

### TABLE OF CONTENTS

2.0	2007–2008 SCOPE OF WORK.....	2-1
2.1	Mass Loading Station and Temporary Watershed Assessment Station Monitoring .....	2-1
2.2	Rapid Stream Bioassessment Monitoring.....	2-7
2.3	Toxicity Identification Evaluations.....	2-8
2.4	Ambient Bay and Lagoon Monitoring.....	2-8
2.5	Dry Weather Monitoring.....	2-9
2.6	Coastal Storm Drain Monitoring .....	2-9
2.7	Synthetic Pyrethroid Monitoring .....	2-10
2.8	MS4 Outfall Monitoring .....	2-10
2.9	Annual Reporting.....	2-11

### LIST OF FIGURES

Figure 2-1. Regional Monitoring Stations during Permit Years 2007–2008 and 2010– 2011 (North San Diego County Rotation) .....	2-3
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### LIST OF TABLES

Table 2-1. List of Monitoring Stations’ Latitudes and Longitudes .....	2-4
Table 2-2. Analytical Requirements for Mass Loading Stations.....	2-6



## **2007–2008 Scope of Work**

### **2.0 2007–2008 SCOPE OF WORK**

This section presents a description of activities that were completed during the 2007–2008 monitoring year by the San Diego County Copermittees to comply with the Receiving Waters and Urban Runoff Monitoring and Reporting Program Number R9-2007-0001 (Order). Permit year one (October 1, 2007–September 30, 2008) of the Order was used as the basis for these activities. Monitoring occurred in the northern section of San Diego County and in Chollas Creek as outlined in Table 1 of Section II.A.1(a) of the Order. The following monitoring activities were conducted by the Copermittees during the 2007–2008 Monitoring Season and are described in detail in each subsection:

- Mass loading station (MLS) and temporary watershed assessment station (TWAS) monitoring.
- Rapid stream bioassessment (RSB) monitoring.
- Toxicity identification evaluations (TIEs).
- Ambient bay and lagoon monitoring (ABLM).
- Coastal storm drain monitoring (CSDM).
- Synthetic pyrethroid monitoring.
- Municipal separate storm sewer system (MS4) outfall monitoring.
- Annual reporting.

Each element of monitoring is designed to answer the five core management questions. The core management questions, as listed in the Permit, are presented as follows:

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

### **2.1 Mass Loading Station and Temporary Watershed Assessment Station Monitoring**

Monitoring was conducted at the MLS and TWAS. Activities included identification of suitable station locations and subsequent installation of nine temporary TWAS, new to the monitoring program during the 2007–2008 Monitoring Season. The TWAS were upstream from the existing MLS in strategic locations designed to better understand where pollutant loadings are occurring.

Chemical, bacteriological, and toxicity testing of dry weather (ambient) flows was conducted for six MLS and nine TWAS located within the northern watersheds of San Diego County and at one MLS in Chollas Creek (total of 16 sites), as indicated in Table 1 of the Order. Wet weather monitoring occurred during the first significant rainfall event on or after October 1, 2007, and during one monitoring event after February 1, 2008. Ambient monitoring of MLS and TWAS occurred during Fall 2007 and Spring 2008. Trash assessments were conducted at each site in

accordance with the Monitoring Work Plan for the Assessment of Trash in San Diego County (WESTON, 2007). Figure 2-1 illustrates the MLS and TWAS monitoring locations for the 2007–2008 Monitoring Season.

### ***Season Mobilization and Demobilization of MLS/TWAS Monitoring Stations***

MLS and TWAS were installed and maintained to perform flow monitoring and sampling during the monitoring year (approximately September 1–June 30). This included siting monitoring locations, planning, and installation of new TWAS. Flow monitoring data were collected throughout the monitoring season for the purposes of estimating annual watershed loads.

### ***Stream Ratings***

Stream ratings were performed using U.S. Geological Service (USGS) stream rating techniques. MLS and TWAS channels were initially surveyed, and rating curves were developed using appropriate flow equations. During wet weather monitoring events, stream velocities were measured using an acoustic Doppler current profiler (ADCP) to calibrate the upper range of the rating curve for each site. Ratings curves may require periodic validation or re-calibration based on channel dimensions that may shift due to channel bed erosion or deposition through out the year. Regular station maintenance activities include periodic stream ratings.

