II. Receiving Waters Limitations (RWL)

Compliance Status Report
City of Malibu
FY 2010-2011

Are you aware, or have you been notified, of any discharges from your MS4 that cause or contribute to a condition of nuisance or to the violation of any applicable water quality standards?

No, during FY 2010-2011, the City has not been notified and is not aware of any discharges from its MS4 that cause or contribute to a condition of nuisance or violation of any applicable water quality standards. The City is aware of local water quality exceedances in the adjacent receiving waters, but has no information that discharges from the City's MS4 are causing or contributing to them.

Has the Regional Board notified you that discharges from your MS4 are causing or contributing to an exceedance of water quality standards?

No, the Regional Board has not notified the City of any violations of water quality standards taking place during FY 20010-2011. There are ongoing disputes as to exceedances of water quality standards from earlier reporting years, as explained below.

The City of Malibu received a Notice of Violation (NOV) and 13383 Order from the Los Angeles Regional Water Quality Control Board dated March 4, 2008 stating that the City is in violation of waste discharge requirements established in Board Order No. 01-182 as amended by Orders R4-2006-0074 and Order No R4-2007-0042 (MS4 Permit). Regional Board technical staff had concluded that violations of the Receiving Waters Limitations provisions of Part 2.5 of the MS4 Permit had occurred due to alleged discharges from the MS4 that caused or contributed to exceedances of bacterial objectives during Summer Dry Weather as established through the Basin Plan Amendment for Santa Monica Bay Beaches. The City responded to the NOV and Order on May 21, 2008 and petitioned the State Water Resources Board challenging the NOV and Order, which was held in abeyance.

The City was surprised to receive a Second Notice of Violation in October 2009, relating back to the violations alleged in the original NOV and Order. The City believes that the information provided in response to the March 4, 2008 Notice of Violation and Order was responsive to the 13383 Order. The City submitted its response to the second NOV on December 1, 2009. During this reporting year, the RWQCB has removed the Santa Monica Bay Bacteria Dry Weather TMDL from the permit, and the RWQCB Executive Officer rescinded the NOVs issued to the City in 2008 and 2009, which originally triggered the need to file prior RWL Compliance Reports and status updates covering certain portions of the MS4.

Even still, the City is aware of exceedances of water quality standards that were discovered during sampling of receiving waters conducted on the City’s behalf, for required monitoring pursuant to this Order No. 01-182, the Malibu Creek Bacteria Total Maximum Daily Load (TMDL) Compliance Monitoring Plan, and the Santa Monica Bay Beaches (SMBB) Bacteria

TMDL Coordinated Shoreline Monitoring. The City has no information that discharges from the City's MS4 are causing or contributing to the exceedances in the receiving waters. In good faith, the City is submitting another status update

The Natural Resources Defense Council (NRDC) and Santa Monica Baykeeper filed a citizen suit against the City of Malibu in February 2008, which was subsequently amended to incorporate allegations regarding compliance with Bacteria TMDL requirements. The lawsuit stems from three Notices of Intent to Sue served on the City on May 31, 2007, September 10, 2007 and December 19, 2007 against the County of Los Angeles and the City of Malibu alleging exceedances of various pollutants from monitoring completed between the years of 2002- 2007. The lawsuit alleges exceedances from the following monitoring programs: Santa Monica Bay Beaches Bacteria TMDL Coordinated Shoreline Monitoring, LA County NPDES Storm Water Annual Monitoring, and Tapia Wastewater Treatment Plant Monitoring.

One of the issues being litigated in that case is whether discharges from the City's MS4 into the Area of Special Biological Significance (ASBS) were causing or contributing to violations of water quality standards. The City has no information that any potential discharges are changing the natural water quality in the ASBS. In fact, studies conducted as part of the Bight 08 Program (discussed further in this document) found that overall ASBS receiving water quality is in good condition. It also found that water quality results at ASBS discharge sites in receiving water were similar to reference sites. On average, the range of post-storm pollutant concentrations in receiving waters sampled near regulated ASBS discharge sites were not significantly different from post-storm concentrations at reference sites. In addition, there was no consistent increase from pre- to post-storm concentrations at either reference or regulated ASBS discharge locations, showing that discharges did not seem to alter background water quality. Nevertheless, the City is reporting on its clean water activities citywide, including the ASBS. Further information on this case and the district court's August 2, 2010 decision can be located on the docket for the United States District Court, Central District of California. See Santa Monica Baykeeper, et al. v. City of Malibu, Case No. CV 08-1465 AHM (PLAx).

Malibu's Reporting History

The City filed an RWL Compliance report with its 2006-2007 annual report. The, following receipt of and response to a 2008 NOV and 13383 Order, the City prepared and submitted a Receiving Waters Limitation Compliance Report (as an attachment to the NPDES MS4 Individual Annual Report for Fiscal Year 2007-2008) for Dry Weather at Coordinated Shoreline Monitoring locations in the receiving water in Santa Monica Bay (SMB) at certain sites as follows: SMB 1-06, Walnut Creek; SMB 1-07, Paradise Cove; SMB 1-08, Escondido Creek; SMB 1-09, Latigo Shore Drive; SMB 1-10, Solstice Creek; SMB 1-11, Puerco Beach; SMB 1-12, Marie Canyon; SMB 1-13, Sweetwater Canyon; SMB 4-01, Nicholas Creek; SMB MC-01, Malibu Colony Drive; SMB MC-02, Malibu Creek; and SMB MC-03, Malibu Pier.

Following submittal of these Compliance Reports, the City did not receive a request from the Regional Board to modify the Report in accordance with Part 2. 3. b) of the MS4 Permit. Absent any such request from the Regional Board, the City assumed that the measures described in the RWL Compliance Report were satisfactory to the Regional Board. The MS4 Permit requires the City to provide a RWL Compliance status report in alternating years following submittal of the first report. Accordingly, a RWL Compliance status report for Dry Weather at various SMB

beaches (as listed above) was submitted with the City's 2008-2009 and 2009-2010 Individual Annual Reports. Since the City filed reports two years in a row and has not received a response from the RWQCB's staff on the RWL reports, or the status updates, and due to the legal complexity of the reporting requirements (explained below), the City is submitting another report.

While the TMDLs are still incorporated into the Basin Plan, the Dry Weather waste load allocations are not incorporated into the Permit, and no active NOV is on file related to these zero point shoreline monitoring locations. According to Finding 24 of California Regional Water Quality Control Board, Los Angles Region's Resolution 2002-022:

> *The numeric targets in this TMDL are not water quality objectives and do not create new bases for enforcement against dischargers apart from the water quality objectives they translate. The targets merely establish the bases through which load allocations and waste load allocations (WLAs) are calculated. WLAs are only enforced for a discharger's own discharges, and then only in the context of its National Pollutant Discharge Elimination System (NPDES) permit, which must be consistent with the assumptions and requirements of the WLA. The Regional Board will develop permit requirements through a subsequent permit action that will allow all interested persons, including but not limited to municipal storm water dischargers, to provide comments on how the waste load allocations will be translated into permit requirements*.

Without (a) an active NOV notifying the City that it may be causing or contributing (b) to an enforceable water quality standard in the permit, it is unclear whether the City must continue RWL reporting for the various exceedances alleged in the NOV. It is also unclear whether Receiving Waters Limitation Compliance provisions apply to waste load allocations for winter dry weather bacteria at Santa Monica Bay Beaches since the TMDL was to have been re-opened two years after the effective date of the TMDL to re-evaluate allowable winter dry weather exceedance days based on additional data on bacteria indicator densities in the wave wash. The TMDL compliance monitoring provisions required that the reference beach and a number of other monitoring sites were relocated from their historical locations 50 yards away to a new location as close as possible to the "wave wash" or "zero point" and no farther away than 10 meters down current of freshwater outlets, which are either major storm drains that have measurable flow to the beach during dry weather or at the mouth of creeks. SMB 1-01, SMB 1-04, SMB 1-05, SMB 1-07, SMB 1-09, SMB 1-11, SMB 4-01 are examples of such re-located monitoring locations and thus a re-evaluation of the winter dry weather waste load allocations is necessary. The City is unable to determine how many winter dry weather exceedance-days are authorized under the permit, and when an RWL Compliance report is required, until such re-opener takes place.

It is similarly not clear whether or when an RWL Compliance report may be required for the waste load allocations assigned under the Wet Weather TMDL. Full compliance is not yet required and the Regional Board staff has not reconsidered the TMDL as required--this reconsideration was supposed to take place four years after the effective date and two years before the jurisdictional groups pursuing an integrated water resources approach for compliance were to achieve a 10% cumulative percentage reduction from the total wet weather exceedance-

day reductions for that jurisdictional group as identified in Table 7-4.6 of the TMDL.[1] Additionally, the interim milestones were to be re-evaluated considering planning, engineering and construction tasks based on the written implementation plan submitted to the Regional Board two years after the effective date of the TMDL. The RWQCB has not established methods for calculating the mandatory interim reductions, leaving the City unable to determine what the interim waste load allocations should be and whether they have been met. There are numerous problems with calculating the Rolling Geometric Mean objectives according to the method established in the TMDL and with the zero exceedance waste load allocations, themselves, including but not limited to:

1. The Santa Monica Bay Beaches Bacteria TMDLs have established numeric targets of no exceedances of the geometric mean objectives at any time, yet the reference beach has exhibited numerous exceedances of the geometric mean target—during the current reporting year, alone, the reference beach has exceeded the geometric mean target for 30 days during summer dry weather using the geometric mean method of calculation delineated in the TMDL.

2. Based on the current method for calculating the Rolling Geometric Mean with respect to enterococcus data, the compliance target of 35 MPN/100 mL is problematic. The current method for calculation assumes that the detection limit should be inserted for days in which there is no detection of enterococcus, however since the typical detection limit for enterococcus is 10 MPN/100mL, an entire month of no detections would yield a geometric mean value of 10 MPN/100mL which is nearly one third the target value without any actual detections of enterococcus. This can also be a problem for fecal coliform/E. coli depending on which laboratory is doing the analysis and which detection limits apply. By contrast for Total Coliform the geometric mean target is 1,000/100mL while the detection limits are again either 10 MPN/100 mL or 67 MPN/100 mL, depending on the laboratory. Utilizing the detection limit of 67 MPN/100 mL for Total Coliform in the calculation has much less influence on the calculated geometric mean value than for enterococcus or fecal coliform since the detection limit for Total Coliform is less than 1/10th that of the geometric mean target. The result will be that the Geometric Mean for Enterococcus and fecal coliform will be exceeded much more often than for total coliform. It would be more useful to insert a value in place of the detection limit that is some fraction of the detection limit, e.g., 1/100mL which would shift a non-detect day to less than 1/10th of the target value.

3. A study by SCCWRP of non-human impacted reference beaches in southern California during wet weather found that "Enterococci exhibited the greatest rate of water quality threshold exceedances <24 hours following recorded rainfall and the greatest persistence 3 days following a rain event." This persistence of enterococcus in southern California watersheds and in marine waters may not correlate well with the persistence of pathenogenic agents for which enterococcus is supposed to function as a surrogate.

Thus until the Dry- and Wet-Weather Santa Monica Bay Beaches Bacteria TMDLs are reconsidered, the City does not believe that the receiving waters limitation compliance objectives with respect to geometric mean targets can be properly evaluated.

[1] Los Angeles Regional Water Quality Control Board, December 12, 2002. Resolution No. 2002-022 Attachment A, Amendment to the Water Quality Control Plan—Los Angeles Region to incorporate Implementation Provisions for the Region's Bacteria Objectives and to incorporate the Santa Monica Bay Beaches Wet-Weather Bacteria TMDL.

