TENTATIVE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

RESOLUTION NO. R9-2010-0001

A RESOLUTION AMENDING THE *WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA, PROJECT I - TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION (INCLUDING TECOLOTE CREEK)

WHEREAS, The California Regional Water Quality Control Board, San Diego Region (hereinafter, San Diego Water Board), finds that:

1. **Water Quality Control Plan**: The federal Clean Water Act[1] and state Porter-Cologne Water Quality Control Act[2] requires the San Diego Water Board to establish water quality standards for each waterbody within its region. The water quality standards for the inland and coastal waters in the San Diego Region are established in the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) and in the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan). Water quality standards include beneficial uses, water quality objectives (WQOs) that are established at levels sufficient to protect those beneficial uses, and an antidegradation policy to prevent degrading waters that are better than the quality established as WQOs. Waterbodies that do not meet water quality standards are considered impaired.

2. **Clean Water Act Section 303(d) List of Water Quality Limited Segments:** Pursuant to Section 303(d) of the Clean Water Act, each state is required to identify waters within its boundaries that do not meet water quality standards. Specifically, the states must identify those waters for which technology-based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters and establish a priority ranking for such waters.[3] For those waters identified as not meeting water quality standards, each state must establish the total maximum daily load (TMDL) at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety.[4] Each state is required to develop a list that identifies and establishes a priority ranking for those waters requiring TMDLs.[5] The list is known as the Clean Water Act Section 303(d) List of Water Quality Limited Segments or more commonly, the 303(d) List.

[1] Clean Water Act section 303; U.S. Code section 1313
[2] California Water Code section 13240
[3] Clean Water Act section 303(d)(1)(A); U.S. Code section 1313(d)(1)(A)
[4] Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(C)
[5] Code of Federal Regulations Title 40 section 130.7(b)(1)

3. **Definition of Total Maximum Daily Load (TMDL)**: A TMDL is defined as the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background.[6] TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge between effluent limitations and water quality.[7] TMDLs must be established for waterbodies identified on the 303(d) List.[8] For the specific purpose of developing information, states are also required to develop TMDLs for all other waters that are not identified on the 303(d) List.[9]

4. **Water Quality Standards Interpreted in TMDLs with Numeric Targets**: One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the WQOs established at levels sufficient to support those uses). In California, numeric targets are often based on the WQOs in the Basin Plan. The Basin Plan contains numeric and narrative WQOs. If applicable WQOs are numeric, the numeric WQOs can be used as numeric targets. If applicable WQOs are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative WQOs. In impaired waters requiring TMDLs, when numeric targets are met in the waterbody, the water quality standards should be attained and restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards*.

5. **TMDL Basin Plan Amendment**: Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into the state water quality management plan.[10] The Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the San Diego Water Board. Incorporating TMDLs into the Basin Plan requires an amendment to the Basin Plan.[11] Because TMDLs are established based on numeric targets that interpret existing water quality standards (i.e., beneficial uses and WQOs), and do not constitute the establishment of new water quality objectives, an amendment to the Basin Plan to incorporate TMDLs is not subject to the requirements of Water Code section 13241, which only apply when "establishing water quality objectives". Instead, TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242, which requires a description of the actions necessary to achieve the objectives, a time schedule for the actions to be taken, and a description of the surveillance to be undertaken to determine compliance with objectives.

6. **Waterbodies with Bacteria Impairments Made Highest Regional Priority for TMDLs**: In late 2003, when this TMDL project was first initiated, the 2002 303(d) List indicated that the greatest cause of waterbody impairments in the San Diego Region was due to elevated bacteria

[6] Code of Federal Regulations Title 40 section 130.2(i)
[7] Code of Federal Regulations Title 40 section 130.7(c)(1)
[8] Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(c)
[9] Clean Water Act section 303(d)(3); U.S. Code section 1313(d)(3)
[10] Code of Federal Regulations section 130.6(c)(1)
[11] Pursuant to the requirements of Article 3, commencing with section 13240, of Chapter 4 of the Porter-Cologne Water Quality Control Act, as amended, codified in Division 7, commencing with section 13000, of the Water Code

levels. Postings and closures of local beaches due to elevated bacteria levels were regularly making headlines; the State Water Resources Control Board (State Water Board) was convening the Southern California Beach Water Quality Task Force to address the problem; Assembly Bill 411(focused on beach contamination and monitoring) was making its way through the legislature; and the voters had just approved millions of dollars in grant funding for beach cleanups. For all of these reasons, the San Diego Water Board prioritized waterbodies with bacteria impairments as one of its highest regional priorities for the development of TMDLs. The initial bacteria TMDL project attempted to develop a single region-wide set of TMDLs to address all of the bacteria impaired waters in the San Diego Region. As the project developed, however, it became necessary to separate the project by waterbody types due to modeling and resource constraints. The first bacteria TMDL project was developed to address the beaches and creeks listed on the 2002 303(d) List, known as Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region, or Bacteria TMDLs Project I.

7. **Relationship Between Bacteria and Pathogens:** Fecal indicator bacteria originate from the intestinal biota of warm-blooded animals, including humans, and their presence in surface water is used as an indicator of the possible presence of human sewage and associated pathogens (*i.e.*, organisms that cause illness, including protozoans, bacteria, and viruses). Humans may be exposed to these waterborne pathogens through recreational water use or by harvesting and consuming filter-feeding shellfish. Bacteria have been historically used as indicators of human sewage and associated pathogens because 1) the presence of pathogens and the probability of disease are directly correlated with the density of indicator bacteria in waters used for recreation or shellfish harvesting, and 2) these indicator bacteria are easier and less costly to measure than the pathogens themselves. When TMDLs for indicator bacteria are attained, the health risks associated with pathogens are expected to be minimal.

8. **Exceedances of the Contact Water Recreation (REC-1) WQOs**:[12] The REC-1 beneficial use is particularly sensitive to, and subject to impairment by, pathogens when elevated densities of indicator bacteria exist in the water. REC-1 is a beneficial use of the Pacific Ocean beaches and in creeks that discharge to those beaches, where several of these waterbodies are listed as impaired by bacteria. Several available studies support the finding that amongst southern California beaches, the highest number of exceedances of the bacteria REC-1 WQOs occurs during wet weather and in the vicinity of major storm water outlets and creek mouths. Persons who ingest water during recreational activities in waters containing indicator bacteria at densities in excess of REC-1 WQOs are significantly more likely to incur infections or illness caused by waterborne pathogens than when indicator bacteria occur at densities consistent with the applicable WQOs.

9. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** On December 12, 2007, the San Diego Water Board adopted Resolution

[12] The Ocean Plan and Basin Plan also contain Shellfish Harvesting (SHELL) and Non-contact Water Recreation (REC-2) water quality objectives. Waterbodies with SHELL beneficial use impaired by bacteria will be addressed in a separate TMDL project and/or standards action. Water quality objectives for REC-2 are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.

No. R9-2007-0044 to amend the Basin Plan to incorporate Bacteria TMDLs Project I. Bacteria TMDLs Project I was developed to establish TMDLs and restore the REC-1 beneficial use for nineteen (19) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List. The Administrative Record for Resolution No. R9-2007-0044 was transmitted to the State Water Board on March 21, 2008 to begin the State Water Board, Office of Administrative Law (OAL), and USEPA approval processes.

10. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment Contingent Upon Adoption of Reference System Approach Basin Plan Amendment:** The bacteria TMDLs adopted under Resolution No. R9-2007-0044 included "interim" and "final" wet weather TMDLs. The "interim" wet weather TMDLs were calculated to include an allowance for exceedances of REC-1 WQOs due to bacteria loads from natural sources based on the exceedances in a reference system.[13] The "final" wet weather TMDLs that were calculated did not allow for exceedances of REC-1 WQOs due to bacteria loads from natural sources. At the time Resolution No. R9-2007-0044 was adopted, allowing exceedances of the REC-1 WQOs during wet weather was not authorized by the Basin Plan. The San Diego Water Board, however, recognized that exceedances of the REC-1 WQOs during wet weather was likely, and may be partially due to bacteria loads contributed from natural sources. Therefore, the San Diego Water Board agreed to develop a Reference System Approach Basin Plan Amendment, which would authorize an allowance for wet weather exceedances of the REC-1 WQOs based on the wet weather exceedance frequencies observed in a reference system.

    For this reason, adoption of the Bacteria TMDLs Project I Basin Plan amendment was made contingent upon the future consideration of a separate Reference System Approach Basin Plan amendment by the San Diego Water Board. It was assumed that upon the subsequent adoption of the Reference System Approach Basin Plan amendment, Bacteria TMDLs Project I would be appropriately revised and brought back to the San Diego Water Board for re-adoption. The key revision would include incorporation of the reference system approach into the final TMDLs. Specifically, the previously established "interim" wet weather TMDLs, which were calculated based on the reference system approach, would become the only wet weather TMDLs. The previously established "final" TMDLs, which did not use the reference system approach, would be removed.

11. **Adoption and Approval of Reference System Approach Basin Plan Amendment (Resolution No. R9-2008-0028):** On May 14, 2008, the San Diego Water Board adopted Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL.* This Basin Plan Amendment contains "implementation provisions" which provide the San Diego Water Board with flexibility in implementing its bacteria WQOs in the context of certain TMDLs. Specifically, it authorizes the San Diego Water Board to develop bacteria TMDLs that allows exceedances of the single sample maximum bacteria WQOs during wet weather for the purpose of accounting for natural, uncontrollable sources of bacteria (e.g., birds, wildlife, soil, etc.). Such sources, by themselves and in the absence of human activities, have been found to cause exceedances of the single sample maximum WQOs during

[13] A reference system is a watershed and the beach to which the watershed discharges that is minimally impacted by anthropogenic activities that can affect bacterial densities in the waterbody.

wet weather. The Administrative Record for Resolution No. R9-2008-0028 was transmitted to the State Water Board on July 25, 2008. Resolution No. R9-2008-0028 was approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009. Approval of Resolution No. R9-2008-0028 allows the San Diego Water Board to revise the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044.

12. **Request to Withdraw Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** By letter dated December 17, 2008, the San Diego Water Board submitted a request to withdraw the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044 from State Water Board consideration for approval. The withdrawal request was made in order to address concerns expressed by the State Water Board that 1) the adoption of Bacteria TMDLs Project I was contingent upon the adoption of a subsequent Basin Plan amendment, and 2) Bacteria TMDLs Project I did not include sufficient guidance on how compliance with the TMDLs, WLAs, and LAs would be evaluated. Additionally, the San Diego Water Board needed to make the revisions that had been committed to upon adoption of the Reference System Approach Basin Plan amendment, as described in finding 10.

13. **Establishment of Bacteria TMDLs for Tecolote Creek:** Bacteria TMDLs were also being developed for Tecolote Creek a part of a separate TMDL project. Bacteria TMDLs Project I and the Bacteria TMDLs for Tecolote Creek are based on the same modeling approaches. Because the same modeling approaches are used, and the resources available for the development of TMDLs have been greatly reduced, the bacteria TMDLs for Tecolote Creek have been included in the revisions to the Bacteria TMDLs Project I Basin Plan amendment.

14. **Revisions Made to the Bacteria TMDLs Project I Basin Plan Amendment:** Revisions to the original Bacteria TMDLs Project I Basin Plan amendment include: 1) finalizing the TMDLs to include allowable exceedances of the REC-1 WQOs using the reference system approach authorized by the Basin Plan amendment adopted under Resolution No. R9-2008-0028 (see finding 11), 2) providing specific guidance on how compliance with the TMDLs, WLAs, and LAs will be evaluated, and 3) establishing TMDLs for Tecolote Creek. None of the revisions have changed the scientific basis or approach used to calculate the TMDLs, WLAs, and LAs. This TMDL project and its Basin Plan amendment have been revised to establish bacteria TMDLs for a total of twenty (20) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List, and will be referred to hereafter as Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek), or Revised Bacteria TMDLs Project I.

15. **Bacteria Impaired Waters Included in Revised Bacteria TMDLs Project I** : Twenty (20) waterbodies (12 segments of the Pacific Ocean shoreline,[14] 2 creek mouths, and 6 creeks) in the San Diego Region were placed on the 2002 303(d) List because levels of total coliform,

[14] The Pacific Ocean shoreline consists of a zone extending seaward from the shoreline a distance of 1,000 feet or to the 30-foot depth contour, whichever is further from the shoreline.

fecal coliform, and/or enterococci at those locations exceeded the REC-1 WQOs.[15]. The bacteria impaired waters listed on the 2002 303(d) List included in Revised Bacteria TMDLs Project I are specified below.

Watershed	Type of Listing	Waterbody Name [a]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek	1
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit
[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.
[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. The TMDLs that have been developed for the Pacific Ocean shorelines are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above.

16. **Bacteria Water Quality Objectives for REC-1 Beneficial Use**:[16] Water quality objectives (WQOs) for bacteria in the waters of the Pacific Ocean shoreline, expressed as the most probable number of bacteria colonies per 100 mL of water sample (MPN/100 mL), are

[15] The Basin Plan and Ocean Plan also contains SHELL objectives for total coliform. SHELL impairments for total coliform are being developed in a separate TMDL and/or standards action.
[16] Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.

contained in the Ocean Plan. The water quality objectives for bacteria in the inland surface waters are contained in the Basin Plan.

(a) The WQOs, as established in the Ocean Plan,[17] for indicator bacteria in waters of the Pacific Ocean shoreline designated as having REC-1 beneficial use are as follows:

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., areas designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

i. Total coliform density shall not exceed 1,000 per 100 mL
ii. Fecal coliform density shall not exceed 200 per 100mL; and
iii. Enterococcus density shall not exceed 35 per 100 ml.

Single Sample Maximum:

i. Total coliform density shall not exceed 10,000 per 100 mL
ii. Fecal coliform density shall not exceed 400 per 100mL;
iii. Enterococcus density shall not exceed 104 per 100 mL; and
iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/ total coliform ratio exceeds 0.1.

(b) The WQOs, as established in the Basin Plan,[18] for indicator bacteria in inland surface waters, enclosed bays and estuaries, and coastal lagoons designated as having the REC-1 beneficial use are as follows:

Fecal Coliform Water Quality Objective for Contact Recreation:

The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 organisms per 100 ml.

In addition, the fecal coliform concentration shall not exceed 400 organisms per 100 ml for more than 10 percent of the total samples during any 30-day period.

Enterococci and E. Coli Water Quality Objectives for Contact Recreation:

[17] As adopted by the State Water Board on January 20, 2005 and April 21, 2005, approved by OAL on October 12, 2005, and approved by USEPA on February 14, 2006.
[18] As amended in Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL,* adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.