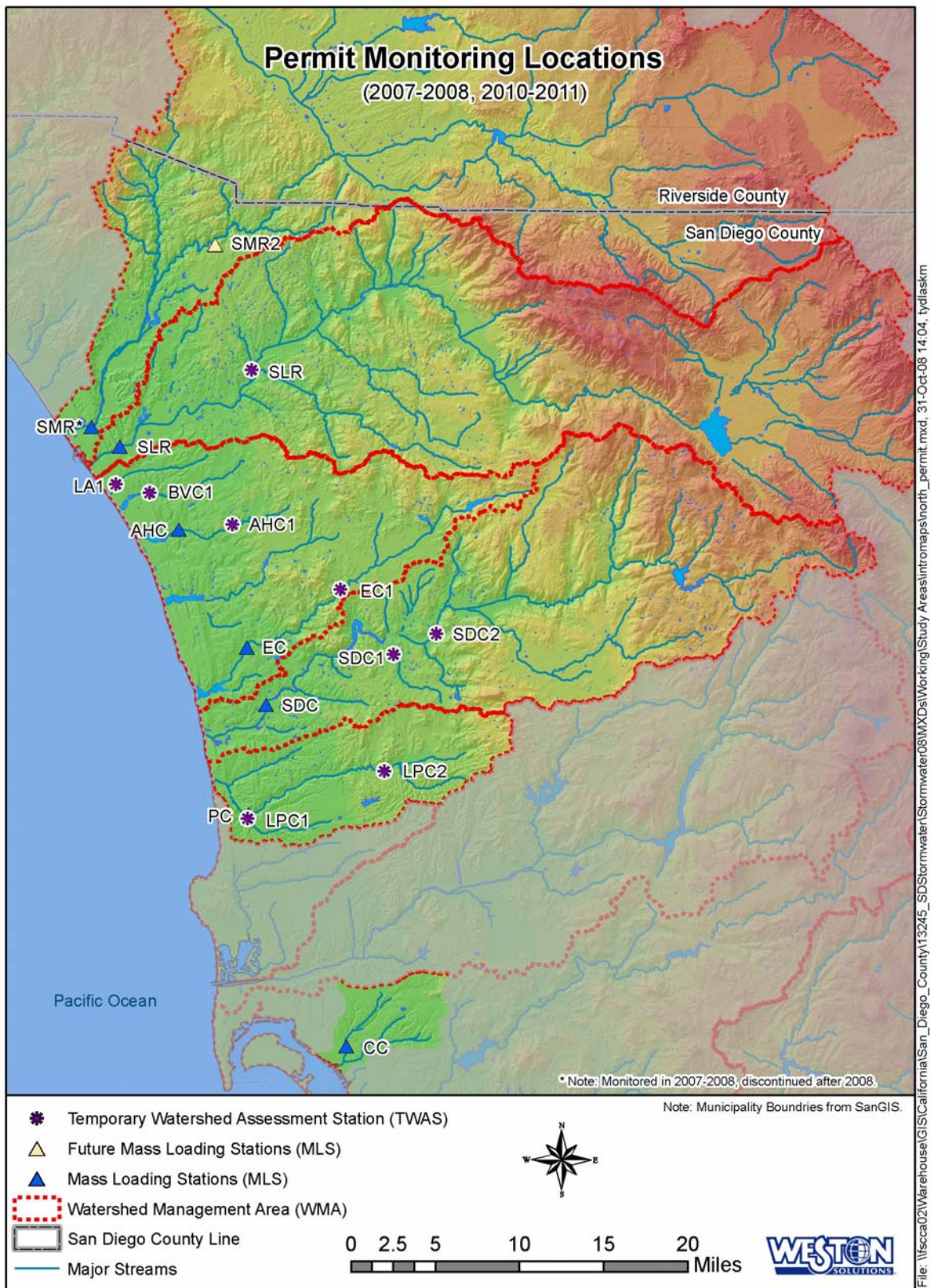
### ***Water Quality Monitoring at Seven Mass Loading Stations and Nine Temporary Watershed Stations during Dry Weather (ambient) Flow Events and Storm Event Flow***