Due to the legal complexity of the City's reporting obligations, the City is providing a compliance report below for SMB monitoring sites (SMB 1-07, 1-09, 1-10, 1-12, 1-13, MC- 01, 02 and 03 (as originally referenced in the now rescinded NOV), and additional sites where during this reporting year the summer dry weather and winter dry weather single-sample bacterial objectives may have exceeded the current allowable exceedance days objectives. The City does this to update on efforts to protect water quality and to explain why the City believes that discharges from its MS4 are not causing or contributing to a condition of nuisance or to the violation of any applicable water quality standards. It is important to note that multiple objectives measurement periods (summer dry weather and winter dry weather) overlap with the reporting year period, meaning that additional single sample exceedances may have been outside of this reporting year, but accounted for altogether during the full measurement period, may have contributed to an exceedance of the objective during the current permit year.

Lastly, the above mentioned notices and the monitoring reports did not evidence, or conclusively prove that discharges from the City's MS4 cause or contribute to a violation of water quality standards. These notifications of water quality standards exceedances in the receiving waters have, however, prompted the City to evaluate its stormwater program and further investigate sources of potential pollutants and ways to treat and prevent stormwater runoff. As set forth in the City's responses to the 2008 and 2009 NOV, and in its all of its RWL reports, the City does not necessarily concede responsibility for the alleged exceedances at any of the monitoring locations and is providing this information as a good faith means of fully apprising the Regional Board of its activities and to comply with the provisions of the MS4 permit.

As discussed in the Assessment of Program Effectiveness attachment to the reporting year 2010-11 Annual Report, in response to Item 5 *A description of water quality improvements or degradation in your watershed over the past fiscal year*, the three open beach shoreline monitoring locations at El Pescador, Las Tunas Beaches, and the Malibu Point at the Colony sample sites have continued to exhibit high water quality during both summer dry weather and winter dry weather consistent with their historically high water quality, and these sites continue to exhibit lower exceedance rates than the reference beach (which had no exceedances in the 2010 summer dry season, but three exceedances so far in the 2011 summer dry season). Thus no receiving waters limitation compliance reports are necessary for those monitoring locations.

If you answered Yes to either of the above questions, you must attach a Receiving Water Limitations (RWL) Compliance Report. The Report must include the following:

1. *A. Description of the pollutants that are in exceedance; and*

   B. Analysis of possible sources;

2. *A plan to comply with the RWL (Permit, Part 2);* this should include Permittee revising the SQMP and an implementation schedule.*

3. *Changes to the SQMP to eliminate water quality exceedances;*

4. *A. Enhanced monitoring to demonstrate compliance; and*

   B. Results of implementation.

MONITORING AND REPORTING PROGRAM - CI 6948 for Order 01-182

I. A.4 Pursuant to Part 2 of this Order, after a determination by either a Permittee or the Regional Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, a Receiving Water Limitations (RWL) Compliance Report shall be attached to the subsequent Unified Annual Report. ***A status RWL Compliance Report shall be submitted every alternate year following the submittal of the first Report.*** *The RWL Compliance Report shall include the following:*

a) A plan to comply with the RWL (Part 2 of this Order);
b) Changes to the SQMP to eliminate water quality exceedances;
c) Enhanced monitoring to demonstrate compliance; and
d) Results of implementation.

After all water quality exceedances have been abated, a RWL Compliance Report is not required. Two sites originally reported on in the City's RWL Complinace Report exhibited no exceedances of either dry weather water quality objectives. This will be addressed in the site description tables later in this document.

1. ***A description of the pollutants that are in exceedance and an analysis of possible sources;***

A. Description of Pollutants in Exceedance

The NRDC/Baykeeper's lawsuit alleges that the following pollutants were identified during the reporting years of 2002-2007:

- Sulfate
- Total Dissolved Solids
- Cadmium
- Copper
- Zinc
- Aluminum
- Dissolved oxygen
- pH
- Fecal Indicator Bacteria (FIB) (fecal coliform, enterococcus and total coliform)

However, much of the data relied upon to support these allegations was from outside the City limits or used water quality objectives not applicable to the receiving waters at issue. Therefore, the City will not report on any detailed updated data from the mass emissions monitoring station in Malibu Creek (upstream of the City limits).

As noted above, the City also received a Notice of Violation ('NOV") from the Regional Board March 4, 2008, indicating that results of the Coordinated Shoreline Monitoring as required by the Santa Monica Beaches Bacteria TMDL had exceeded single sample and geometric mean water quality limits for Fecal Indicator Bacteria (FIB). As noted in the May 21, 2008, letter from Bob Brager to Tracey Egoscue, then Executive Officer of the Regional Board, on behalf of the City of Malibu and in response to the NOV, the City contends that a number of the violations were

wrongly identified at the following eight monitoring sites: SMB 1-07, 1-09, 1-10, 1-12, 1-13, MC- 01, 02 and 03. The City also contends that a number of the identified violations at the following sites were not associated with MS4 discharges that are the responsibility of the City of Malibu: SMB 1-06, 1-08, 1-13, and MC -02. For details of the violations that the City contends were wrongly indentified, please see Malibu's full response letter to the NOV and 11383 Order and attachments sent to Tracey Egoscue, then Executive Officer of the Los Angeles Regional Water Quality Control Board, on May 21, 2008.

The City is aware of elevated constituent levels found at the monitoring locations in receiving waters reported during the 2007-2008 and subsequent Permit years from the following monitoring programs:

1) Malibu Creek Bacteria TMDL Compliance Monitoring Plan

The Malibu Creek Compliance Monitoring Program ("CMP") consists of in-stream sampling throughout the watershed in Malibu Creek and in tributary streams. Site MC-1 is in the Malibu Lagoon; however, samples from flow from these creeks and at this monitoring site do not necessarily evidence the presence of discharge from the MS4. Furthermore, the City has diverted its MS4 in this area to the Civic Center Stormwater Treatment Facility and Legacy Park (discussed in more detail later) and no longer discharges to the Lagoon in dry weather. In extreme and unique wet weather events, *treated* stormwater may be discharged to the creek.

> Indicator Bacteria (Total Coliform, Fecal Coliform, E. Coli and Enterococcus) were reported at sample site MC-1. The summer dry weather and winter dry weather objectives were exceeded for one or more fecal bacteria indicators at this site during the 2010-2011 reporting year.

2) Santa Monica Bay Beaches Bacteria TMDL Coordinated Shoreline Monitoring

The storm drain and natural creek outlets that have been monitored as part of the Santa Monica Bay Beaches Bacteria TMDL Coordinated Shoreline Monitoring are not owned or operated by the City. Most monitoring in this program occurs at the shoreline mouths of natural creeks. Additionally some of the watersheds have no contribution whatsoever from the City's MS4.

Indicator Bacteria (Total Coliform, Fecal Coliform, and Enterococcus) exceedances in dry weather were found at various shoreline monitoring locations along the North Santa Monica Bay downstream of the City. Updated status on those sites with alleged violations that prompted this RWL Compliance Report, and sites that may have exceeded the winter and summer dry weather bacterial objectives for this past reporting year are provided in the following table. The information provided in the tables on the following pages is submitted as potential exceedances because additional review of the data is necessary and the reconsideration of the TMDL by the Regional Board have not taken place. Additionally, the MS4 and drain information in the "comments" column is based on best available institutional knowledge and maps.

SMB Site ID	Name	Point Zero or Open Beach	In 2008 NOV (Y/N)	Dry Weather Objective Exceedance* 2010-2011	Comments
1-06	Walnut Creek	PZ	Y	None	Exceedance abated. No need to report further.
1-07	Paradise Cove	PZ	Y	WD2011, SD2011	No City MS4 upstream. Treatment Facility constructed at the outlet.
1-08	Escondido Creek	PZ	Y	WD2011, SD2011	Found not to have human specific bacteroides. No City owned MS4 in this drain shed.
1-09	Latigo Canyon	PZ	Y	SD2011	Limited MS4, only roadway drains to canyon.
1-10	Solstice Creek	PZ	Y	SD2011	Over 97% natural open space watershed. Two City MS4 inlets near entrance to the State Park serve to convey runoff from a creek overpass bridge.
1-11	Puerco Beach	PZ	Y	SD2011	No City roads or MS4 at this location. Completely open space.
1-12	Marie Canyon	PZ	Y	SD2011	No City MS4 at this location or up-gradient. Completely LA County FCD to a natural canyon, and with a treatment and disinfection facility at the outlet.
1-13	Sweetwater Canyon	PZ	Y	SD2010, WD2011, SD2011	No City MS4 at this location or up-gradient. This is 84% natural open space drainage area.
4-01	Nicholas Canyon	PZ	Y	SD2010	92% natural open space watershed. No City MS4 at this location or up-gradient. Sample is not actually obtained at point zero but at open beach area up-coast of the canyon's outlet.
MC-01	Malibu Colony Dr.	OB	Y	None	Exceedance abated. No need to report further. No City MS4 at this location or up-gradient.
MC-02	Malibu Creek/ Surfrider	PZ	Y	SD2010, WD2011, SD2011	City MS4 upstream is diverted to detention (8 ac ft.), treatment and disinfection facility. USGS studies show cause is natural sources of FIB-not MS4 or OWTS
MC-03	Malibu Pier	OB	Y	SD2010, WD2011, SD21011	No City MS4 at this location or up-gradient.

*WD= Winter dry weather objective and SD= Summer dry weather objective. It is followed by the year the exceedance was observed.

New Sites Exhibiting Potential FIB Exceedances in 2010-2011 Reporting Year					
SMB Site ID	**Name**	**Point Zero or Open Beach**	**In 2008 NOV (Y/N)**	**Dry Weather Objective Exceedance 2010-2011**	**Comments**
1-04	Trancas Canyon	PZ	N	WD2011, SD2011	86% natural open space. Remnant lagoon with a barrier berm which opens in wet weather.
1-05	Zuma Beach	PZ	N	SD2010, SD2011	80% natural open space in Bonsall/Zuma Canyon. Has a restored lagoon at the mouth of the creek with a barrier berm which opens in wet weather.
1-15	Big Rock	OB	N	SD2011	There is not a City MS4 drain here.
1-16	Pena Creek	PZ	N	SD2011	The monitoring report states that this site had no observed flows.

*WD= Winter dry weather objective and SD= Summer dry weather objective. It is followed by the year the exceedance was observed.

Sampling at the outfalls of the City's MS4 is not required and the City has not conducted such sampling. With the approximately 232 total catch basins/culverts that the City maintains (cleans and marks with a "No Dumping" message), no major open channels, and approximately 21,755 feet of closed stormdrain, much of the City's MS4 is in rural and rugged settings which the outfall drains to vegetated canyons. There is minimal infrastructure and the City does not have an extensive or modern system of curb and gutter, drainage pipes, or flood control channels operated by the City. The City of Malibu is not aware of any discharges directly from the MS4 that have caused or contributed to violations of water quality standards.

Although the Principal Permittee's Mass Emissions Monitoring Station in Malibu Creek near Piuma Road is upstream and outside of the limits of the City, the Creek still flows through the City limits and can carry materials downstream. Any results from the Principal Permittee's Stormwater Monitoring Program demonstrates that some pollutant loading to lower Malibu Creek and Lagoon occurs due to upstream sources. The 2008-2009 Stormwater Monitoring Report for that program showed that Sulfate, total dissolved solids (TDS), Fecal coliform and Total Mercury were exceeded upstream during at least one sampling event this year. The full 2008-2009 Stormwater Monitoring Report was submitted by the Principal Permittee to the Regional Board on August 20, 2009. The 2009-2010 Stormwater Monitoring Report published August 12, 2010 by the Principal Permittee reported that exceedances of water quality standards were observed in two wet weather events for both fecal coliform and sulfate, and in dry weather for sulfate during two events, and TDS during one event. The 2010-2011 Stormwater Monitoring Report published August 11, 2011 reported that exceedances of water quality standards were observed for fecal coliform, cyanide, pH, and sulfate.