The USEPA published E. coli and enterococci bacteriological criteria applicable to waters designated for contact recreation (REC-1) in the Federal Register, Vol. 51, No. 45, Friday, March 7, 1986, 8012-8016.

USEPA BACTERIOLOGICAL CRITERIA FOR WATER CONTACT RECREATION (in colonies per 100 ml)

	Freshwater		Saltwater
	Enterococci	**E. coli**	**Enterococci**
Steady State			
(all areas)	33	126	35
Maximum			
(designated beach)	61	235	104
(moderately or lightly used area)	108	406	276
(infrequently used area)	151	576	500

Total Coliform Water Quality Objective for Contact Recreation for Bays and Estuaries:

In bays and estuaries, the most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 ml (10 organisms per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 ml (10 per ml); and provided further that no single sample as described below is exceeded.

The most probable number of total coliform organisms in the upper 60 feet of the water column in no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 organisms per 100 ml (100 organisms per ml).

17. **Allowable Exceedances of REC-1 Water Quality Objectives:** It is not the intent of these bacteria TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. A Basin Plan amendment was adopted by the San Diego Water Board authorizing the development of indicator bacteria TMDLs that account for exceedances of bacteria REC-1 WQOs due to bacteria loads from natural uncontrollable sources.[19] Exceedances of bacteria REC-1 WQOs may be allowed within the context of bacteria TMDLs using a reference system approach or natural sources exclusion approach.

18. **Numeric Targets Selected for Bacteria TMDLs**: One or more quantitative numeric targets are required to calculate a TMDL. Numeric targets are selected based on the water quality standards (i.e., beneficial uses, WQOs, and the antidegradation policy) that are applicable to the waterbody. The selected numeric target(s) must be able to interpret and implement the water quality standards. When the numeric targets are met in the impaired waterbody, the WQOs will be met and the water quality standards should be restored. The numeric targets

[19] Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL,* was adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.

selected for these bacteria TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan (finding 16), and allowable exceedance frequencies using a reference system approach (findings 11 and 17). Because the REC-1 WQOs are numeric, the numeric WQOs were used in the numeric targets. Different numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) were used to calculate dry weather TMDLs and wet weather TMDLs. The numeric targets were selected based on the applicability of the Ocean Plan and/or Basin Plan REC-1 WQOs (i.e., Pacific Ocean shoreline or inland surface water) and the allowable exceedance frequencies of the REC-1 WQOs in available reference systems for the different weather conditions (i.e. wet weather[20] or dry weather[21]).

19. **Sources of Bacteria**: Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

    In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the technical TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis for this project, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Land uses associated with the Municipal MS4s and Caltrans have discharges that are considered point sources. Agriculture and Open Space land uses have discharges that are considered nonpoint sources. Discharges of bacteria from the Municipal MS4s, Caltrans, and Agriculture land use categories are assumed to be anthropogenic in origin and considered controllable. Discharges of bacteria from the Open Space land use category are assumed to be natural, and hence are considered uncontrollable. Quantification of the bacteria loads from these land use categories is used to identify controllable bacteria sources that need to reduce their bacteria loads so the TMDLs can be attained in the receiving waters.

20. **Calculation of Total Maximum Daily Loads (TMDLs)**: These TMDLs for bacteria are equal to the total assimilative or loading capacities of the waterbodies for total coliform, fecal coliform, and enterococci bacteria and represent the maximum amount of each indicator bacteria that each waterbody can receive and still protect the REC-1 beneficial use. As required, each TMDL accounts for all known sources of bacteria (point, nonpoint, and natural

[20] Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours
[21] Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

background), includes a margin of safety, accounts for seasonal variations, is calculated at critical conditions (worst loading scenario), and was developed in a manner consistent with the guidelines published by USEPA. Separate dry weather and wet weather TMDLs were calculated for each indicator bacteria.

21. **Technical TMDL Analysis**: A Technical Report entitled "Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)" was prepared with the details of the technical TMDL analysis. The technical TMDL analysis includes a description of the bacteria impairments, selection of numeric targets (interpretation of the existing numeric water quality objectives used to calculate the TMDLs), source analysis, linkage analysis (calculation of "existing" bacteria loads and "allowable" bacteria loads [or TMDLs]), method for allocating the TMDLs to the identified point sources and nonpoint sources, and calculation of load reductions required from identified controllable sources (difference between "existing" and "allowable" bacteria loads for each source).

22. **Allocation of TMDLs to Point Sources and Nonpoint Sources:** A TMDL is divided, or allocated, among the sources that contribute or may contribute pollutant loads to a waterbody. If there are point sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as wasteload allocations (WLAs). For nonpoint sources and natural background sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as load allocations (LAs). The TMDL is expressed mathematically as the sum of all the WLAs and LAs and margin of safety (i.e., TMDL = ΣWLAs + ΣLAs + MOS). For these bacteria TMDLs, the Municipal MS4s and Caltrans land use categories are assigned WLAs, and the Agriculture and Open Space land use categories are assigned LAs. Sources that are not identified cannot be assigned a WLA or LA and are assumed to have a zero allowable load (i.e., WLA = 0 or LA = 0). Identified sources may also be assigned a zero allowable load (i.e., WLA = 0 or LA = 0). Sources that are assigned a zero allowable load are not expected or allowed to discharge the specific pollutant to the waterbody as part of the TMDL.

    For the dry weather TMDLs, a major underlying assumption is that there is no discharge of surface runoff, thus no discharge of bacteria, expected from land uses associated with the Caltrans, Agriculture, and Open Space land use categories during dry weather. Because no discharge is expected from these land use categories during dry weather, they were assigned dry weather WLAs and LAs of zero. The dry weather TMDLs were assigned entirely to the Municipal MS4s land use category as dry weather WLAs, meaning only discharges of bacteria loads to the receiving waters are expected or allowed from the Municipal MS4s land use category during dry weather.

    For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, Caltrans, Agriculture, Open Space). Allocations were assigned based on discharges of "existing" bacteria loads predicted with a wet weather watershed model. In general, the Caltrans WLAs, Agriculture LAs (in all but 4 of the modeled watersheds), and Open Space LAs were set equal to the "existing" bacteria loads predicted by the wet weather watershed model. The remainder

of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in 4 of the modeled watersheds).

23. **Load Reductions Required to Attain Dry Weather TMDLs:** According to the dry weather TMDLs, the Municipal MS4s land use category is the only source of bacteria that has been assigned a WLA or LA. Discharges of bacteria loads from any other controllable sources must be reduced to zero. Thus, only Municipal MS4s are expected or allowed to discharge bacteria to the impaired receiving waters. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category to attain the dry weather TMDLs in the receiving waters.

24. **Load Reductions Required to Attain Wet Weather TMDLs**: According to the wet weather TMDLs, allowable bacteria loads have been assigned to the Municipal MS4s and Caltrans land use categories as WLAs, and the Agriculture and Open Space land use categories as LAs. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category (and Agriculture land use category in 4 watersheds) to attain the wet weather TMDLs in the receiving waters.