Each MLS and TWAS was monitored twice during dry weather flow events and twice during storm event flows per the Order. This monitoring is performed on a rotating schedule in accordance with Table 1 of the Order. Dry weather monitoring events occurred during September or October 2007 and May or June 2008. In the event that flow was not evident during the Fall 2007 and Spring 2008 monitoring time periods, and if flow was evident during the wet weather season, sampling occurred during nonstorm events (e.g., > 72 hours after a storm event). Due to insufficient flow conditions at locations in Chollas Creek and San Dieguito River during Fall 2007, the first ambient monitoring event for these watersheds occurred during March 2008.

Each MLS and TWAS must be monitored twice during the wet weather monitoring season (defined as October 1 through April 30) per the Order. The MLS and TWAS must be monitored and sampled during the first viable rainfall event of the monitoring season and during one rainfall event after February 1. A viable storm event is considered a minimum of 0.1 inch of rainfall. Each storm of at least 0.1 inch of rainfall must be separated by a minimum of 72 hours of rainfall, and the forecasted storm volume must be within  $\pm 50\%$  of the average storm volume and duration for the region.

U.S. Marine Corps Base Camp Pendleton established and monitors the Santa Margarita River MLS, and they provide monitoring data to the San Diego County for assessment with the Copermittee program. Camp Pendleton voluntarily conducts and provides this monitoring data when possible.





**Figure 2-1. Regional Monitoring Stations during Permit Years 2007–2008 and 2010–2011 (North San Diego County Rotation)**

## 2007–2008 Scope of Work

A total of seven MLS sites were monitored (historical site locations were used):

- Santa Margarita River (provided by U.S. Marine Corps Base Camp Pendleton).
- San Luis Rey River.
- Agua Hedionda Creek.
- Escondido Creek.
- San Dieguito River.
- Los Peñasquitos Creek.
- Chollas Creek.

A total of nine TWAS were monitored in the following waterbodies:

- San Luis Rey River (1 site).
- Loma Alta Creek (1 site).
- Buena Vista Creek (1 site).
- Agua Hedionda Creek (1 site).
- Escondido Creek (1 site).
- San Dieguito River (2 sites).
- Los Peñasquitos Creek (2 sites).

A summary of the MLS and TWAS and their respective latitude and longitudes is provided in Table 2-1.

**Table 2-1. List of Monitoring Stations' Latitudes and Longitudes**

Watershed	Station Identifier	Latitude	Longitude
Santa Margarita River	SMR-MLS	33.237486	-117.387635
San Luis Rey River	SLR-MLS	33.220648	-117.358250
San Luis Rey River	SLR-TWAS-1	33.287859	-117.223293
Loma Alta Creek	LA-TWAS-1	33.188217	-117.361672
Buena Vista Creek	BVC-TWAS-1	33.180880	-117.326700
Agua Hedionda	AHC-MLS	33.149520	-117.297082
Agua Hedionda	AHC-TWAS-1	33.154209	-117.241583
Escondido Creek	EC-MLS	33.048290	-117.226032
Escondido Creek	EC-TWAS-1	33.099040	-117.130450
San Dieguito River	SDC-MLS	32.999082	-117.205625
San Dieguito River	SDC-TWAS-1	33.043400	-117.075380
San Dieguito River	SDC-TWAS-2	33.060990	-117.030670
Los Peñasquitos	LPC-MLS	32.904598	-117.222620
Los Peñasquitos	LPC-TWAS-1	32.900535	-117.223349
Los Peñasquitos	LPC-TWAS-2	32.942620	-117.084042
*Chollas Creek	CC-SD8(1)	32.704818	-117.120963

\*Monitoring is required during every year of the permit in Chollas Creek.