B. Analysis of Possible Sources

i. Fecal Indicator Bacteria (FIB) (Total Coliform, Fecal Coliform, Enterococcus, and E. coli):

Sources are numerous, variant, and oftentimes unidentifiable. Total coliform can be attributed to the decay of any organic matter. Soils, decaying leaves, and animals are all potential sources of total coliform. Fecal coliform can originate in the intestines of any warm-blooded animal including birds, domestic pets, humans, or wildlife. Enterococcus also originates from the intestinal tracts of warm-blooded animals but can additionally live within the intestines of some fish species. Fluctuations in bacteria levels are not only related to the variety of sources, but studies have established correlations to seemingly innocuous factors as tide change, rack-line, moon phase, and season. It has also been found in high levels in the sand and on kelp.

It is well documented in literature that total coliform, fecal coliform and enterococcus bacteria, which are the indicator bacteria used in setting recreational standards for water quality and for setting compliance targets under the SMBBB TMDL, are ubiquitous in both the natural and developed environments. Consequently, indicator bacteria present at a particular shoreline monitoring location may be the result of activity in the immediate vicinity of the monitoring station, e.g., marine mammals, birds, or human recreational activity including that associated with fishing piers, or if there is flow of runoff conveyed via a storm drain or even a natural watercourse to the shoreline then the source of indicator bacteria is also likely to be associated with many different land use activities within the drainage area tributary to the location of interest. It has also been observed that both lagoon and watershed size (even if natural open space) show a strong positive correlation to number of FIB exceedances.

Monitoring at the reference beach, SMB 1-01, under the Coordinated Shoreline Monitoring Plan (CSMP) exhibited eleven (11) single-sample exceedance days during summer 2006 and zero (0) single sample exceedances during the summer of 2007 for a total of eleven (11) single-sample dry weather exceedance days over the two-summer period. More recently, for the 2011 summer dry weather season, the reference beach has already experienced three single sample exceedance days, and the reporting period ends October 31, 2011. Other monitoring sites in Malibu, where the watersheds are most similar to the reference watershed, exhibited a better record of single-sample exceedance days than the reference beach during the two summers of 2006 and 2007. Clearly this is an indication that even under summer dry weather conditions natural background occurrence of indicator bacteria associated with subwatersheds that are more than 90% undeveloped such as the Arroyo Sequit Subwatershed (SMB 1-1) are likely to produce occasional exceedances of the receiving water limitations for indicator bacteria.

Southern California Coastal Water Research Project's (SCCWRP) study *Fecal Indicator Bacteria Levels During Dry Weather in Southern California Reference Streams*, (Tiefenthaler et. al. 2008) attempted to quantify naturally occurring

background levels of bacteria in streams during base flow (i.e. non-storm) conditions over an extended period of time. This study was done as a requirement of the Malibu Creek Bacteria TMDL. The overall approach to the study was to characterize dry weather bacteria levels at a set of sites that is representative of existing natural conditions in southern California. The specific study design consisted of an intensive sampling regime with collection of weekly dry weather bacteria data for an entire year. This study found that Indicator Bacteria levels fluctuated seasonally with an average of 79% of both enterococci and total coliforms exceedances occurring during summer months (June-August). Seventy-five percent of enterococci and 83% of total coliforms exceedances occurred during the summer months. Temperature, at all sites, explained about one-half the variation in total coliforms density suggesting that stream temperatures regulated bacterial populations. It also found that a total of 18.2% of the indicator bacteria samples (for all three indicators) from the natural sites exceeded daily (single sample) water quality standards. In addition, the study found that these natural streams exceeded the 30-day Geometric mean criterion for enterococcus for the months of June, July, August and September. Furthermore, the absence of B. thetaiotaomicron indicated that the FIB in reference streams were likely of non-human origin.

Furthermore, the United States Geologic Survey (USGS) is completing a study evaluating the occurrence, distribution and sources FIB and nutrients in shallow groundwater, Malibu Lagoon and near-shore ocean waters in dry and wet weather. The results are showing that in dry weather, FIB was coming from surface deposits along the berm and nearby sand, as well as from the bottom of the Lagoon as it was disturbed during tidal activity. The USGS is learning that bacteria in the near shore ocean were associated with tidal fluxes, with highest bacteria concentrations occurring during high tide. This is consistent with wave run-up on the beach washing FIB from the rack line and beach sands. Water movement through the berm at the mouth of the Lagoon was a source of FIB to the near shore ocean during low tide, and groundwater bacteria concentrations were low at low tide. Natural Lagoon conditions are a breeding ground for bacteria. Also, the USGS study (tested both inside and out of the Lagoon) shows that bacteria passes through the sand berm. Bacteria counts were higher at night when there is less of chance for solar disinfection and much lower in the afternoon after the sun's heat penetrated the water to kill the bacteria. Bacteria counts were also highest during high tide. Tidal and temporal influences impact the existence of bacteria. This explains the occurrence of FIB exceedances observed at the shoreline monitoring near the outlet of Malibu Creek and Lagoon. Tidal influences of natural sources of FIB could also explain other shoreline exceedances. Researchers are confirming that environmental factors influence bacteria exceedances along Malibu’s coast to a greater extent than previously considered. In 2009 and 2010, , the United States Geological Survey learned that bacteria in the near shore ocean were also associated with the presence of kelp. Using the newest bacteria source identification tools, researchers are consistently finding that in both wet and dry weather, non-human influenced beaches do have high bacteria even when there are no stormdrain discharges present. Extensive

research has confirmed that tide, temperature, wind and the time of day samples are collected all affect bacteria concentrations. Recently published research undertaken by UCLA and Stanford confirms the USGS results that kelp and bird and brine fly feces deposited in the kelp wrack directly influences water quality. The studies have shown that the source, or combination of sources, of bacteria to near-shore ocean water is not precisely known but includes sources other than stormwater.

Importantly, the City constructed a stormwater treatment facility in the Civic Center area that has been online since February 2, 2007, eliminating the City's MS4 discharges to the Malibu Creek and Lagoon, and at Surfrider Beach. The City's MS4 drains in the Civic Center area were all re-plumbed to drain to the Civic Center Stormwater Treatment Facility. The City's Legacy Park project was completed in October of 2010 and no further discharges from the MS4 to Malibu Lagoon are anticipated, except when *treated* water maybe discharged under extreme storm events when pump capacity is exceeded, or back to back storm events of certain duration. Based upon the 57-year rainfall history, these occurrences will be no greater than 3 events per year on average -- well below the TMDL regulatory limits of 17 exceedance events during the wet weather periods.

ii. Sulfate: The Los Angeles County 2007-08 Annual Stormwater Quality Monitoring Report states "Large quantities of greenish rock with amphiboles and sediment are found near the Mass Emission station in the Malibu Creek Watershed. The hillside is mainly composed of what appears to be very decomposed, somewhat grainy, greenish marine or lagoonal sediment/glauconite and less decomposed, greenish-brown shale with clear fossils and embedded detritus. These sediments are known to be sulfur bearing. Representative field samples gathered initially had a distinct moderate sulfur (musty, rotten eggs) odor. Sulfate concentrations can be largely attributable to the presence of eroded sulfur-rich sediment. Fungal and bacterial processes within the creek and surrounding areas may facilitate the release of sediment bound sulfur into the water column." The 2009-2010 Annual Stormwater Quality Monitoring Report has similar comments.

City staff recently learned that the Monterey geologic formation, a tertiary marine siltstone (also known as the Modelo Formation in the Santa Monica Mountains and foothills north of the 101 freeway), is widely present in the Malibu Creek watershed. Geological maps of the watershed [2] show (1) large areas within the watershed underlain by the Monterey Formation, a known petroleum source rock enriched in nutrients (both phosphorus and nitrogen); (2) heavy metals such as arsenic, cadmium and aluminum (all known to impair aquatic life at relatively low ppb levels); and **(3) high levels of sulfate**. These constituents have been thoroughly documented in exposures of the Monterey Formation in Santa Barbara County. The Las Virgenes Municipal

[2] Dibblee, T. W. *Geological Maps.* Available from http://dibblee.geol.ucsb.edu .

Water District recently documented high levels of these same constituents in both fresh and weathered exposures of the formation within the Malibu Creek. It may be infeasible to attain water quality standards in the receiving water for these constituents without accounting for natural sources exclusions. This formation is a known petroleum source rock enriched in sulfur, selenium (chemically related to sulfur), salts, heavy metals, and nutrients, as shown in both extensive data in the scientific literature and direct testing of local exposures.

iii. Total Dissolved Solids: Dissolved solids can come from organic sources such as leaves, silt, plankton, and industrial waste and sewage. Other sources may be air deposition, runoff from urban areas including fertilizers and pesticides used in landscaping. Certain naturally occurring total dissolved solids arise from the weathering and dissolution of rocks and soils that may contain calcium bicarbonate, nitrogen, iron phosphorous, sulfur, and other minerals such as found in the Monterey geologic formation (see the discussion above).

iv. Total Aluminum: The Los Angeles County 2007-08 Annual Stormwater Quality Monitoring Report states "A 2005 online article by Scorecard, The Pollution Information Site, *Aluminum and Compounds*, indicated that Aluminum is one of the most abundant metals in the earth's crust. It does not exist as pure Aluminum, but forms compounds primarily with silica, oxygen, and fluorine. Natural sources include bauxite and alum." The report also states that the most likely sources of Aluminum in stormwater would be alum in water treatment plants, bentonite in water purification systems, metal working industries, and some pesticides, rodenticides, and fungicides. Other sources of aluminum may be crushed and broken stone mining, and metal working machinery.

Aluminum is also present in the Monterey geologic formation (see the discussion above).

v. Total Cadmium: According to the Illinois Department of Public Health www.idph.state.il.us/cancer/factsheets/cadmium.htm cadmium is found naturally in small quantities in air, water, and soil. Since cadmium is a metal, it does not break down and can accumulate over time. Burning household or industrial waste and burning coal or oil may release cadmium into the air. Cadmium also can be released from car exhaust, metal processing industries, battery and paint manufacturing, and waste hauling and disposal activities. Once cadmium is in the air, it spreads with the wind and settles onto the ground or surface water as dust. Higher levels of cadmium may be found in soil or water near industrial areas or hazardous waste sites. High levels of cadmium in surface soils usually result from cadmium particles settling from the air. Soils near roads may contain high levels of cadmium from car exhaust. Surface water also can contain low levels of dissolved cadmium. Cadmium in water tends to sink and accumulate in bottom sediments.

A *Technical Factsheet on Cadmium* put out by the US Environmental Protection Agency (EPA) confirms many of the above listed sources. In addition, industrial releases of cadmium can be due to waste streams and leaching of landfills, and from a variety of operations that involve cadmium or zinc. The remaining cadmium emissions are from fossil fuel combustion, fertilizer application, and sewage sludge disposal. Cadmium also occurs as a by-product of corrosion of some galvanized plumbing and distribution system materials.