25. **TMDL Implementation Plan:** TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable sources to achieve the pollutant load reductions identified by a TMDL analysis to restore and protect the designated beneficial uses of a waterbody. Federal regulations require TMDLs to be incorporated into the Basin Plan.[22] Because TMDLs must be incorporated into the Basin Plan, and are developed to implement previously established water quality standards (i.e., beneficial uses and WQOs), state statute requires the Basin Plan amendment to include a program of implementation (or Implementation Plan) for achieving water quality objectives.[23]

    The amendment of the Basin Plan, in Attachment A, to establish and implement TMDLs for the waters of the beaches and creeks listed in finding 15, includes a TMDL Implementation Plan that contains (1) the actions that the San Diego Water Board and/or other entities can take to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

26. **Implementation of TMDLs**: Because the Municipal MS4s are located at the base of the watersheds and have been identified as a significant controllable source of bacteria discharging to the receiving waters, these TMDLs will be implemented primarily through the revision of the National Pollutant Discharge Elimination System (NPDES) discharge requirements regulating discharges from the Municipal MS4s and Caltrans. Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must

[22] Code of Federal Regulations section 130.6(c)(1)
[23] Water Code section 13242

be consistent with the requirements and assumptions of any available WLAs.[24] WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.[25] The WQBELs will likely need to include a BMP program to achieve the load reductions required to attain the TMDLs in the receiving waters. The Municipal MS4s will be required to submit Bacteria or Comprehensive Load Reduction Plans outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water. The Municipal MS4s will be responsible for reducing their bacteria loads and/or demonstrating that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.

27. **TMDL Compliance Schedule**: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years from the effective date[26] of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

    The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date of the Basin Plan amendment that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date.

    For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years from the effective date of the Basin Plan amendment.

28. **TMDL Compliance Monitoring**: An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, compliance with the TMDLs will be achieved. Compliance with the TMDLs will be assessed by monitoring the receiving waters and comparing the results to the numeric WQOs and allowable exceedance frequencies. At the end of the dry weather TMDL compliance schedule, the 30-day geometric mean REC-1 WQOs for dry weather days must be met 100 percent of the time in the receiving waters. At the end of the wet weather TMDL compliance schedule, the single sample maximum and 30-day geometric mean REC-1 WQOs must not be exceeded in the receiving waters more frequently than the allowable exceedance frequencies.

[24] Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)
[25] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)
[26] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

29. **Compliance with WLAs and LAs**: Ultimately, the TMDLs in the receiving waters will be met when the dischargers responsible for controllable sources meet their assigned WLAs and LAs. When all discharges from controllable sources meet their assigned WLAs and LAs, the beneficial uses in the receiving waters should be restored and compliance with the TMDLs should be achieved. The TMDLs are calculated based on numeric targets consisting of the numeric bacteria REC-1 WQOs and allowable exceedance frequencies. Discharges from controllable sources that can meet the numeric bacteria REC-1 WQOs and allowable exceedance frequencies in their effluent are not expected to cause exceedances of the numeric targets in the receiving waters. If the TMDLs are attained in the receiving waters, the assumption will be that the controllable sources are in compliance with their assigned WLAs and LAs. Otherwise, the dischargers responsible for controllable sources of bacteria must provide evidence and demonstrate to the San Diego Water Board that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.

30. **Scientific Peer Review**: The scientific basis for these TMDLs has undergone external peer review pursuant to Health and Safety Code section 57004. The San Diego Water Board has considered and responded to all comments submitted by the peer review panel, and has enhanced the Technical Report appropriately. Because the same modeling approaches are used in calculating the bacteria TMDLs for Tecolote Creek, the original Bacteria TMDLs Project I external peer review comments are also applicable. No change to the fundamental approach to TMDL calculation was necessary as a result of this process.

31. **CEQA Requirements:** Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA)[27] requirements for preparing environmental documents.[28] As such, the documents supporting the San Diego Water Board's proposed basin planning action contain the required environmental documentation under CEQA and serve as "substitute documents".[29] The substitute documents for this project include the environmental checklist, the detailed Technical Report, responses to comments submitted during the public participation phase in the development of the TMDLs, and this resolution to adopt Basin Plan amendment. The project itself is the establishment of TMDLs for indicator bacteria at beaches and creeks where water quality has been listed as "impaired" by the State Water Board pursuant to Clean Water Act section 303(d), as required by that section. While the San Diego Water Board has no discretion to not establish the TMDLs (the TMDLs are required by federal law), the Board does exercise discretion in assigning WLAs and LAs, and determining the program of implementation, which includes setting monitoring requirements and a compliance schedule with various milestones for restoring the beneficial uses at the affected beaches and creeks.

[27] Public Resources Code, section 21000 et seq.
[28] California Code of Regulations Title 14 section 15251(g); California Code of Regulations Title 23 section 3782
[29] California Code of Regulations Title 23 section 3777

32. **Project Impacts:** The accompanying CEQA substitute documents satisfy the requirements of substitute documents for a Tier 1 environmental review under CEQA.[30] Nearly all of the compliance measures anticipated to be necessary to implement the TMDLs for indicator bacteria will be undertaken by public agencies that will have their own obligations under CEQA for implementation projects that could have significant environmental impacts (*e.g.*, installation and operation of structural BMPs). Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies.[31]

    If not properly mitigated at the project level, implementation and compliance measures undertaken have the potential to result in significant adverse environmental impacts. The substitute documents for this TMDL, and in particular the environmental checklist and responses to comments, identify broad mitigation approaches that should be considered at the project level. The San Diego Water Board does not engage in speculation or conjecture regarding the projects that may be used to implement the TMDLs and only considers the reasonably foreseeable alternative methods of compliance, the reasonably foreseeable feasible environmental impacts of the these methods of compliance, and the reasonably foreseeable mitigation measures which would avoid or eliminate the identified impacts, all from a broad general perspective consistent with the uncertainty regarding how the TMDLs, ultimately, will be implemented. The lengthy implementation period allowed by the TMDLs will allow persons responsible for compliance with TMDLs, WLAs, or LAs to develop and pursue many compliance approaches and mitigation measures.

33. **Project Mitigation:** The proposed amendment to the Basin Plan to establish TMDLs for indicator bacteria in beaches and creeks has the potential to result in significant adverse effects on the environment. However, there are feasible alternatives, feasible mitigation measures, or both, that should substantially reduce those adverse impacts to less than significant. The public agencies responsible for implementation measures needed to comply with the TMDLs can and should incorporate such alternatives and mitigation into any projects or project approvals that they undertake for the impaired beaches and creeks. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the Technical Report and the environmental checklist. To the extent the alternatives, mitigation measures, or both, are not deemed feasible by those agencies, the necessity of implementing the TMDLs that is mandated by the federal Clean Water Act and removing the bacteria impairments on beaches and creeks in the San Diego Region (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects identified in the substitute documents.

34. **Department of Fish and Game Filing Fee**: Considering the record as a whole, the Department of Fish and Game determined that for purposes of the assessment of CEQA filing fees[32] Bacteria Project I adopted under Resolution No. R9-2007-0044 had no potential effect on fish, wildlife, and habitat and the project as described does not require payment of a CEQA filing fee. The environmental analysis and potential project impacts have not changed for the

[30] Pursuant to Public Resources Code section 21159 and California Code of Regulations Title 14 section 15187
[31] Pursuant to Public Resources Code section 21159.2
[32] Fish and Game Code section 711.4(c)

Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek).

35. **Economic Analysis**: The San Diego Water Board has considered the costs of the reasonably foreseeable methods of compliance with the load and wasteload allocations specified in these TMDLs. These compliance methods involve implementation of structural and non-structural controls. Surface water monitoring to evaluate the effectiveness of these controls will also be necessary.