The MLS and TWAS monitoring occurred in a similar time frame within each watershed to assess the spatial distribution of monitored parameters. Sampling and analyses conducted for MLS or TWAS, summarized in Table 2-2 and described in further detail in the Sampling and Analysis Methods Section (Appendix B), is in accordance with applicable USEPA regulation and guidance. One flow-weighted composite was collected by autosampler, and field personnel collected one grab sample. Flow-weighted composite samples were collected during representative flow conditions. Trash assessments were conducted during each event at each MLS and TWAS in accordance with the Monitoring Work Plan for the Assessment of Trash in San Diego County (WESTON, 2007).

Flow-weighted composite samples were collected and analyzed for the following parameters:

- **Inorganic Chemicals**—Ammonia, total and dissolved organic carbon, total and dissolved phosphorus, nitrate, nitrite, total hardness, total kjeldahl nitrogen (TKN), total dissolved solids (TDS), total suspended solids (TSS), turbidity, methylene blue active substances (MBAS), and chemical oxygen demand (COD).
- **Metals (total metals and dissolved metals)**—Antimony, Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, and Zinc.
- **Organophosphate Pesticides**—Diazinon, Chlorpyrifos, and Malathion.
- **Synthetic Pyrethroids (storm events only)**—Allethrin, Bifenthrin, Cyfluthrin, Cypermethrin, Danitol, Deltamethrin, L-Cyhalothrin, Permethrin, and Prallethrin.
- **Toxicity Testing**—Using *Ceriodaphnia dubia*, *Selenastrum capricornutum*, and *Hyalella azteca*.
- **Organics (Chollas Creek only)**—Polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and Chlordane (for Permit, Section II.A.1.h, compliance).

Grab samples were analyzed for the following parameters:

- Field measurements of grab samples include temperature, pH, and specific conductance.
- Laboratory measurements were conducted on grab samples for biological oxygen demand (BOD), oil and grease (O&G), total coliform, fecal coliform, and enterococcus.

The MLS and TWAS equipment installed and monitored for dry weather and storm events remained in place during the course of the wet weather season. Continual flow data was downloaded remotely from each site on a monthly basis to provide a better understanding of flow estimates for pollutant loading information. Equipment was maintained throughout this period to ensure proper operation.



**Table 2-2. Analytical Requirements for Mass Loading Stations**

Constituent	Volume Required	Method	Target Reporting Limit	Units	Max Holding Time
<b>General Physical and Inorganic Non-Metals</b>					
TDS	100 mL	SM 2540C	20	mg/L	7D
TSS	100 mL	SM2540D	20	mg/L	7D
Turbidity	100 mL	SM 2130A-B	0.1	NTU	48H
Total hardness	150 mL	SM 2340B	10	mg/L	6M
pH (field)	In field	EPA 150.1	0.1	S.U.	-
Specific conductance (field)	In field	SM 2510B	1	umhos/cm	-
Temperature (field)	In field	Meter	-	-	-
Dissolved phosphorus	250 mL	SM 4500PE	0.05	mg/L	48H
Total phosphorus	250 mL	SM 4500PE	0.05	mg/L	28D
Nitrate	200 mL	SM4500NO3E	0.1	mg/L	48H
Nitrite	200 mL	SM4500NO2B	0.05	mg/L	48H
TKN	500 mL	SM4500C	0.1	mg/L	28D
Ammonia	250 mL	SM 4500NH3D	0.1	mg/L	28D
BOD, five-day (grab only)	1000 mL	SM5210B	2	mg/L	48H
COD	25 mL	EPA 410.4	25	mg/L	28D
Total organic carbon (TOC)	125 mL	SM 5310 B	1	mg/L	28D
Dissolved organic carbon (DOC)	125 mL	SM 5310 B	1	mg/L	28D
<b>Organics</b>					
O&G (grab only)	500 mL	EPA 1664	5	mg/L	14D
Diazinon	1 liter	EPA 625	0.05	µg/L	14D
Chlorpyrifos	1 liter	EPA 625	0.05	µg/L	14D
Malathion	1 liter	EPA 625	0.05	µg/L	14D
Synthetic pyrethroids (storm events only)	1 liter	GC/MS NCI Mode	0.005	µg/L	7 D
MBAS	250 mL	SM 5540C	1	mg/L	48H
<b>Chollas Creek Only (additional methods)</b>					
PCBs	1 liter	EPA 625	0.020	µg/L	14D
Chlordane	1 liter	EPA 625	0.005	µg/L	14D
PAHs	1 liter	EPA 625	0.10	µg/L	14D
<b>Metals – Total and Dissolved</b>					
Antimony (Sb)	75 mL	EPA 200.8	0.002	mg/L	6M
Arsenic (As)	75 mL	EPA 200.8	0.001	mg/L	6M
Cadmium (Cd)	75 mL	EPA 200.8	0.001	mg/L	6M
Chromium (Cr)	75 mL	EPA 200.8	0.005	mg/L	6M
Copper (Cu)	75 mL	EPA 200.8	0.001	mg/L	6M
Lead (Pb)	75 mL	EPA 200.8	0.001	mg/L	6M
Nickel (Ni)	75 mL	EPA 200.8	0.002	mg/L	6M
Selenium (Se)	75 mL	EPA 200.8	0.002	mg/L	6M
Zinc (Zn)	75 mL	EPA 200.8	0.02	mg/L	6M
<b>Bacteriological</b>					
Total coliform	200 mL	SM 9221B	20-1.6 mil.	MPN/100mL	6H
Fecal coliform	200 mL	SM9221E	20-1.6 mil.	MPN/100mL	6H
Enterococcus	200 mL	SM 9230	20-1.6 mil.	MPN/100mL	6H
Toxicity	10 liters	-	-	-	36H
96-hr acute and seven-day chronic and reproductive test with the cladoceran <i>Ceriodaphnia dubia</i>					
Chronic test with the freshwater algae <i>Selenastrum capricornutum</i>					
96-hr acute survival test with the amphipod <i>Hyalella azteca</i> .					