Cadmium is also present in the Monterey geologic formation (see the discussion above).

vi. Copper: Copper is a naturally occurring element present in many minerals and can be transported to surface waters by erosion. It can be carried in runoff or be transported by air deposition. Anthropogenic sources are primarily non-point and include vehicle brake pads, automotive fluids (leaked or spilled), algaecides, pesticides, wood preservatives, anti-fouling paint, architectural uses such as pipes and roofs. Copper in rocks is likely to be more mobile under acidic than alkaline conditions, so acid rain is of concern.

vii. Zinc: Zinc is a naturally occurring element most commonly in the mineral sphalerite (ZnS), which is often associated with the sulfides of other metallic elements, e.g., lead, copper, cadmium, and iron. Zinc is commonly used for galvanizing iron and steel, the production of brass plumbing and heating fittings, and in the die-casting industry to produce builders' hardware and automobile fittings. It is common for zinc to leach from galvanized pipes and fittings therefore water discharged to the wastewater plant including potable water could be a substantial source of zinc. Zinc is also used in household products including cleaning products, personal care products such as shampoo, deodorants, and lotions, and health and nutritional supplements. Remaining industrial uses include paints, rubber, rayons, yarns, inks, matches, and chemicals such as in printing, textile dyeing, and fat purification. Zinc salts are used as wood preservatives, fertilizers, and pesticides. It can be carried in runoff or can also be transported by air deposition. There are no industries in Malibu that would be the source of zinc, and as previously mentioned the sample site where zinc was observed is upstream of the City limits.

viii. Dissolved oxygen (DO): DO is due to microscopic bubbles of oxygen mixed in the water and occurs between water molecules. Oxygen is produced during photosynthesis and consumed during respiration and decomposition. In fast-moving streams, rushing water is aerated by bubbles as it flows over rocks and waterfalls. These fast streams are usually saturated with oxygen. In slow, stagnant waters, oxygen only enters the top layer of water, and deeper water is often low in DO concentration due to decomposition of organic matter by bacteria that live on or near the bottom of the reservoir. Dams slow water down, and therefore can affect the DO concentration of water downstream. DO is greatly affected by temperature, therefore slower and/or

shallower waters which would tend to have warmer temperatures would be subject to lower DO. In addition, the lower Malibu Creek Watershed would be affected by water flowing over the Rindge Dam. Low DO concentrations can also mobilize trace metals. Eutrophication and urban runoff can exacerbate low DO conditions by adding organic matter and other pollutants to the system thereby accelerating the rate of oxygen depletion.

ix. pH: The pH of an aquatic system is determined by a number of factors. The ph can be affected by many sources including natural erosion of the surrounding rock and soil (could raise or lower pH levels based on the geologic composition), anthropogenic sources due to urban runoff, and air deposition. Water can become acidic because of the presence of minerals containing sulfide (which may form sulfuric acid). Sulfur is also discussed in ii. Sulfate above. The pH can also be affected by acid rain.

x. Cyanide: Cyanide enters air, water, and soil from both natural processes and industrial activities. Many sources of cyanide are anthropogenic including vehicle exhaust, biomass burning, discharges from metal-finishing industries, iron and steel mills, and organic chemical industries, runoff from disposal of cyanide wastes in landfills, pesticides, the use of cyanide-containing road salts, and cigarette smoke. Cyanide can also enter water sources through natural processes, but in very low concentrations. Certain bacteria, fungi, and algae can produce cyanide, and cyanide is found in a number of foods and plants. The City is unaware of any upstream metal finishing. The Calabasas Landfill is a potential critical sources that could contribute cyanide, but that is something that the local permitting agency/authority should look into. If not an industrial source, it could be a combination of sources. Most cyanide in surface water will form hydrogen cyanide and evaporate.

The City spends significant resources studying the sources of pollutants and will continue researching potential sources and provide further information should the City identify potential sources. In addition, the Principal Permittee has announced that tributary monitoring will be implemented in the Malibu Creek Watershed by Los Angeles County.

The new information about the Monterey geologic formation is very compelling evidence about the natural sources of minerals, nutrients and metals, and the alterations to TDS, DO, and pH that could result from the presence of those constituents in background levels of surface water. This formation is also present in watersheds in the Santa Monica Bay other than Malibu Creek.

2. ***Status Report for the Plan to comply with the RWL (Permit, Part 2);***

The City is actively involved in developing and instituting multiple implementation plans and new programs for the region, proactively and in response to water quality regulations, as well as

passing local legislation to eliminate and reduce sources of pollution and activities that degrade the environment. A list of local ordinances is included at the end of this document.

Malibu Civic Center Integrated Water Quality Management Plan-

The City Council is committed to water quality and is taking bold steps to construct additional treatment facilities, adopt stricter control ordinances, and to educate the community (residents, business, and visitors) about personal stewardship of the environment and actions they can take to prevent pollution.

In November, 2004, the City Council authorized Questa Engineering Corporation to conduct a Service Area and Options Analysis for Centralized Wastewater Treatment in the Malibu Civic Center. The study scope was amended twice by the City Council: first, with approval on February 14, 2005, to include an integrated assessment of stormwater management possibilities for the Civic Center area; second, on March 14, 2005, to include additional groundwater modeling scenarios. The study had several components. The first was to define the needs and the priorities for different development sub-areas that could potentially be serviced by community wastewater treatment in the Civic Center area. This task was guided by the results of the Risk Assessment (mentioned later in this document) as well as further detailed analysis of the data collected. An important criterion applied in the analysis was the time of travel model with respect to bacteria and nitrogen. Once the service area priorities were defined, the second step covered an analysis of potentially viable options for locating and sizing all elements of a community wastewater treatment system. This included collection, treatment, disinfection and dispersal elements. All of these were analyzed in the options evaluated.

In February 2004, the City Council amended the scope of work to include stormwater management in the Civic Center Area. An objective look at the stormwater management needs of the area had been overlooked. Because of the potential benefit and synergy resulting from integrating and addressing stormwater management and wastewater treatment at the same time, this element was added to the scope of this project, resulting in the change in name to an Integrated Water Quality Management Feasibility Study.

Since this Feasibility Study, the City has constructed the Civic Center Storm Water Treatment Facility (more information can be found in Attachment 10-11 III- SQMP and in No.1 above) and Legacy Park with stormwater mitigation measures, habitat restoration and creation, and environmental education elements. The Legacy Park project transformed approximately 15 acres in the heart of Malibu into a central park that serves as an environmental cleaning machine, with the capability to capture, clean and disinfect more than 2 million gallons per day of stormwater and urban run-off that flow from the surrounding watershed. Legacy Park will reduce the City's contribution to pollutant loads in Malibu Creek, Malibu Lagoon and nearby beaches. This project was completed in October 2010.

In addition to the stormwater treatment improvements provided by the Civic Center SWTF and Legacy Park project, the City incorporates stormwater treatment and runoff solutions into their other municipal projects. The Cross Creek Road Improvement Project provides an excellent example of how improvement projects can be constructed in a

manner that protects against water quality degradation from stormwater runoff and maximizes the potential for water reuse. This project was described in the 2007-2008 Annual Report more fully, but includes permeable walkways and parking areas, native and drought tolerant vegetation, and drip irrigation to prevent overspray. Based on how well received that project was, the City will consider other City Capital Improvements with similar elements. This has also prompted the consideration of developing design guidelines for Low Impact Development (LID) elements in City projects. As described in this annual report and later in this document, the City implements the Local Coastal Program with stringent development/re-development standards, including requiring proper site design to maximize permeable areas, and minimizing site runoff through LID.

Paradise Cove Stormwater Treatment Facility-

The City was awarded funding through the Clean Beaches Initiative grant to design and construct a stormwater treatment system for Ramirez Canyon Creek to eliminate any bacteria from the discharge to the ocean at Paradise Cove during dry weather and potentially some wet weather. Design and specifications were completed early in 2009, but due to the State Proposition Funding freeze, the project was put on hold. With the assistance of Federal Stimulus funds and American Recovery and Reinvestment Act of 2009 funding ultimately) this project was completed June 28, 2010. Results from weekly water quality sampling indicate that the system is effective at eliminating fecal indicator bacteria from the channel. Results at the outlet are consistently below the detection limit for all fecal indicator bacteria. However, once the treated water contacts beach sands and kelp, the levels of FIB in the samples increase dramatically. This demonstrates that sources outside and down gradient of the watershed are the cause of FIB at the monitoring site SMB 1-07. Additionally, the City does not own or operate any MS4 facilities up-gradient of this site. This is compelling evidence that the City's MS4 is not causing or contributing to FIB exceedances at this location.

City of Malibu Local Regulations-

The City has adopted ordinances banning smoking on public beaches, the use of expanded polystyrene foam packaging for prepared food, and the point of sale distribution of plastic shopping bags; an ordinance establishing an inspection and permitting program for Onsite Wastewater Treatment Systems including a "Point of Sale" element; and ordinances establishing an administrative citation procedure to impose administrative fines for violation of certain Municipal Code regulations. As previously mentioned and described in greater detail later in this section, the City has a stringent development review process and an aggressive wastewater management program. These efforts and many more are detailed in various sections of this year's City of Malibu Individual Annual Report for 2010-2011. A list of current relevant ordinances is included at the end of this document.

Staff also continued to work on developing a Green Building program this year. It is a three-pronged approach with green building, LID, and Model Water Efficient Landscaping Ordinance elements. It was determined that a separate LID ordinance was not needed as the Local Coastal Program already requires LID (referred to in the Program as "site design"). To reinforce LID requirements, a new guidance document was developed last reporting year for distribution to applicants to better understand the condition to implement a water quality mitigation plan, and provide LID resources as part

of the City's implementation of the SUSMP program. It is also now available on the City's website. Since the majority of construction in the City is single family residence remodel/redevelopment, staff has been focusing on unique ways to include these types of projects in the program for the most effective implementation with superior sustainability aspects. The City's energy efficiency standards have been approved by the California Energy Commission and are anticipated to receive final approval at City Council in September 2011.

"It's Time to Get Serious" Resolution and Water Conservation Ordinances

The City has an emergency water conservation ordinance that was enacted in December 1991 to prevent waste or unreasonable use of water—a consequence of which is the reduction of incidental residential runoff. However, the City passed a resolution March 24, 2008 to partner with West Basin Municipal Water District (WBMWD) to update water conservation ordinances and efforts as it is recognized that eliminating irrigation runoff helps eliminate potential pollutant transport. The City found its existing water conservation ordinance to be sufficient; the City's ordinance in conjunction with the Phased Water Conservation Program of Los Angeles County Waterworks District 29 (WWD29), is affecting the, necessary water conservation. Water runoff elimination efforts are being promoted and goals are starting to be met.

However, the City did adopt its Water Conservation Landscape Standards ordinance to conform to the State's model water efficient landscape ordinance. The City's ordinance is more inclusive of various types of projects with a smaller size threshold, and is more stringent (including limitations on the amount of turf that may be installed and set-backs from right of way for installation of irrigation). Development applications must identify natural features, (e.g., environmentally sensitive habitat area (ESHA) and ESHA buffer, protected trees, drainage features, steep slopes, etc.), storm water best management practices (BMPs) to be implemented, pervious and impervious hardscape areas and the surface area and type of any proposed water features, and slopes (no turf is permitted on slopes steeper than 5%).

The creation of a Malibu Water Conservation Partners Group was enabled from the increased contact with WBMWD. The past year the City continued a strong collaboration with WWD29, WBMWD, staff from Los Angeles County Supervisor Yaroslavsky's Office, Resource Conservation District of the Santa Monica Mountains, and Las Virgenes Municipal Water District as the Malibu Water Conservation Partners Group. This group has been getting out the message that wasting water can ultimately pollute the receiving water. The Group continues to exhibit early success in a pilot project focusing on runoff elimination in a target watershed. By getting volunteer residents actively involved in stewardship through water conservation and eliminating runoff with incentives and programs offered by the agencies involved, they serve as role models and can encourage their neighbors to do the same. Residents in the target watersheds have shown initial interest in involvement in the program. This project was stalled due to the State's funding freeze, but resumed late in the 2009-2010 reporting year. Rebates for smart irrigation controllers became available in 2010-2011 reporting year. Based on the outcome of this watershed pilot project, the program will be implemented in other target watersheds.