36. **Stakeholder & Public Participation**: Interested persons and the public have had reasonable opportunity to participate in review of the proposed bacteria TMDLs. For the bacteria TMDLs adopted under Resolution No. R9-2007-0044, efforts to solicit public review and comment included a public workshop and CEQA scoping meeting in March 2003, a public workshop in March 2004, eleven meetings with the Stakeholder Advisory Group, four public review and comment periods consisting of 62 days, 45 days, 47 days, and 30 days respectively, a public workshop on January 11, 2006, and public hearings on February 8, 2006, April 25, 2007, and December 12, 2007. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board during the review and comment periods for Resolution No. R9-2007-0044 have been considered were included in Appendix S and Appendix U to the Technical Report.

    Interested persons and the public have also been provided a reasonable opportunity to participate in the review of Revised Bacteria TMDLs Project I. Efforts to solicit public review and comment included a public review and comment period consisting of 78 days, meeting with the Stakeholder Advisory Group in Month Year, and a public hearing on February 10, 2010. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board up to January 22, 2010 for the revised bacteria TMDLs have been considered responded to in writing in a response to comments document (Responses to Comments Part III), which has been appended to the Technical Report as Appendix V. Written comments and oral testimony received after January 22, 2010 were considered and responded to during the February 10, 2010 public hearing.

37. **Necessity Standard**:[33] Amendment of the Basin Plan to establish and implement Total Maximum Daily Loads (TMDLs) for the waters of the beaches and creeks listed in finding 15 is necessary because the existing water quality at the beaches and creeks listed in finding 15 does not meet applicable REC-1 WQOs for total coliform, fecal coliform, and/or enterococci bacteria. Clean Water Act section 303(d) requires the establishment and implementation of TMDLs under the water quality conditions that exist at these beaches and creeks. TMDLs for total coliform, fecal coliform, and/or enterococci bacteria are necessary to restore the water quality needed to support the beneficial uses designated for the beaches and creeks.

[33] Pursuant to Government Code section 11353(b)

38. **Public Notice**: The San Diego Water Board has notified all known interested parties and the public of its intent to consider adoption of this Basin Plan amendment in accordance with Water Code section 13244.

NOW, THEREFORE, BE IT RESOLVED THAT

1. **Environmental Documents Certification**: The substitute environmental documents prepared pursuant to Public Resources Code section 21080.5 are hereby certified, and the Executive Officer is directed to file a Notice of Decision with the Resources Agency after State Water Board and Office of Administrative Law (OAL) approval of the Basin Plan Amendment, in accordance with section 21080.5(d)(2)(E) of the Public Resources Code and the California Code of Regulations, Title 23, section 3781.

2. **Amendment Adoption**: The San Diego Water Board hereby adopts the attached Basin Plan amendment as set forth in Attachment A hereto to establish TMDLs for indicator bacteria at twenty impaired beaches and creeks in the San Diego Region.

3. **Technical Report Approval:** The San Diego Water Board hereby approves the Technical Report entitled *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*, dated Month Day, 2010.

4. **Certificate Of Fee Exemption**: The Executive Officer is authorized to request a "No Effect Determination" *in lieu* of payment of the California Department of Fish and Game filing fee, or transmit payment of the applicable filing fee to the California Department of Fish and Game.

5. **Agency Approvals**: The Executive Officer is directed to submit this Basin Plan amendment to the State Water Board in accordance with Water Code section 13245.

6. **Non-Substantive Corrections**: If, during the approval process for this amendment, the San Diego Water Board, the State Water Board, or the OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the San Diego Water Board of any such changes.

I, David W. Gibson, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on Month Day, 2010.

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David W. Gibson
Executive Officer

ATTACHMENT A
TO RESOLUTION NO. R9-2010-0001

AMENDMENT TO THE *WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA, PROJECT I – TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION (INCLUDING TECOLOTE CREEK)

This Basin Plan amendment establishes Total Maximum Daily Loads (TMDLs) and associated load and wasteload allocations for total coliform, fecal coliform, and enterococci bacteria in the 20 beach and creek segments listed in the following table.

Watershed	Type of Listing	Waterbody Name [a]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek	1
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. The TMDLs that have been developed for the Pacific Ocean shorelines are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above.

This amendment also includes the TMDL Implementation Plan, which consists of: (1) the actions that can be taken by the San Diego Water Board and/or other entities to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

Chapters 2, 3, 4, 6, and 7 and Appendices E and F of the Basin Plan are amended as follows:

Chapter 2, *Beneficial Uses*

Table 2-2. *Beneficial Uses of Inland Surface Waters*
Consecutively number and add the following footnote to Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek in Table 2-2:

> Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Renumber any footnotes in Table 2-2 displaced by this new footnote. Revise any other footnotes in Table 2-2 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Table 2-3. *Beneficial Uses of Coastal Waters.*
Consecutively number and add the following footnote to Pacific Ocean in Table 2-3:

> Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12. Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Diego River in Table 2-3:

> The mouth of San Diego River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily

Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Luis Rey River in Table 2-3:

The mouth of San Luis Rey River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Juan Creek in Table 2-3:

The mouth of San Juan Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of Aliso Creek in Table 2-3:

The mouth of Aliso Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Renumber any footnotes in Table 2-3 displaced by these new footnotes. Revise any other footnotes in Table 2-3 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Chapter 3, Water Quality Objectives

***Ocean Waters; Ocean Plan and Thermal Plan*:**
Add a second paragraph as follows:

Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito

HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12.

Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-3, *Beneficial uses of Coastal Waters, Footnotes [insert footnote numbers]*, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

***Inland Surface Waters, Enclosed Bays and Estuaries, Coastal Lagoons, and Ground Waters; Bacteria – Total and Fecal Coliform*:**
Add a second paragraph as follows:

Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-2, *Beneficial Uses of Inland Surface Waters, Footnote [insert footnote number]* and Chapter 7*, Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Chapter 4, *Implementation*

Revise Chapter 4 as follows:

Delete the following sections from Chapter 4:

- California Water Quality Assessment
- Clean Water Act Section 303(d) Requirements for Impaired Waterbodies

Replace the sections deleted above with the following:

TOTAL MAXIMUM DAILY LOADS

A total maximum daily load (TMDL) is the amount of a pollutant that can be discharged into a waterbody and still maintain its water quality standards (i.e., the designated beneficial uses and the adopted water quality objectives that support the beneficial uses). A TMDL must account for seasonal variations and include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between pollutant loadings and receiving water quality.

Pollutant loadings in excess of the TMDL are expected to have an adverse effect on water quality by causing exceedances of the applicable water quality standards. Allowable pollutant loadings are calculated and assigned to all point source and nonpoint source discharges to ensure that the applicable water quality standards are not exceeded in the receiving water.

A portion of the TMDL may be held explicitly in reserve as the MOS (e.g., MOS = 10 percent of TMDL), or the MOS may be implicitly included (i.e., MOS = 0) by incorporating conservative assumptions in the calculation of the TMDL (i.e., assumptions result in a lower calculated TMDL). The portion of the TMDL not in the MOS is assigned to point sources and nonpoint sources.

Point sources are assigned wasteload allocations (WLAs) and nonpoint sources (including natural and background sources) are assigned load allocations (LAs). The WLAs and LAs may differ for each pollutant source, but the TMDL and MOS do not change. The TMDL for a pollutant in the receiving water, and the WLAs and LAs for a pollutant discharged from different sources into a waterbody are calculated at levels that, when each are met, are expected to result in the attainment of the associated water quality objectives for the pollutant and protection of the applicable beneficial uses in the receiving water.