The MLS and TWAS monitoring answers core management questions 1, 2, 3, and 5. While some source information can be gained, this monitoring does not lend itself to interpreting direct relationship to the MS4 where most source tracking programs occur. However, the program is designed to provide needed information and works in tandem with the MS4 Monitoring Program, described in Subsection 2.8.

### 2.2 Rapid Stream Bioassessment Monitoring

Rapid stream bioassessment (RSB) monitoring was conducted in accordance with Permit year one of the Order. The Fall 2007 bioassessment sampling was not required as a result of Addendum No. 2 of the Order which specified that fall bioassessment surveys would not be required if the Copermittees participated in the Stormwater Monitoring Coalition (SMC) Spring 2009 Regional Sampling Program. During the 2007–2008 Monitoring Season, the Copermittees elected to participate in the SMC Monitoring Program and therefore only conducted the RSB Program survey during Spring 2008.

RSB monitoring was conducted pursuant to California Department of Fish and Game (CDFG) RSB monitoring procedures to provide a measure of stream health. During the RSB surveys, periphyton monitoring was conducted in accordance with the EPA's Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers (EPA 841-B-99-002, Section 6.2). RSB survey and periphyton survey methods are explained in detail in the Methods Section (Appendix B).

The following procedures were used for site sampling and analyses:

- Sample and analyze substrate samples for benthic infauna from each of 19 bioassessment monitoring stations and three reference stations. Station locations are collocated with MLS and TWAS where feasible but may be moved between sampling events depending on the physical conditions of the site (e.g., wet versus dry). Field measurements, including pH, temperature, dissolved oxygen, conductivity, flow rate, percent gradient, sampling area physiography, and overall assessment of physical habitat (e.g., vegetative cover, bank stability, and other relevant observations), were obtained at each station.
- Periphyton monitoring followed the field-based rapid survey. Samples were also collected and analyzed for chlorophyll-a and ash-free dry mass (AFDM). Periphyton taxonomy was conducted by the Southern California Coastal Water Research Project (SCCWRP).

Surveys occurred in May and June 2008, after the 2007–2008 wet weather monitoring period. This survey was performed in coordination with the dry weather monitoring event in order to compare water quality results with the bioassessment results. Two locations in the Santa Margarita River were sampled in September 2008 and do not have an associated MLS or TWAS. One station (SMR-MLS) was not sampled in the Santa Margarita River due to coordination issues with MCB Camp Pendleton. Stations were distributed to cover each of the five northern watershed management areas in San Diego County and the Chollas Creek watershed in accordance with the Order.