Integrated TMDL Implementation Plan for the Malibu Creek Watershed and SMBB Wet-Weather Bacteria TMDL Implementation Plan for J1/4- Ongoing Activity

Some of these plans were developed as a requirement of the Bacteria Total Maximum Daily Loads (TMDLs) specifically. Two of these plans have previously been submitted to the RWQCB (Santa Monica Bay Beaches Bacteria Wet-Weather TMDL Implementation Plan and the Integrated TMDL Implementation Plan for the Malibu Creek Watershed). However, they were developed as integrated plans with multiple pollutants in mind. As the projects listed in the plans are constructed and the programs are implemented, a decrease in the levels and frequencies of pollutant exceedances addressed in the plan should result. Additional copies of these plans will be provided upon request. The responsible agencies in Jurisdictions 1 and 4 including the City, LA County, and Caltrans have been individually working on implementation of this plan this year. Highlights of the City's efforts include focusing on equestrian property outreach, construction of the Paradise Cove Stormwater Treatment Facility, and construction of the Legacy Park Project.

While not listed specifically as projects in this plan but conceived in the spirit of the plan, the City also moved forward with executing a grant agreement with the State under the proposition 84 Area of Special Biological Significance (ASBS) funding program for two projects that would eliminate dry weather runoff and reduce wet weather runoff through a combination of bioinfiltration and treatment elements. <u>These projects, described in greater detail later in this document, will begin implementation in the next reporting year</u> and help to address requirements of the SMBB Wet-Weather Bacteria TMDL and the California Ocean Plan prohibition of the discharge of waste to the ASBS.

Malibu Creek Trash Monitoring and Reporting Plan and Minimum Frequency of Assessment and Collection- (was not reported in 2007-2008 RWL Compliance Report) the City and other responsible parties to the Malibu Creek Trash TMDL hired a consultant to prepare the subject plan in accordance with the TMDL requirements. It has not yet been approved by the Regional Board.

Wastewater Management Plan Implementation-

The City of Malibu does not own or operate a municipal sanitary sewer system. The majority of private properties, residential and commercial, do utilize septic systems, onsite wastewater treatment systems (OWTS), or small privately operated treatment plants. The information reported in this section refers only to septic systems, OWTS, or small privately operated treatment plants. Any potential discharge associated with one of the previously listed type of systems is likely of very small volume and localized where it can be contained, as opposed to the large, difficult to control spills that are experienced by agencies with large collection systems on centralized wastewater treatment plants.

The City recognizes the importance of spill prevention and the role that proper regulation and wastewater system management plays in preventing sewage overflows that could contribute to water quality impairments. Therefore, the City has a program to prevent discharge of sewage to the MS4 and surface waters in the unlikely event of a spill. The

City established an inspection and permitting program for Onsite Wastewater Treatment Systems (OWTS) with the adoption of City Ordinance 321. Through effective management and repair/replacement of malfunctioning systems, the City has taken an aggressive approach to ensure that OWTS are properly functioning to prevent the potential for any spills to reach the storm drain system.

The City is now considered a leader in the State when it comes to regulation of Onsite Wastewater Treatment Systems (OWTS). The City signed a Memorandum of Understanding with the State for local management of OWTS with fewer than 2,000 gallons and at non-food service related facilities in the City of Malibu. Systems outside of this classification are managed by the Regional Board. The City also developed several programs for tracking, inspecting and permitting OWTS.

A web-based data management tool was created to provide oversight of 6,000 onsite wastewater treatment systems (OWTS) within the City. This data being collected on the OWTS within the City of Malibu will be shared with the RWQCB's Integrated Wastewater Information Management System;

Ordinance 321 a Comprehensive Onsite Wastewater Treatment System Inspection and Operating Permit Program Scheme was adopted on March 10, 2008 by the Malibu City Council. Following EPA guidance regarding management options, this program provides a means of system inventory, assurance of system functionality and system sustainability. This program requires that owners of real property served by an onsite wastewater treatment system (OWTS or septic system) obtain an inspection of the OWTS, apply for an operating permit, and make any necessary repairs or upgrades in accordance with the following schedule:

- New Developments—before a certificate of occupancy is issued
- Existing properties:
    - Whenever a permit for repair, alteration, replacement, renovation or relocation of an existing OWTS occurs
    - Whenever a remodeling or repair results in addition of plumbing fixtures or increase in load to the existing OWTS
    - Prior to any purchase or change in ownership
- Restaurants—by March 10, 2009
- Other commercial uses—by March 10, 2009
- Multi-family or Condominiums—by March 10, 2010

Once issued, renewal of operating permits, including a required inspection must occur according to the following schedule:

- Commercial or multifamily uses—every two years
- Single-family uses with alternative OWTS technology—every three years
- Single-family uses with conventional OWTS technology—every five years

All Inspectors must be registered and approved by the City of Malibu. To qualify as an Inspector they must possess a valid California License as a Certified Engineering Geologist, Registered Professional Geotechnical, Civil Engineer, or a Registered Environmental Health Specialist. All inspectors must have attended specific OWTS

inspection training provided by a nationally recognized entity and a City sponsored training. Each component requires the successful completion of an examination.

This year, the City continued outreach to high priority or risk areas such as restaurants and other commercial use properties to ensure all owners are properly maintaining and obtaining permits for their OWTS. Notices of non-compliance are sent out as needed. The City also provides assistance to realtors, escrow companies, and inspectors as it is requested. A California Onsite Wastewater Association (COWA) regulators outreach meeting is scheduled for November 2011 and the City of Malibu will be hosting. This will provide additional outreach opportunity to the community regarding proper operation and maintenance of OWTS.

While not related to stormwater, it is worth noting that the RWQCB and the City of Malibu entered into another MOU in July 2011, memorializing additional elements of the City's wastewater management strategy for the Civic Center area, including phased implementation of a centralized wastewater treatment plant for the area.

Escalated Restaurant/Commercial Inspections – Annual Activity

The City of Malibu implemented an annual inspection program a few years ago (rather than twice per five years as required in the MS4 Permit), inspecting all food service establishments including restaurants, grocery stores, and coffee shops to reduce any impacts on water quality due to urban runoff from these businesses. Goals of the inspections include compliance verification, enforcement as needed, public education regarding storm water and urban runoff issues, recycling and related environmental quality efforts such as the bans on expanded polystyrene food packaging and one-time use plastic shopping bags. The City used a comprehensive 28-point storm water inspection checklist that is modeled on the Santa Monica Bay Restoration Commission's Clean Bay Restaurant Certification program.

Based on the comprehensive inspection criteria and success of the program, the City of Malibu officially partnered in 2008-2009 with the Santa Monica Bay Restoration Commission and South Bay cities to implement the Clean Bay Restaurant Program (see Attachment 10-11 MBU IV A- Outreach for more details). This is a certification incentive program where businesses that meet 100% of the criteria (which are beyond NPDES requirements) will be recognized as a Clean Bay Certified Business. To participate, the business must be inspected at least once annually. The program has garnered positive reception and businesses continue to show an interest in meeting the criteria to be able to receive certification. Certifications from this past cycle of inspections are anticipated to represent approximately 79% of relevant businesses once all certifications are processed.

Due to the success of this program and the importance of ongoing contact with the commercial community, the City has decided to implement a retail gasoline outlet (RGO) and automotive service inspection program annually as resources and funding allow. City Council is also exploring the option to establish a business licensing program (other than the one adopted by reference and implemented by the County of Los Angeles). Having a business license program would be an effective means to improve tracking of critical sources as required by the NPDES permit, and establish a means of monitoring

and communicating with relevant businesses. The City considered a business license program at its August 2010 meeting. Staff has not yet been directed at this time to develop the program; however, it may still be under consideration for the future.

Malibu Local Coastal Program

The City of Malibu Local Coastal Program as certified by the California Coastal Commission includes a Land Use Plan (LUP) and Local Implementation Plan (LIP) that detail many environmental quality and protection standards, objectives and implementation measures for new development and redevelopment projects. These include requirements for water conservation, protection of native vegetation, and landscaping with native vegetation. All landscape plans are reviewed by the City's contract biologist. In addition to the priority projects specified by the NPDES permit to comply with the standard urban stormwater mitigation plan requirements, the City requires a water quality mitigation plan for all new development or redevelopment projects that include vineyards, orchards or confined animal facilities, regardless of size.

As part of the local coastal plan review process the City conditions new development and redevelopment projects to prevent discharges and stormwater runoff into the ASBS and requires the applicant to provide a drainage system that incorporates LID practices and does not discharge directly into the ASBS.

In reviewing existing programs including the LCP and Municipal Code for the Green Building Program, staff found that there is substantial LID requirement language existing in our current regulations. It is just called out as Best Management Practices (BMPs) including site design, source control and structural BMPs rather than LID (a term that has become more recognized and more commonly used). Therefore, staff is improving the implementation of the LCP and associated handouts and forms so that the process and requirements are transparent and understandable to applicants. As previously mentioned, staff developed a new guideline manual to assist applicants in understanding the water quality mitigation plan requirements.

ASBS Special Protections

The City of Malibu has a pending application for exception to the Ocean Plan and intends to comply with the Special Protections that are being developed by the State Water Resources Control Board staff to regulate the ASBS. These regulations are currently in draft form and SWRCB has accepted comments on the EIR for the Exception Package. Staff does not yet know when the Exception will be adopted by the State and what the special protections will ultimately provide for. However, the proposed protections have three fundamental requirements[3]:

1. Cessation of non-storm water runoff;
2. Maintenance of natural water quality within ASBS, including during precipitation (design storm) events, by limiting wastes in urban stormwater runoff and other activities that would otherwise cause a degradation of ocean water quality in the ASBS; and

[3] March 3, 2008 State Water Resources Control Board. *Special Protections for Selected Storm Water and Nonpoint Source Discharges into Areas of Special Biological Significance.*

3. Monitoring water quality and marine aquatic life within ASBS to ensure the protection of beneficial uses over time.

The draft Special Protections also clearly state that:
It is not the intent of these Special Protections to restrict flows from naturally occurring streams that flow into ASBS. The return of clean fresh water into the ocean via naturally occurring streams is an essential component of coastal ecology that must be maintained.

Other ASBS Activities- Pending and Continuous Activities
In the meantime, the City has been taking steps to cease all non-stormwater runoff in that area and Citywide by increased education and enforcement activities.

For example, the City submitted a Proposition 84 grant proposal to fund the creation of a new staff position, the *Coastal Preservation Specialist.* The City of Malibu submitted the ASBS Grant Proposal to fund the position for two years to conduct a focused education and outreach program targeted to oceanfront homeowners and visitors to conserve water and eliminate runoff from their properties. In January 2009, the State approved the staff recommendation to award funding for this project. However, the State's proposition funding freeze stalled the full implementation of this project. The City executed the grant agreement with the State in May 2011 and is proceeding with this project during the current reporting year. The recruitment notice for this position was circulated and closes on September 2, 2011. The City will interview and hire for the position this fall. The City has funding for this position for two-years.