Establishing TMDLs for waters is required under section 303(d) of the Clean Water Act. Clean Water Act section 303(d) requires that the State establish a priority ranking of waters that do not meet water quality standards after application of technology based controls. The USEPA strongly encourages states to include the priority ranking as part of the Biennial Clean Water Act Sections 303(d), 305(b) and 314 Integrated Report, which is discussed in more detail in Chapter 6.

Waters identified under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs). In accordance with the priority ranking, TMDLs must be established for pollutants suitable for such calculations. For the specific purpose of developing information, the State must also identify waters that are not WQLSs and develop TMDLs for those waters as well.

One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards in WQLSs. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the water quality objectives established at levels sufficient to support those uses). After identifying the impaired beneficial uses of a waterbody, the numeric targets are often based on the water quality objectives in Chapter 3. Chapter 3 contains numeric and narrative water quality objectives. If applicable water quality objectives are numeric, the numeric water quality objectives can serve as the basis for the numeric targets. If applicable water quality objectives are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative water quality objectives. In WQLSs, when numeric targets are met in the waterbody, the water quality standards should be attained and restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards*.

TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable

sources to achieve the pollutant load reductions identified by a TMDL analysis to attain the water quality objectives that will support the designated beneficial uses of a waterbody.

The authorities that are available to the San Diego Water Board to implement TMDLs are given under the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code). The available regulatory authorities include incorporating discharge prohibitions in to the Basin Plan, issuing individual or general waste discharge requirements (WDRs), or issuing individual or general conditional waivers of WDRs. The San Diego Water Board has the authority to enforce Basin Plan prohibitions, WDRs, or conditional waivers of WDRs through the issuance of enforcements actions (e.g., time schedule orders, cleanup and abatement orders, cease and desist orders, administrative civil liabilities). The San Diego Water Board also has the authority to require monitoring and/or technical reports from dischargers, which may be used to support the development, refinement, and/or implementation of TMDLs, WLAs, and/or LAs.

Additionally, the USEPA has delegated responsibility to the State and Regional Boards for implementation of the federal National Pollutant Discharge Elimination System (NPDES) program, which specifically regulates discharges of "pollutants" from point sources to "waters of the United States." The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.

Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into the state water quality management plan. This Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the Regional Board. TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242. TMDLs incorporated into the Basin Plan, therefore, are required to include 1) a description of the actions (i.e., programs or authorities) of the Regional Board and/or other entities necessary to achieve the TMDLs, 2) a compliance time schedule by which the TMDLs, and thereby the restoration of the beneficial uses in the receiving waters, are to be achieved, and 3) a description of the monitoring program that is required to determine compliance with TMDLs, WLAs, and LAs in the receiving waters. These elements are referred to as the TMDL Implementation Plan.

TMDLs that have been established for the San Diego Region are provided in Chapter 7.

Delete the following sections from Chapter 4 and move to Chapter 7:

- Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County

- Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay
- Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed
- Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
- Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Delete the following section from Chapter 4:

- Other Programs, San Diego Bay Total Maximum Daily Load Worksheets

Revise the Chapter 4 Table of Contents to reflect the changes above.

Chapter 6, *Surveillance, Monitoring, and Assessment*

Revise the section titled "Biennial Water Quality Inventory / Water Quality Assessment Report" from Chapter 6 as follows (blue underline indicates added text and red strikeout indicates deleted text):

BIENNIAL ~~WATER QUALITY INVENTORY / WATER QUALITY ASSESSMENT~~ CLEAN WATER ACT SECTIONS 303(d), 305(b) AND 314 INTEGRATED REPORT

Every two years states are required to provide an assessment of the quality of all their waters and a list of those waters that are impaired or threatened, in accordance with the following sections of the Clean Water Act:

Section 303(d): Requires states to identify waters for which technology based effluent limitation are not stringent enough to meet applicable water quality standards. States must establish a priority ranking for such waters and must establish TMDLs for all such waters in accordance with the priority ranking. Waters identified and prioritized for TMDL development under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs).

Section 305(b): Requires states to prepare a description of the water quality of all navigable waters of the state; an analysis of the extent to which navigable waters provide protection and propogation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water; an analysis of the extent to which elimination of the discharge of pollutants has been achieved; an estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and, a description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.

Section 314: Requires states to identify and classify all publicly owned lakes in the state according to eutrophic condition. States must list and describe those publicly owned lakes known to be impaired and assess the status and trends of water quality. This information is required to be submitted as part of the section 305(b) report.

~~Section 305(b) of the federal Clean Water Act requires all states to prepare and submit a biennial Water Quality Inventory Report, (commonly referred to as a "305(b) Report"). In California, this report is used by the State Board and the USEPA to prioritize funding for water quality programs. As required by the Clean Water Act, section 305(b), the report must contain:~~

- ~~A description of the water quality of the major navigable water bodies in the state;~~
- ~~An analysis of the extent to which significant navigable waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water;~~
- ~~An analysis of the extent to which elimination of the discharge of pollutants has been achieved;~~
- ~~An estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and~~
- ~~A description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.~~

The USEPA strongly encourages states to submit a single Integrated Report that satisfies the reporting requirements for each of these sections. Each Regional Board prepares ~~a biennial Water Quality Assessment (WQA) Report~~ an Integrated Report for its Region, using data collected by regional planning, permitting, surveillance, and enforcement programs. The regional ~~reports~~ Integrated Reports contain inventories of the major waterbodies in the region, including rivers and streams, lakes and reservoirs, bays and harbors, estuaries, coastal waters, wetlands, and ground water. ~~For each water body, the report identifies the total size and the extent of the water body classified as having "good", "intermediate", "impaired", or "unknown" water quality. The report describes general problems and sources of water quality impairment. Additionally, the data base also indicates if the water body is included on any of the federal "lists". These lists indicate specific types of water quality impairments and are organized by the appropriate sections of the Clean Water Act as follows:~~

~~Section 131.11: Segments which may be affected by toxic pollutants, or segments with concentrations of toxic pollutants that warrant concern.~~

~~Section 303(d): List of Water Quality Limited Segments where objectives or goals of the Clean Water Act are not attainable with the Best Available Treatment/ Best Control Technology (BAT/BCT).~~

~~Section 304(m): So-called "mini-list" of waters not meeting State adopted numeric water quality objectives due to toxic point sources after implementation of BAT/BCT.~~

~~Section 304(s): So-called "short list" of waters not achieving water quality standards due to point source discharges of toxic pollutants after implementation of BAT/BCT.~~

~~Section 304(l): So-called "long list" of waters not meeting the water quality goals of the Clean Water Act after implementation of BAT/BCT.~~

~~Section 314: A list of lake priorities for restoration.~~

~~Section 319: A list of impaired surface water bodies from nonpoint source problems due to both toxic and nontoxic pollutants.~~

The regional Integrated Report presents the results of the assessment of the waterbodies in the Region, and the waters are categorized as one or more of the following:

Category 1: All designated uses are supported, no use is threatened.

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported.

Category 3: There are insufficient available data and/or information to make a use support determination.

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed.

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened and a TMDL is needed.

Upon adoption of the ~~Regional WQA Reports~~ regional Integrated Reports by respective Regional Boards, the reports are compiled into a statewide report ~~entitled California Water Quality Assessment Report~~. Upon adoption of this statewide report by the State Board, the report is submitted to the USEPA to satisfy ~~section 305(b)~~ the reporting requirements of ~~the~~ Clean Water Act sections 303(d), 305(b) and 314. Subsequently, the USEPA submits the Integrated Reports from the states to the United States Congress, which serves as the primary vehicle for informing Congress and the public about general water quality conditions in the United States.

