Enterococcus	Dry-Winter		7.9	37.5	4	20.7	3.3	2.2	3	4	1	3	1	1	1	1	1	1	1	1	54	540	17	180	13	11
Enterococcus	Wet		23	44.2	19.9	116.6	35.2	10.5	9.5	31	8	12	5.5	1.5	1	4	1	1	1	1	70	120	100	1100	280	49