The traditional public outreach methods implemented by the City to inform residents have been successful; but, more work should be done to achieve the highest degree of effectiveness needed for properties adjacent to the ASBS. For these properties, this Proposition 84 Coastal Preservation Specialist will utilize a multi-faceted approach combining community-based social marketing techniques, a GIS database tool to document and track systematic contact coverage and follow up, and objective effectiveness assessment. The program will target: water conservation, proper septic system maintenance, elimination of any dry weather discharges via private drains that might exist, reducing dry weather runoff that may be caused by excessive irrigation runoff, and reducing wet weather runoff by retrofitting residential landscapes and incorporating low impact design into outdoor living spaces.

The City also applied for grant funding to improve drainage in two neighborhoods in the ASBS, Wildlife Road/Whitesands Place and Broad Beach Road, by implementing methods such as retrofitting some catch basins, installing passive treatment, and instituting bioinfiltration where feasible. The grant agreements were executed in May 2011 (the Wildlife Road Treatment Project shares an agreement for the focused outreach previously discussed) and prompt implementation of these projects is expected during the upcoming reporting year. The Grant Agreements require that the projects to be complete by March 2015.

City staff continues to produce new public outreach materials and partner with other local agencies to implement source control programs. The City continued to regularly distribute two popular and useful brochures this year that include language regarding

protection of the ASBS. The City is continuing and expanding efforts with WWD29 to investigate and eliminate irrigation runoff, and WBMWD to implement more water conservation programs. The City is supporting Surfrider Foundation and WBMWD with promoting their Ocean Friendly Gardens Program, and hosted another well-attended workshop at City Hall on March 19, 2011. The City has also been working with the Surfrider Foundation to identify potential sites and engage residents to retrofit their properties, including the opportunities to use the site evaluation and subsequent retrofit as teaching opportunities for other residents/property owners. The City's Mayor has engaged in the process and is hoping to serve as a model for landscape retrofits. The City also applied to WBMWD's grant program in the 2008-2009 reporting year for funding to install an Ocean Friendly Demonstration Garden at Malibu Bluffs Park. It has finally been approved and design and construction is anticipated for the upcoming reporting year. The goal of continuing to seek partnerships which share a common message and goal of protecting the environment and preserving resources has been met with the establishment of the Malibu Water Conservation Partners group, as previously described.

Implementation Schedule

Malibu Civic Center Integrated Water Quality Management Plan- Service Area and Options Analysis for Centralized Wastewater Treatment in the Malibu Civic Center was undertaken November 2004 to February 2005. It was revised to include an integrated assessment of stormwater management possibilities for the Civic Center area on February 14, 2005. It was again revised assessment to include groundwater modeling- March 14, 2005.

The City has used this final plan as a guidance document for the planning of projects in the Civic Center since its May 2005 adoption, and implementation will be ongoing through the construction of the structural BMPs in the Civic Center as listed below, and the construction and ongoing operation of a centralized wastewater treatment facility:

Civic Center Storm Water Treatment Facility- Construction completed February 2, 2006. Operation and maintenance will be ongoing for the life of the system.

Legacy Park Project- Construction was completed in October of 2010. Operation and maintenance will be ongoing.

Paradise Cove Stormwater Treatment Facility- The City applied for funding in January of 2006. Designs and specifications were completed by early 2009. Construction began October 1, 2009 and completed with the ribbon cutting on June 28, 2010. The Monitoring program pursuant to the grant agreement continued for a year after completion through August 1, 2011. The monitoring program is anticipated to be revised, but will be ongoing to ensure proper function and operation of the system.

Proposition 84 funded ASBS Projects must be complete by March 2015 (Broad Beach) and April 2014 (Wildlife), in accordance with the provisions on the grant agreements.

The City will continue to fund and implement all of the monitoring and clean water propgrams reported throughout this annual report and continue to maintain all of the structural BMPs the City has installed. This reporting cycle ends as a new MS4 permit on the horizon. The RWQCB anticipates adopting the new MS4 by Spring 2012. The City will actively participate in the permit drafting process, and will promptly implement all applicable requirements of the new permit.

City of Malibu Local Regulations

Ban on smoking on public beaches- Adopted May 24, 2004 with ongoing implementation.

Ban on use of expanded polystyrene foam packaging for prepared food- Adopted September 12, 2005 with ongoing implementation.

Ban on the point of sale distribution of plastic shopping bags- Adopted May 27, 2008 with ongoing implementation.

Ordinances establishing an administrative citation procedure to impose administrative fines for violation of certain Municipal Code regulations- Adopted July 14, 2008 with ongoing implementation.

Green Building Program- Development began April 30, 2008 with the establishment of a Green Building Program as a City Council Goal. A contract was approved September 8, 2008 for consulting services. Enhancements to the implementation of CalGreen are anticipated by early 2011. The City has adopted local energy efficiency standards which have been approved by the California Energy Commission, which are more stringent than the CalGreen standards. The full suite of CalGreen regulations became effective January 2011 and will be implemented on an ongoing basis. Implementation of the City's energy efficiency standards is pending City Council approval. If approved, they will be implemented on an ongoing basis.

New water quality mitigation plan and LID resources guidance document- provided to relevant staff to distribute to applicants June 2010. This guidance document is available online. Distribution will be ongoing until requirements change and/or the document is revised.

Design guidelines for Low Impact Development (LID) elements in City projects- prepare a resolution for City Council approval by mid 2012. Implementation will be subject to City Council approval.

"It's Time to Get Serious" Resolution, Water Conservation Ordinances and Partnerships

Resolution was adopted March 24, 2008 with ongoing implementation.

Water Conservation Landscape Ordinance No. 323 was adopted November 23, 2009 with ongoing implementation.

Ocean Friendly Demonstration Garden- funding is released and preliminary discussions have begun. The final design will be subject to City Council Approval. If approved, construction is expected to take up to three months if completed all at once, and is anticipated to begin in late 2011 or early 2012. A phased approach may be implemented pending adequate funding, which would increase construction beyond three months.

Water Conservation Partnership meetings and program/project implementations will be ongoing as needed. Meetings are currently monthly.

Integrated TMDL Implementation Plan for the Malibu Creek Watershed- Submitted to the Regional Board on February 27, 2007, but the Regional Board has not taken action or formally approved this plan at this time. Implementation is ongoing in perpetuity, or until such time as the water quality impairment no longer exists or the plan is superseded.

SMBB Wet-Weather Bacteria TMDL Implementation Plan for J1/4- Submitted to the Regional Board on August 30, 2005. It was approved by the Regional Board on April 6, 2006. Implementation is ongoing in perpetuity, or until such time as the water quality impairment no longer exists or the plan is superseded.

Malibu Creek Trash Monitoring and Reporting Plan and Minimum Frequency of Assessment and Collection- (was not reported in 2007-2008 RWL Compliance Report) Submitted to the Regional Board April 29, 2010. It has not yet been approved, but the City has already begun implementing BMPs that prevent the discharge of litter from the MS4 and non-point sources within its jurisdiction to the Malibu Creek and Lagoon. Implementation will be ongoing in perpetuity, or until such time as the water quality impairment no longer exists or the plan is superseded.

Wastewater Management Plan Implementation

MOU with Regional Board executed August 2004.

Ordinance establishing an inspection and permitting program for Onsite Wastewater Treatment Systems including a "Point of Sale" element- Adopted March 10, 2008 with ongoing implementation.

The Regional Board's Basin Plan Amendment Prohibiting Discharges from Onsite Wastewater Disposal Systems (OWDS) in the Civic Center Area became effective December 23, 2010. The City is already holding stakeholder meetings, studying the environmental impacts of the system, and has begun preliminary designs for a centralized treatment system. Phase 1 is anticipated to be constructed by 2015

MOU between the City and the Regional Board for implementation of the Basin Plan Amendment Prohibiting Discharges from Onsite Wastewater Disposal Systems (OWDS) in the Civic Center Area was executed in July 2011, memorializing additional elements of the City's wastewater management strategy for the Civic Center area, including phased implementation of a centralized wastewater treatment plant for the area. It will be implemented beginning August 2011 and continue past 2025, at which time Phase 3 would be implemented if deemed necessary. Implementation will be ongoing in

perpetuity, or until such time as the water quality impairment no longer exists or the MOU is superseded.

Escalated Restaurant Inspections- Initiated 2008. The City established its partnership to implement the Clean Bay Restaurant Certification program May 5, 2009. Implementation will be ongoing unless the program is rescinded by the Santa Monica Bay Restoration Commission and/or it is superseded by a different program.

Escalated RGO/Automotive Inspections- Inspections were completed in 2010. The City will be proceeding with annual inspections until such time as funding is unavailable or the regulations change.

Malibu Local Coastal Program- This State certified program was adopted September 13, 2002. It will be implemented in perpetuity in accordance with requirements of the California Coastal Commission (CCC). Amendments may be implemented from time to time pending approval of the CCC.

ASBS Special Protections

Development Review Conditions- the City began imposing a condition in 2005 prohibiting discharges and new drainage specific to projects adjacent to the ASBS beginning. These conditions will continue to be imposed and ongoing until/if affected by the adoption of Special Protections and/or the regulation is revised by the State Water Board. Modifications would be as needed for compliance with the Ocean Plan.

Proposition 84 Projects- the City applied for funding in May of 2008. Grant agreements were executed in May 2011 for both the Broad Beach Road Biofiltration Project and Wildlife Road Treatment and Focused Outreach Project. Projects must be completed in accordance with the current grant guidelines by March 15, 2015 and August 31, 2014 respectively. Maintenance would be ongoing for the life of the improvements. The targeted outreach component would be completed during the project implementation time frame, (approximately two years) with lessons learned being implemented as appropriate past the project completion.

State Adopted Special Protections- the City will implement special protections in accordance with the schedule the State mandates, once these regulations are adopted. The City anticipates they will be adopted by late 2011.

3. *Changes to the SQMP to Eliminate Water Quality Exceedances*

The City is currently implementing the Countywide Stormwater Quality Management Plan (SQMP); in addition City staff collaborated with the Watershed Management Committee to develop a watershed-wide “Plan Blue” for runoff reduction. As major elements of Plan Blue were incorporated into the Integrated Total Maximum Daily Load Implementation Plan for the Malibu Creek Watershed (Malibu Creek IP), it is superseded by Malibu Creek IP and other regulatory documents. However, Plan Blue still exists as a programmatic design document. While not formally finalized and adopted, elements of Plan Blue including the Illicit Connection/Illicit Discharge (IC/ID) Elimination program have been implemented as the acceptable norm. The WMC discussed the plan last reporting year and the group consensus was

that further work on the Plan was not needed because the previously mentioned implementation plans supersede it.

The City believes that source control measures being implemented City-wide listed above in "A Plan to Comply with RWL" including programs as part of the City's NPDES MS4 compliance program, the SMBBB Implementation Plan for Jurisdictional Groups 1 & 4, and the Integrated TMDL Implementation Plan for the Malibu Creek Watershed, along with compliance with ASBS Special Protections and grant programs are the most appropriate measures for these subwatersheds at this time. As the City has not received RWQCB guidance, comments or approval of its RWL Compliance Reports, or any of the subsequent status updates, the SQMP has not been revised but the City has moved forward with implementing programs to enhance the SQMP. Nevertheless, as this it is nearing the tenth year of implementation for this permit, the City reviewed the model programs in the SQMP and has suggested a few revisions, as detailed in the attachment 10-11 III- SQMP as part of this annual report. These revisions can be included in the new SQMP for the new MS4 permit expected to be adopted in Spring 2012. The City focused on the Illicit Connection/Illicit Discharge Elimination Program, Public Agency Activities, and the Industrial/Commercial Facilities Control Programs. Since the issuance of a new permit is anticipated in 2012, it would be most prudent to completely revise the SQMP upon adoption of the new permit to account for any new or different requirements.