Chapter 7, *Total Maximum Daily Loads*

Add Chapter 7, Total Maximum Daily Loads to Basin Plan and include the following.

7. TOTAL MAXIMUM DAILY LOADS

INTRODUCTION

This chapter contains the Total Maximum Daily Loads (TMDLs) that have been adopted by the Regional Water Quality Control Board, San Diego Region (RWQCB), approved by the State Water Resources Control Board (SWRCB) and Office of Administrative Law (OAL), and/or adopted/approved by the United State Environmental Protection Agency (USEPA). Table 7-1 lists the adopted and approved TMDLs that have been incorporated into the Basin Plan.

Table 7-1. Adopted and Approved Total Maximum Daily Loads in the San Diego Region

Total Maximum Daily Load	RWQCB Adoption Date	SWRCB Approval Date	OAL Approval Date	USEPA Approval Date
Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County	8/14/02	7/16/03	9/11/03	11/3/03
Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay	2/9/05	9/22/05	12/2/05	2/8/06
Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed	2/9/05	11/16/05	2/1/06	3/22/06
Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek	6/13/07	7/15/08	10/22/08	12/18/08
Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region	12/17/07	--[a]	--	--
Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines	6/11/08	6/16/09	9/15/09	TBD
Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)	TBD	TBD	TBD	TBD

[a] Withdrawn by the RWQCB on December 18, 2008 from SWRCB consideration for revision. See Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

The text for the TMDLs removed from Chapter 4, above, as well as all the text deleted from Appendix E and Appendix F will be added to the new Chapter 7, in the following order:

1. Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County
2. Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay

3. Append the old Appendix E (Method for Recalculation of the Total Maximum Daily Load for Dissolved Copper in the Shelter Island Yacht Basin, San Diego Bay) to the end of the TMDL above.
4. Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the
5. Append the old Appendix F (Method for Recalculation of the Total Maximum Daily Loads for Nitrogen and Phosphorus in Rainbow Creek) to the end of the TMDL above.
6. Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
7. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Number any tables from the text listed above in sequential order following Table 7-1 above.

Future TMDL Basin Plan amendments will be added to the end of Chapter 7, and Table 7-1 will be updated accordingly.

Add the following section to the end of Chapter 7:

Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

On Month Day, 2010, the San Diego Water Board adopted Resolution No. R9-2010-0001, *A Resolution Amending the Water Quality Control Plan for the San Diego Region (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)* (referred to hereafter as Revised Bacteria TMDLs Project I). The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board (SWRCB)on [Insert date], the Office of Administrative Law on [Insert date], and the USEPA on [Insert date].

Bacteria TMDLs have been established for the following 20 waterbodies listed on the 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments:

[Insert Table number]. Beaches and Creeks Addressed by Revised Bacteria TMDLs Project I

Watershed	Type of Listing	Waterbody Name [a]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek.	1
Total Number of Listings on 2002 303(d) List in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. The TMDLs that have been developed for the Pacific Ocean shorelines are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above.

(a) Problem Statement

Bacteria densities in the Pacific Ocean at various beach and coastal creek mouth segments (referred to hereafter as "beaches") exceed water quality objectives (WQOs) for indicator bacteria. Bacteria densities in ocean water at these beaches unreasonably impair and threaten to impair the water quality needed to support the contact water recreation (REC-1)[1] designated beneficial use.

Bacteria densities in the waters of Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, the (lower) San Diego River, and Chollas Creek exceed WQOs for indicator bacteria. Bacteria densities in these creeks unreasonably impair and threaten to impair the water quality needed to support REC-1.

The federal Clean Water Act requires the establishment of Total Maximum Daily Loads (TMDLs) for pollutants that exceed the WQOs needed to support designated beneficial uses, *i.e.*, that cause or contribute to exceedances of state "water quality standards."

(b) Numeric Target

When calculating TMDLs, one or more numeric targets are required. Numeric targets are typically selected based on water quality standards, which include beneficial uses and the WQOs that are established at levels sufficient to protect those beneficial uses. The numeric targets for these TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan.

Different REC-1 WQOs were used as the basis for wet weather[2] and dry weather[3] allowable load (i.e., TMDL) calculations because the bacteria transport mechanisms to receiving waters are different under wet and dry weather conditions. Wet weather TMDL calculations were based on the REC-1 single sample maximum WQOs while dry weather TMDL calculations were based on REC-1 geometric mean WQOs.

It is not the intent of these TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. The Basin Plan authorizes the use of a reference system and antidegradation approach (RSAA) or natural sources exclusion approach (NSEA) during implementation of indicator bacteria water quality objectives within the context of a TMDL.

For these indicator bacteria TMDLs, the RSAA has been incorporated in the numeric targets as an allowable frequency that the REC-1 WQOs can be exceeded (i.e., allowable exceedance frequency). The purpose of the allowable exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces), which have been shown can, by themselves, cause exceedances of the REC-1 WQOs. The RSAA also incorporates antidegradation principles in that, if water quality is better than

[1] Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.
[2] Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
[3] Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

that of the reference system in a particular location, no degradation of existing bacteriological water quality is permitted.

Therefore, in addition to the REC-1 WQOs, the numeric targets used to calculate the indicator bacteria TMDLs include an allowable exceedance frequency. The numeric targets used to calculate of the wet weather TMDLs include a 22 percent allowable exceedance frequency of the REC-1 single sample maximum WQOs.[4] The numeric targets used to calculate dry weather TMDLs include a zero percent allowable exceedance frequency of the REC-1 geometric mean WQOs.[5]

The allowable load (i.e., TMDL) that is calculated based on these numeric targets consists of the sum of two parts: 1) the bacteria load that is calculated with the REC-1 WQOs and, 2) the bacteria load that is associated with the allowable exceedance frequency, calculated using the existing load in exceedance of the REC-1 WQOs on the allowable exceedance days. Allowable exceedance days are calculated based on the allowable exceedance frequency and total number of wet days in a year.

Different enterococci REC-1 WQOs were used to calculate TMDLs in watersheds modeled with the inland freshwater creeks (i.e., San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, (lower) San Diego River, and Chollas Creek) and watersheds modeled only with coastal saltwater beaches. The WQOs applicable to ocean waters are provided in the Ocean Plan. The Ocean Plan is applicable only to ocean waters and does not apply to marine bays, estuaries and lagoons. The WQOs applicable to all other surface waters in the San Diego Region (e.g., marine bays, estuaries and lagoons, and freshwater inland surface waters) are contained in the Basin Plan.

There are different enterococci REC-1 WQOs in the Ocean Plan compared to the Basin Plan. Specifically, the Ocean Plan contains REC-1 single sample maximum and 30-day geometric mean WQOs for ocean waters that do not vary. In the Basin Plan, however, the REC-1 single sample maximum WQOs for enterococci are dependent upon the type (e.g., freshwater or saltwater) and usage frequency (e.g., designated beach, moderately or lightly used area, or infrequently used area) of the waterbody, and the REC-1 geometric mean WQOs are dependent of the type (e.g., freshwater or saltwater) of waterbody. The enterococci saltwater REC-1 WQOs in the Basin Plan, for waters designated with "designated beach" usage frequency, are the same as the enterococci REC-1 WQOs in the Ocean Plan.

[4] In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

[5] Available water quality data from San Diego Region reference systems indicate that exceedances of the single sample WQOs during dry weather conditions are uncommon. Furthermore, if the exceedance of the single sample WQOs during dry weather is unlikely, exceedances of the geometric mean are even more unlikely.