## 2007–2008 Scope of Work

The following waterbodies were sampled at the following locations (upstream/downstream):

- Santa Margarita River (3 stations).
- San Luis Rey River (2 stations).
- Loma Alta Creek (1 station).
- Buena Vista Creek (1 station).
- Agua Hedionda Creek (2 stations).
- Escondido Creek (2 stations).
- San Dieguito River (3 stations).
- Los Peñasquitos Creek (3 stations).
- Chollas Creek (1 station).

RSB samples were analyzed pursuant to the CDFG procedure. Chlorophyll-a and AFDM were analyzed by CRG Marine Laboratories, Inc. The RSB Program was performed in accordance with the minimum SWAMP protocols, as required by the Order. A 10% quality assurance check was performed on taxonomic identification by the CDFG laboratory.

Copermittee receiving water sample data from RSB monitoring were analyzed. Multimetric assemblage analyses were conducted simultaneously to analyze the populations of benthic invertebrates in order to provide a relative assessment of ecological health. Bioassessment data analysis included the calculation of the Index of Biotic Integrity (IBI) for benthic macroinvertebrates for bioassessment stations as outlined in *A Quantitative Tool for Assessing the Integrity of Southern California Coastal Streams* (Ode et al., 2005).

The RSB surveys provide information to answer core management questions 1, 2, and 5. Some information can be deduced regarding the relative urban runoff contribution by comparing results to reference sites. RSB surveys do not provide source information.

### 2.3 Toxicity Identification Evaluations

TIEs were used to determine the causative agent of toxicity based on the Triad Approach to determine follow-up actions. Phase I confirmatory TIEs were scheduled for toxicity to *Hyaella azteca* in Agua Hedionda and/or Chollas Creek during the first wet weather monitoring event. Due to insufficient sample volume for the composite sample from Chollas Creek, and due to previous TIEs conducted in Chollas Creek indicating synthetic pyrethroids as the causative agent of toxicity, only one TIE was conducted in Agua Hedionda Creek during the first storm event.

TIEs provide information to answer core management questions 2 and 4. TIEs are used primarily to answer specific questions related to identifying the causes of toxicity.

### 2.4 Ambient Bay and Lagoon Monitoring

The Copermittees were not required to conduct the ABLM Program identified in the Order during the 2007–2008 Monitoring Season. The Regional Water Quality Control Board

## **2007–2008 Scope of Work**

(RWQCB) provided a letter to the Copermittees dated June 12, 2008, detailing the tradeoff of resources from the ABLM requirement for the 2007–2008 monitoring period which would then be committed to the Bight '08 eutrophication study in San Diego Lagoons (RWQCB WPS Place Number 710562: Ibusse, 2008). The Copermittees agreed to contribute funds to the Bight '08 Eutrophication Study detailed in the Copermittees 2008–2009 Scope of Work. The ABLM Program will be further developed during the 2008–2009 Monitoring Season following the results of the Bight '08 Monitoring Program.

### **2.5 Dry Weather Monitoring**

Each jurisdiction conducts a separate Dry Weather Monitoring Program described in each Jurisdictional Urban Runoff Management Program Annual Report. Dry weather samples are collected from the jurisdictions' MS4 in order to detect and eliminate illicit discharges and illegal connections. Samples are collected from May 1–September 30 each permit year. The results from each of the individual dry weather monitoring programs are compiled into a regional data-sharing format at the conclusion of the dry weather monitoring year. These results are then included in the data assessment framework presented in each watershed assessment section. The results of the 2007 Dry Weather Monitoring Program were included in this report's data assessment and provide a comparison of urban runoff in the MS4 to the ambient and storm event receiving water condition.

The Dry Weather Monitoring Program primarily answers core management questions 3 and 4 which address urban runoff discharges in the MS4. The Dry Weather Monitoring Program data partially answers core management questions 1, 2, and 5 and is primarily limited to the MS4 system.