4. *Monitoring Programs*

A. Enhanced monitoring to demonstrate compliance

Civic Center Stormwater Treatment Facility Monitoring Program

The treatment facility is currently designed to intercept urban runoff and stormwater up to 1,400 GPM from three drains in the civic center area that would drain into Malibu Creek, remove gross solids, and then clean the water through media filtration and ozone disinfection. The City monitors the water entering and exiting the Civic Center Stormwater Treatment Facility to ensure proper function of the system. In fall 2010, an 8-acre foot storage basin/intermittent wetland on the Legacy Park site will be added to increase the flows that can be treated by this facility. This disinfected and treated water is re-circulated until a significant volume is accumulated and then it spread on land and not discharged to the creek. The treated water will eventually be used as irrigation water on the Legacy Park site and other potential uses in the Civic Center area.

Despite not discharging this water to the creek, the City has been testing the water for FIB since mid 2007. Sampling occurs once a week as water enters and exits the treatment system. Samples are analyzed for bacterial indicators. Results show that this facility is highly effective at removing bacteria, and are available upon request. By constructing this facility and implementing a monitoring plan the City has shown its ongoing commitment the environment and ensuring water quality is protected.

Malibu Creek Bacteria TMDL Monitoring Program.

City and County agencies listed as responsible parties under the Malibu Creek Bacteria TMDL have developed and implemented a FIB compliance monitoring program throughout the Malibu Creek Watershed as approved by the Regional Board. Details of this program are included in Attachment 09-10 MBU V-Monitoring to this report.

Results have been provided to Regional Board Staff since April 2008 and are available upon request.

North Santa Monica Bay (NSMB) Source Identification Study

The County of Los Angeles is conducting the North Santa Monica Bay Bacteria Source Investigation Study (Source ID Study) as a project in partnership with area stakeholders. A Technical Advisory Committee (TAC) that includes staff from the Los Angeles Regional Water Quality Control Board, Heal the Bay, SCCWRP, City of Malibu, and various Los Angeles County Departments developed the study protocol. The Source ID Study was designed to provide information regarding the sources and potential health risks associated with elevated bacteria levels at Escondido Beach (SMB-1-08) and Paradise Cove (SMB-1-07) and subsequently to develop an effective methodology that can be applied to other subwatersheds to track sources of pollution. The study ran from March 2007 through July 2007 when it was discontinued after six weeks because the beach locations did not exceed bacteria standards during the study period and the upstream data did not identify any substantial hotspots within either watershed (Ramirez nor Escondido). The group decided that further sampling should be postponed until conditions warranted upstream tracking. The study was resumed March 2008 and suspended again when the creek flows dried up. Again, it was resumed in March 2009 and continued for 8 weeks before stopping. In 2009, the TAC discussed additional monitoring and analyses for this project for when it resumes. As beach locations did not exceed bacteria standards during the study period, sampling did not resume in 2010 nor 2011.

In a letter dated February 13 2007 sent to the County of Los Angeles, Jonathon Bishop, then Executive Officer of the Regional Board, recognized the effort of this study and supported it "in lieu of requiring the County to conduct other investigations of exceedances at beaches influenced by natural streams for the upcoming summer dry weather period." The letter went on to recognize that this project was a collaborative effort among several agencies including the City of Malibu.

A formal report has not been provided to the City at this time. Update meetings have explained some of the results. It was found that the fecal indicator bacteria exceedances at the shoreline at Escondido Canyon Creek are not being caused by inputs upstream in the Creek. Results in Ramirez Canyon are more complicated as to the potential sources, therefore this study will be continued again to possibly look at tidal influence, animal contributions, potential groundwater exchange near the coast, and other hypotheses. Initial Human Specific Bacteroides sample analyses of the surface water shows that the source of shoreline exceedances at Paradise Cove is not likely from human sources and therefore not from upstream OWTS.

Reference Watershed Study

A Reference Watershed Study, titled *Fecal Indicator Bacteria Levels During Dry Weather in Southern California Reference Streams*, commissioned by responsible agencies in the Malibu Creek Watershed was conducted by Southern California Coastal Water Research Project (SCCWRP). This study is discussed further in Section 4. B. *Results of Implementation* and Section 1.B Analysis of Possible Sources of this RWL Report.

Risk Assessment of Decentralized Wastewater Treatment Systems in High Priority Areas in the City of Malibu

This comprehensive study was conducted in 2004 to evaluate the environmental impacts of current and future levels of onsite wastewater management provided a baseline to refine its citywide wastewater management program and found that shallow groundwater in the Malibu Creek study area is significantly influenced by bacteria from sources other than On-site Wastewater Treatment Systems (OWTS). It is being included here as an example that results of implementing programs may take years for results to be observed and that additional studies have been added as a result of this study.

Groundwater "Mounding Analysis"

The City Council authorized the City Manager to execute a professional services agreement for the Hydrology Study of Cumulative Impacts for the Civic Center Area (Ground Water Mounding Analysis) July 14, 2008. This will be building on the information learned in the Integrated Water Management Plan Feasibility Study to help guide decisions for development in the Civic Center area. The final report and model were completed in the past reporting year and will serve to inform as the centralized wastewater treatment facility is developed for the Civic Center area.

Area of Special Biological Significance (ASBS) Efforts

The City participated in the Regional Bight08 ASBS Monitoring Programs for water quality analyses and bioassessments. This collaborative effort between regulators (State Water Board), regulated federal, state, and local government organizations, private community landowners, and associated consultants seeks to define water quality conditions in the ASBS. This combined effort stems from the need to meet regulatory requirements for "natural water quality" in the receiving water while leveraging resources for the most effective combination of monitoring within Northern and Southern California.

The monitoring protocols chosen seek to answer three primary questions:

1. What is the range of natural conditions in reference watersheds? (to develop natural water quality limits)

2. How does the ASBS in the City's jurisdiction compare to the natural water quality limits? (to determine if there is an issue)

3. How do ASBS as a whole compare to natural water quality in areas with discharges and those without? (to determine if these areas may be affected by influences outside of controllable discharges)

The water quality monitoring efforts began in Southern California in late fall of 2008. The rocky intertidal bioassessments took place December 2008-January 2009, and the rocky subtidal bioassessments took place in fall 2009 and late winter 2010. The official water quality report report was generated by SCCWRP, with the final published in February 2011. The bioassessments report has not yet been published.

The City is also preparing to comply with Special Protections that are being developed by the SWRCB staff to regulate the ASBS. These regulations are still in draft form but will

include additional monitoring water quality and marine aquatic life assessments within ASBS that is not covered by the Regional Bight efforts to ensure the continued protection of beneficial uses over time.

United States Geological Survey (USGS) Research- (was not reported in 2007-2008 RWL Compliance Report)

The City of Malibu commissioned the USGS to conduct a study called "Sources of Fecal Indicator Bacteria and Nutrients to Malibu Lagoon and Near-Shore Ocean Water, Malibu, California." The City began conversations with USGS late in 2008 to perform studies to identify any sources of fecal indicator bacteria in the Malibu Creek, Lagoon, and beaches from the Malibu Colony to the Pier including Surfrider Beach. Studies were conducted in July 2009 for dry weather, and April 2010 for wet weather using multiple advanced testing methods. The City has received initial reports and presentations, but a final report has not yet been published. USGS is still receiving data from analyses. A final report is anticipated to be published in the next reporting year and circulated for peer review prior to public release.

Malibu Creek Monitoring Program (Proposition 13)

The monitoring associated with this program was completed outside of this permit year and the final report was submitted to the SWRCB in March 2008.

Paradise Cove Stormwater Treatment facility Monitoring Program (was not reported in 2007-2008 RWL Compliance Report)

Monitoring was conducted at seven spatially distributed sites to determine project effectiveness and identify potential hot spots contributing to fecal indicator bacteria exceedances. Sampling and physical observations began in August of 2010 and has been ongoing on a weekly basis. Additionally, an ultrasonic flow meter was installed in February 2011 to measure stream flow. The final monitoring results report will be prepared in the upcoming permit year.

B. Results of Implementation.

Civic Center Stormwater Treatment Facility Monitoring Program

The new monitoring site the City added was at the stormwater treatment facility. The treatment system's influent and effluent are analyzed weekly for Total Coliform, E. Coli, and Enterococcus. Monitoring results have shown that on the average bacterial indicators in the effluent from the system tested below the laboratory detection levels. As discussed above, this treated water is not discharged to any water body including the Malibu Creek, Lagoon or Surfrider Beach. Monitoring results show that implementing this project has been successful.

Malibu Creek Bacteria TMDL Monitoring Program.

This program was implemented in March 2008. Results have been provided to Regional Board Staff and are available upon request. Sample results show that there are occasional single sample exceedances of FIB limits at the sample site MCW-1 in the Malibu Lagoon, but not any regular or repeating exceedances of the standards that could be

attributed to a specific cause or pattern. Given that the City has installed the Civic Center Stormwater Treatment Facility and does not discharge from its MS4 to the Malibu Lagoon, these exceedances cannot be attributed to the City of Malibu. However, the Malibu Creek Responsible agencies participating in this monitoring program have recently discussed doing an overall trend analysis of the data collected over the past two years for all sites in this program. Pending results of that analysis, the affected agency(ies) would implement additional monitoring or programs. Other than the City's projects in the Civic Center that have been described in this report, agencies in the upper watershed have been implementing projects over the past couple years, the results of which are yet to be determined in the lower watershed.

Malibu Creek Monitoring Program (Proposition 13)

The final report from this study was submitted to the SWRCB as a deliverable for the funding program. Recommendations from the report are tied to the Integrated TMDL Implementation Plan for the Malibu Creek Watershed and are being put into practice by the responsible agencies. The structural BMPs recommended in the plan will be undergoing feasibility and alternatives studies in the upcoming year under contract to Los Angeles County. Since this monitoring took place before the implementation of many projects, it may be useful in historical analysis of water quality as time goes on. This monitoring program was successful overall in providing the stakeholders a context for the conditions in the watershed.

NSMB Source Identification Study

This study is active and a final report has not been published at this time. The results of implementation are yet to be seen until the report is finished.

Reference Watershed Study

Southern California Coastal Water Research Project's (SCCWRP) study *Fecal Indicator Bacteria Levels During Dry Weather in Southern California Reference Streams*, (Tiefenthaler et. al. 2008) attempted to quantify naturally occurring background levels of bacteria in streams during base flow (i.e. non-storm) conditions over an extended period of time. Please see Section 1.B above for full description of the study results. This results showed this program was successful in recognizing that FIB exceedances are likely to still occur in reference streams in absence of (or with minimal) human influence. It also identified that temperature and time of year may be factors in exceedances of FIB water quality standards.

Area of Special Biological Significance (ASBS) Efforts

The water quality monitoring program was completed during the 2008-2009 wet season. SCCWRP compiled the results. A report was published in February 2011. The bioassessments were completed by March 2010 and reports are anticipated to be generated in 2012. The results of this effort will be used to inform the State Water Board in decision making about the special protections in the ASBS and to provide context for determining the natural water quality.

Based on the unique biological status of ASBS, and the concern over potential risk from stormwater discharges, the State partnered with SCCWRP and regulated agencies to conduct a study of the ASBS as part of the Bight 08 program. The goal of this study was

to assess the water quality in southern California ASBS. Specifically, the study was designed to answer two questions:

1) What is the range of natural water quality near reference discharge locations?

2) How does water quality near regulated ASBS discharges compare to the natural water quality at reference locations?