### **2.6 Coastal Storm Drain Monitoring**

Each coastal jurisdiction conducts a separate Coastal Storm Drain Monitoring (CSDM) Program. The purpose of the CSDM Program is to detect and eliminate illicit discharges and illegal connections resulting in coastal beach closures for bacteria. Samples are collected from outfalls and receiving waters and are analyzed for fecal bacteria indicators (total coliform, fecal coliform, and enterococcus) in accordance with the CSDM Program Work Plan (SDCRC, 2007).

The results from the CSDM Program are provided annually as a separate report (Appendix J). The reporting period of the CSDM Program occurs from October 1 through September 30 of each monitoring year. For the purposes of assessing the data in the data assessment framework and for comparing with other relevant monitoring programs, the CSDM data from May 1, 2007 through April 30, 2008, were assessed. Data from May 1 through September 30 provide an assessment of dry weather urban runoff conditions. Data from September 30 through April 30 provide an assessment of wet weather urban runoff conditions.

The CSDM Program primarily answers the core management questions 3 and 4 which address urban runoff discharges and the relation to receiving water impairments. Because samples are

also collected in the receiving water, questions 1, 2, and 5 can also be answered. The use of this data to answer core management questions 1, 2, and 5 is limited to the areas where paired samples are collected and only applies to bacterial data.

### **2.7 Synthetic Pyrethroid Monitoring**

Synthetic pyrethroids are pesticides currently used to control termites, ants, and for other insects such as mosquitoes, roaches, and spiders. These pesticides are currently available commercially as well as over the counter and have replaced the use of the organophosphate pesticides Chlorpyrifos and Diazinon which were banned in 2004 and 2005, respectively, from retail sale and commercial uses.

In order to measure and assess the presence of synthetic pyrethroids in receiving waters, the Copermittees developed the Monitoring Work Plan for the Assessment of Synthetic Pyrethroids in San Diego County (WESTON, 2007). The work plan was developed in response to the permit requirements outlined in Section II.A.7 of the Order. The work plan specified that water samples would be collected and analyzed as part of the standard analytical list for storm water sample events. Because pyrethroids are associated with sediments typically related to high-velocity flows (e.g., during storm events) dry weather ambient flows were not analyzed for pyrethroids; however, post-storm sediment samples were collected after the first major storm event of the season in order to assess the presence of synthetic pyrethroids in receiving waters.

Sediment samples were collected within two weeks following the first monitored storm of the season from six MLS and nine TWAS located within the northern watersheds of San Diego County and from one MLS in Chollas Creek (total of 16 sites). These samples were analyzed for synthetic pyrethroids, TOC, and grain size distribution. Samples were collected in accordance with the Monitoring Work Plan for the Assessment of Synthetic Pyrethroids in San Diego County (WESTON, 2007). Post-storm sediment sampling will occur over the five-year permit cycle.

Synthetic pyrethroid monitoring answers the core management questions 1, 2, 3, and 5 which address beneficial use impacts in relation to urban runoff. Synthetic pyrethroid monitoring also answers core management question 4 which addresses sources of urban runoff that are contributing to receiving water problems.

### **2.8 MS4 Outfall Monitoring**

During the 2007–2008 Monitoring Season, the Copermittees collaboratively developed the MS4 Outfalls Monitoring Program in San Diego County Watershed Management Areas (SDCRC, 2008). The purpose of this program is to characterize pollutant discharges from MS4 outfalls in each watershed during wet and dry weather as required by Section II.B.1 of the Order.

The targeted MS4 Outfall Monitoring Program was implemented during the Summer 2008. Targeted sampling was conducted to address the following subquestions:

1. Which of the targeted MS4 outfalls have the greatest pollutant loading?
2. Are the pollutant loadings decreasing from these MS4 outfalls?

Targeted sampling is conducted to assess the relative contribution of a particular constituent discharged from MS4 outfalls to the high-priority problems of the receiving waters. The site-specific station design of the targeted program will generate information to support source prioritization in each WMA and will assess constituent trends over time.