Study sites were chosen in southern California, including four sites in ASBS 24 (two reference, and two discharge sites). Concentrations of total suspended solids (TSS), nutrients (ammonia, nitrate, nitrite, total nitrogen, total phosphorus), total and dissolved trace metals (arsenic, cadmium, chromium, copper, nickel, lead, silver, selenium, and zinc), and polycyclic aromatic hydrocarbons (PAH) from post-storm samples were similar at reference and regulated ASBS discharge sites. On average, the range of post-storm pollutant concentrations in receiving waters sampled near regulated ASBS discharge sites were not significantly different from post-storm concentrations at reference sites. Concentrations of chlorinated hydrocarbons were not detected and no post-storm sample exhibited toxicity to the purple sea urchin *Strongylocentrotus purpuratus* (i.e. toxicity was not observed during this study). In addition, there was no consistent increase from pre- to post-storm concentrations at either reference or regulated ASBS discharge locations, showing that discharges did not seem to alter background water quality.

This study found that overall, ASBS water quality is in good condition. It also found that water quality results at ASBS discharge sites in receiving water were similar to reference sites. On average, the range of post-storm pollutant concentrations in receiving waters sampled near regulated ASBS discharge sites were not significantly different from post-storm concentrations at reference sites. In addition, there was no consistent increase from pre- to post-storm concentrations at either reference or regulated ASBS discharge locations, showing that discharges did not seem to alter background water quality. Toxicity was not observed during this study, and polycyclic aromatic hydrocarbons were non-detect at the City's sample sites.

The final February 2011 report[4] noted that, "on average, the range of post-storm pollutant concentrations in receiving waters sampled near ASBS discharge sites were not significantly different from post-storm concentrations at reference drainage sites, which included stormwater inputs free of (or minimally influenced by) anthropogenic sources," it also clarified that many data gaps still exist with respect to determining natural water quality. The limited amount of data limits the researchers' ability to definitively assess water quality in ASBS. Data is still needed in areas such as: (1)a thorough analysis linking water quality to condition of the biota and habitat; (2) an analysis of natural sources of elevated pollutants in water; and (3) analysis of non-water quality threats such as trampling and poaching. Overall, this study shows initially that the management strategies employed by the City have so far been successful in protecting natural water quality and preserving beneficial uses.

[4] Schiff, K.C., B. Luk, D. Gregorio and S. Gruber. 2011. Southern California Bight 2008 Regional Monitoring Program: II. Areas of Special Biological Significance. Southern California Coastal Water Research Project. Costa Mesa, CA.

Risk Assessment of Decentralized Wastewater Treatment Systems in High Priority Areas in the City of Malibu

This study has influenced how the City manages OWTS in the City, in particular in the areas adjacent to the Malibu Creek and lagoon. It has also greatly affected and restricted development in the Civic Center area. Other lasting effects of this study include development of regulations such as the Malibu Creek Bacteria TMDL and focused the implementation plan development priorities. The City is also building upon this study with current contracts for a Groundwater Monitoring Study and Hydrology model "Groundwater Mounding Study"- which is mentioned previously.

As part of the development of the Santa Monica Bay Beaches Bacteria Wet Weather TMDL Implementation Plan, a Source Identification and Prioritization Analysis was conducted for Jurisdictional Groups 1 and 4 to identify and evaluate potential sources of water quality impairment in the affected subwatersheds and to prioritize these sources. Aspects of this study are also relevant for dry weather bacteria conditions since the sources may be similar even though the transport mechanisms can be different. Based on the results of the Risk Assessment of Decentralized Wastewater Treatment Systems, the source identification and prioritization effort focused on other potential sources (e.g., restaurants, horses, and urban runoff). The data did not support the identification of one conclusive source, but did identify the effects of urbanization, particularly urbanization in proximity to water bodies as linked to exceedance of water quality standards. As a result, the focus of the prioritization effort shifted from source prioritization to targeted Subwatershed prioritization.

United States Geological Survey (USGS) Research

Initial results of this study are very compelling. Lagoons and estuaries, like Malibu Lagoon, are known to cause a net increase in bacteria loads especially when the physical conditions constrain naturally functioning systems. Research shows that high fecal indicator bacteria at Surfrider Beach and other coastal sites is most likely from bird feces in the sand and kelp, decaying vegetation and naturally occurring bacteria released from the lagoon sediments. Further, monitoring results are particularly affected if the sample is taken at high tide and early in the day.

This USGS study is also demonstrating that even when the Malibu Lagoon sand berm is closed, that fecal indicator bacteria can pass through the berm and affect sampling results at Surfrider Beach, if certain conditions are present. The primary source of bacteria is from natural sources such as avian feces deposited into the Creek and Lagoon, decaying vegetation, and avian feces in the kelp and sand. Using the most up to date analysis, no human-specific Bacteroidales was found in the extensive investigations by USGS in 2009. This information is supported by studies at Surfrider Beach by the University of California at Los Angeles, and in Malibu Creek and Lagoon, and Surfrider Beach by researchers from SCCWRP in 2005 (studies not commissioned by the City and therefore not a part of this report).

Additionally, multiple studies including this USGS study show that even when no Human-specific Bacteroidales markers were present, fecal indicator bacteria limits may exceed at Surfrider Beach, showing that any FIB is not specific to humans, is from the previously mentioned natural sources, and generation/growth of naturally occurring bacteria is occurring in specific conditions including appropriate temperatures that would be observed in the Malibu Lagoon.

Paradise Cove Stormwater Treatment facility Monitoring Program (was not reported in 2007-2008 RWL Compliance Report)

Results from weekly water quality sampling indicate that the system is effective at eliminating fecal indicator bacteria from the channel. Results at the outlet are consistently below the detection limit for all fecal indicator bacteria. However, once the treated water contacts beach sands and kelp, the levels of FIB in the samples increase dramatically. This demonstrates that sources outside of and down gradient of the watershed are the cause of FIB at the monitoring site SMB 1-07. As previously mentioned, due to a lack of input from the City's MS4 and overwhelming results that the treated discharged water is consistently below detection limits, implementation of this program has been successful in eliminating any possibility that the City's MS4 would cause or contribute to the observed exceedances of the FIB standards and objectives.

The current protocol is sufficient to determine the presence of elevated pollutant levels, in particular bacteria indicators; however, more monitoring in the future may be able to help identify sources of pollutants at other listed water bodies.

As previously discussed, the Stormwater Monitoring Report from the Principal Permittee described the water quality exceedances that occurred in 2007-2008. Sulfate, TDS, Fecal Coliform, and Mercury water quality limits were exceeded. It seems that some of the constituents that were exceeded in previous years are not continuing. Mercury, which was above the water quality limit one time out of five sample events in 2007-2008, was believed to be biased due to the analytical method used. The other constituents that exceeded water quality limits and have exceeded in the past, are most likely due to natural sources.

More analysis of the pollutants listed as exceedances earlier in this document is required before the City can determine whether additional monitoring within the City's jurisdiction would be useful. However, since the Malibu Canyon overall is an 80% undeveloped watershed, with steep, erosive and denuded hillsides with little to no industry and limited areas of high density residential, the information that is becoming available regarding the Monterey Formation and how geological conditions affect background surface water quality suggests that the vast majority of water quality exceedances that are observed are most likely from natural sources. The previously described USGS study will provide substantial guidance for within the City of Malibu that may be relevant to other coastal watersheds as well.

Peer reviewed scientific studies are continuing to show that non-municipal stormwater is the greatest threat to water quality, as sediments and erosion in undisturbed natural areas coupled with input from wildlife are increasingly likely sources of fecal indicator bacteria from

natural sources. This is especially true in areas in the City of Malibu where the City has installed treatment devices to clean runoff, or does not even discharge runoff.

The final reports of the various studies and monitoring programs in the area may shed additional light on the sources of pollutants, seasonal variability, and potential options to eliminate and reduce some sources of pollution.

The results of the implementation of projects and programs are still being assessed. As these are in various stages of implementation, the benefits of combined structural and non-structural BMPs are also still being assessed. The City and other responsible and cooperating agencies intend to follow an iterative and adaptive approach to address the existence of any discharges that lead to exceedances of water quality standards.

The City is not aware of any water degradation over the past year in any of the creeks or the Santa Monica Bay. The City expects continued protection in water quality in Malibu Creek and Lagoon and at Surfrider Beach since the Civic Center Water Treatment Facility began operating and Legacy park was constructed. Monitoring of the treated water has been on-going and results show that observed levels of fecal indicator bacteria (FIB) on average are lower than the analytical detection limit. Even so, this water is not being discharged to the Malibu Creek. The County's Marie Canyon treatment facility began operating in October 2008. Improvements in water quality as a result of that County facility are observed when the facility is operational and flows do not exceed its capacity.

As discussed, data from the Paradise Cove project's monitoring program shows that the treated water flowing from the system is below or at method detection limits for FIB.

Additional information on the results of the implementation can be found in the Assessment of Program Effectiveness in this year's Annual Report.

Local Ordinances and Regulations

The following documents, referred to in Section 2 above, provide necessary regulatory authority to the City to protect various aspects of the environment and protect against degradation of water quality. Most of these ordinances have been codified and are available on the City's website at www.ci.malibu.ca.us and hardcopies can be provided upon request:

1) Malibu Municipal Code (M.M.C.) Chapter 9.08.060. Offenses Against Property

2) City of Malibu Ordinance No. 46. (M.M.C. Chapter 9.20) Water Conservation

3) City of Malibu Ordinance No. 51U. Urgency Amendment to the Excavation Grading Standards of the Building Code, Establishing Stormwater Management Standards, and Amending the M.M.C.

4) City of Malibu Ordinance No. 96. (M.M.C. Chapter 17.44) Water Conservation Landscaping Requirements

5) City of Malibu Ordinance No. 157. Regulating Stormwater and Urban Runoff Pollution

6) City of Malibu Ordinance No. 219. Amending the Stormwater and Urban Runoff Pollution Control Ordinance to Provide Stormwater Pollution Control for Planning and Construction of New Development and Redevelopment Projects

7) City of Malibu Ordinance No. 242. (M.M.C. 15.12) Incorporating the California Plumbing Code to Require Operating Permits for Residential and Commercial Facilities to Use Onsite Wastewater Treatment Systems

8) City of Malibu Ordinance No. 264. (M.M.C. Chapter 13.04) Stormwater and Discharge Control

9) City of Malibu Ordinance No. 265. (M.M.C. Chapter 12.05.035) Prohibiting Smoking on City Beaches

10) City of Malibu Ordinance No. 286. (M.M.C. Chapter 9.24) Ban on Expanded Polystyrene Food Packaging

11) City of Malibu Ordinance No. 321. (M.M.C. Chapter 15.14) Operating Permit Program with a Point of Sale Element for Onsite Wastewater Treatment Systems

12) City of Malibu Ordinance No. 323. (M.M.C. Chapter 9.28) Prohibiting the Use of Plastic Shopping Bags

13) City of Malibu Ordinance 324 (M.M.C. Chapter 1.10) Establishing an Administrative Citation Procedure to Impose Administrative Fines for Violations of the Malibu Municipal Code

14) City of Malibu Ordinance 325 (M.M.C. 5.04.020(A) and 5.20.140) Amending Various Sections of the Malibu Municipal Code to Make Specified Code Violations Subject to the Administrative Penalty Provisions of Chapter 1.10.

15) City of Malibu Ordinance 343 (M.M.C. Chapter 9.22) Creating Landscape Water Conservation Standards.

NOTE: The Malibu General Plan and Local Coastal Program are available on the City website at www.ci.malibu.ca.us.

The Memorandum of Understanding between California Regional Water Quality Control Board, Los Angeles Region, and City of Malibu Regarding Onsite Wastewater Treatment Systems is on file at the City and a hardcopy is available upon request.