### 2.9 Annual Reporting

The results of the monitoring activities conducted during the 2007–2008 monitoring year are provided in this annual monitoring report and outline the following:

- Mass loading station and temporary watershed assessment station wet and dry weather monitoring.
- Rapid stream bioassessment monitoring surveys.
- Dry Weather Field Screening and Analytical Monitoring Program.
- Coastal storm drain monitoring.
- Pyrethroid monitoring.
- Ambient bay and lagoon monitoring.
- MS4 outfall monitoring.
- Available third-party data from the 2007–2008 monitoring year.

This report includes data and results summaries, explanations, and discussions of data. Data comparisons, recommendations for future monitoring—based on the Watershed Data Assessment Framework (MEC, 2004)—comparison of current storm water monitoring results to previous years monitoring results, watershed management area assessments, and identification of trends are included in the report. This report builds on the database developed during the previous seasons for long-term trend analysis and provides:

1. Watershed-based analysis of findings for each monitoring program component, including:
  - Identification and prioritization of water quality problems.
  - Watershed water quality characterization and potential source analysis.
  - Load/concentration analyses at MLS/TWAS.
  - Statistical evaluation of loads/concentrations at MLS/TWAS to land use, population, and sources.
  - Source activity linkage to water quality impacts.
  - Identification of recommended future monitoring to identify and address sources of water quality problems.
  - Results and discussion of TIEs, along with actions to reduce pollutant discharge and abate sources causing toxicity. Identification of areas that may require TIEs based on analysis of chemical and toxicity data at MLS, as required in Order No. 2001-01 Attachment B, Section II.B, and at RSB monitoring stations, as required by Order No. 2001-01 Attachment B, Section II.A.2.



2. A detailed description of monitoring conducted under Investigation Order No. R9-2004-0277 for Chollas Creek, as well as information required by Investigation Order No. R9-2004-0277.
3. A discussion for each watershed and how monitoring answers each of the management questions listed in Section I.B of the Order.
4. Identification of how goals listed in section I.A of the Order are addressed by monitoring, including:
  - Compliance with the Order No. R9-2007-0001.
  - Measure and improve effectiveness of monitoring programs.
  - Assess chemical, physical, and biological impacts based on a “weight of evidence approach” in evaluating storm water effects. This includes creek health as measured by biological community diversity (bioassessment monitoring), as well as storm water quality measured at the mass loading station for chemical, physical and bacteriological contaminant levels (chemistry and microbiology tests) and toxic effects to organisms (toxicity testing).
  - Characterize urban runoff discharges by calculating wet and dry weather pollutant loading estimates based on almost year round flow data.
  - Prioritize drainage and sub-drainage areas that need management actions by identification of potential areas of concern based upon exceedances of water quality objectives, toxic effects, or community degradation in hydrologic units.
  - Detect and eliminate illicit discharges and illicit connections to the MS4 through use of information collected in the Dry Weather Field Screening and Analytical Monitoring program.
  - Assess the overall health of receiving waters using information from all components of the receiving water monitoring program, including MLS/TWAS, ABLM, and Bioassessment monitoring data.
  - Use of third party data to assist in the assessment of watersheds as applicable and available.
  - Incorporation of the Baseline Long Term Effectiveness Assessment (BLTEA) rating tables presented in the 2005-06 Annual Report. This is limited to reporting the assessment tables based on the previous five year data set.
5. Identification and analyses of long-term trends in storm water and receiving water quality using appropriate non-parametric methods.
6. Calculation of annual pollutant loads (wet and dry weather) due to urban runoff in watersheds identified in Table 4 of Order No. R9-2007-0001.
7. An assessment for monitoring program components listed above (both receiving water and urban runoff) for compliance with relevant water quality benchmarks or action levels, as applicable.

8. Describe monitoring station locations, including latitude and longitude, frequency of sampling, quality assurance/quality control procedures, and sampling analyses and protocols.
9. A standard format including a stand-alone, comprehensive executive summary addressing each section of the monitoring report, comprehensive interpretations and conclusions, and recommendations for future actions.

Following the development and review of the draft Annual Monitoring Report, comments received from the Copermittees are addressed and summarized, and responses are provided. Copermittees then collaborate to resolve comments, and the response-to-comments letter is incorporated as an appendix to this report. The necessary revisions are made, and a final report is provided to meet the RWQCB January 31, 2009, deadline.