For the application of the Basin Plan's enterococci REC-1 WQOs, unless otherwise specified in the Basin Plan, all waterbodies in the San Diego Region designated with REC-1 beneficial use are assumed to have a "designated beach" usage frequency. The "designated beach" usage frequency has the most conservative and protective enterococci REC-1 WQOs in the Basin Plan. The enterococci REC-1 single sample maximum WQOs in the Basin Plan are more stringent for freshwater (61 MPN/100mL) than for saltwater (104 MPN/100mL) waterbodies. The enterococci REC-1 geometric mean WQOs in the Basin Plan are also more stringent for freshwater (33 MPN/100mL) than for saltwater (35 MPN/100mL) waterbodies. Since coastal saltwater beaches are downstream of inland freshwater creeks, TMDLs for coastal saltwater beaches are calculated using the more conservative enterococci REC-1 WQOs applicable to freshwater creeks (i.e., 61 MPN/100mL and 33 MPN/100mL). The numeric targets used in the calculation of the TMDLs for Tecolote Creek and Chollas Creek are also based on the enterococci REC-1 WQOs applicable to freshwater creeks.

In some cases, the "designated beach" category may be over-protective of water quality because of the infrequent recreational use in the impaired freshwater creeks. The recreational usage frequency in these freshwater creeks may correspond to the "moderately to lightly used areas" category, which has an enterococci freshwater REC-1 single sample maximum WQO of 108 MPN/100mL. In such cases, the "designated beach" enterococci saltwater REC-1 single sample maximum WQO (104 MPN/100mL) would also be protective of the "moderately to lightly used area" freshwater creek.

Before the less stringent enterococci single sample maximum saltwater REC-1 WQO may be applied to a freshwater creek, the Basin Plan must be amended to designate a lower usage frequency (i.e., "moderately to lightly used area") for each freshwater creek. If information and evidence are provided to justify the "moderately to lightly used area" usage frequency for a freshwater creek, and the designated usage frequency of the freshwater creek is amended to "moderately to lightly used area" in the Basin Plan, the wet weather TMDLs that were calculated in a watershed that was modeled with a freshwater creek using the enterococci saltwater REC-1 WQOs can be implemented instead.

The numeric targets for the scenarios described above are summarized in the following tables.

[Insert table number]. Wet Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency [a]
Fecal coliform	400 [b]	22%
Total coliform	10,000 [c]	22%
Enterococci	104 [d] / 61 [e]	22%

a. Percent of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) allowed to exceed the wet weather numeric targets. Exceedance frequency based on reference system in the Los Angeles Region.
b. Fecal coliform single sample maximum WQO for REC-1 use in creeks and at beaches.
c. Total coliform single sample maximum WQO for REC-1 use at beaches and the point in creeks that discharges to beaches.
d. Enterococci single sample maximum WQO for REC-1 use in creeks established and designated as "moderately or lightly used" in the Basin Plan and at beaches downstream of those creeks, as well as all other beaches.
e. Enterococci single sample maximum WQO for REC-1 use in creeks not established and designated as "moderately or lightly used" in the Basin Plan and at beaches downstream of those creeks ("designated beach" frequency of use; applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

[Insert table number]. Dry Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency [a]
Fecal coliform	200 [b]	0%
Total coliform	1,000 [c]	0%
Enterococci	35 [d] / 33 [e]	0%

a. Percent of dry days (i.e., days with less than 0.2 inch of rainfall observed on each of the previous 3 days) allowed to exceed the dry weather numeric targets.
b. Fecal coliform 30-day geometric mean WQO for REC-1 use in creeks and at beaches.
c. Total coliform 30-day geometric mean WQO for REC-1 at beaches and the point in creeks that discharges to beaches.
d. Enterococci 30-day geometric mean WQO for REC-1 at beaches.
e. Enterococci 30-day geometric mean WQO for REC-1 use in impaired creeks and beaches downstream of those creeks (applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

(c) Source Analysis

Sources of bacteria are the same under both wet weather and dry weather conditions. Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). Bacteria are washed off the land surface by surface runoff. In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. Discharges from rural areas are typically considered nonpoint sources. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Bacteria loads discharged from Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, and Transitional land use types are included in the Municipal MS4s category, which is considered a controllable point source. Bacteria loads discharged from the Industrial/Transportation land use type associated with Caltrans were separated into the Caltrans category, which is considered a controllable point source. Bacteria loads discharged from Agriculture, Dairy/Intensive Livestock, and Horse Ranch land use types are included in the Agriculture category, which is considered a controllable nonpoint source. Bacteria loads discharged from Open Recreation, Open Space, and Water land use types are included in the Open Space category, which is associated with natural and undeveloped areas and considered an uncontrollable nonpoint source.

(d) Critical Conditions

The critical conditions are a set of environmental conditions for which controls designed to protect water quality will ensure attainment of the numeric targets for all other conditions. The critical conditions include the location and the period of time in which the waterbody is expected to exhibit the highest vulnerability.

To ensure that numeric targets are met throughout the impaired waterbodies, a critical location consisting of a node at the base of the watershed as it discharges to the ocean or bay was used as the point where the allowable load (i.e., TMDL) is calculated. A critical period associated with extreme rainfall conditions (i.e., critical wet year), and thus the highest potential bacteria load at the critical location, was selected for watershed modeling analysis. The year 1993 was selected as the critical wet period for assessment of extreme wet weather loading conditions because this year was the wettest year of the 12 years of record (1990 through 2002).

(e) Linkage Analysis

The purpose of the linkage analysis is to quantify the "existing" bacteria loads that are currently generated by the pollutant sources in the watershed under the critical conditions, and quantify the maximum allowable bacteria loading to each impaired waterbody that will result in attainment of numeric targets under the same critical conditions. This maximum allowable bacteria loading is, in other words, the TMDL.

The linkage analysis used mathematical modeling approaches to quantify the "existing" and allowable bacteria loadings for each impaired waterbody. Separate modeling approaches were used for the calculation of the wet weather TMDLs and dry weather TMDLs.

For the calculation of the wet weather TMDLs, the wet weather modeling approach chosen for the linkage analysis is based on the application of the USEPA's Loading Simulation Program in C++ (LSPC) model to estimate bacteria loading from streams and assimilation within the waterbodies. LSPC is a recoded C++ version of the USEPA's Hydrological Simulation Program–FORTRAN (HSPF) that relies on fundamental (and USEPA-approved) algorithms. In the wet weather linkage analysis, it is assumed that storm water flows wash off bacteria loads from the surface of all 13 land use types into the receiving waters. The LSPC model was used to predict flows and bacteria densities at the critical location during the wet days of the critical wet year, which were used to calculate the mass-based annual existing wet weather bacteria loads. The LSPC model-predicted wet weather flows at the critical location during the wet days of the critical wet year in combination with the numeric targets were used to calculate the mass-based annual allowable wet weather bacteria loads, or mass-based wet weather TMDLs.

For the calculation of the dry weather TMDLs, the dry weather modeling approach chosen for the linkage analysis consists of a steady-state mass balance model that was developed to simulate transport of bacteria in the impaired creeks and the creeks flowing to impaired shorelines. This predictive model represents the streams as a series of plug-flow reactors, with each reactor having a constant, steady-state flow and bacteria load. In the dry weather linkage analysis, it is assumed that dry weather non-storm water flows generated by anthropogenic activities wash off bacteria loads from the surface of specific land use types into the receiving waters. The dry weather steady-state model was used to predict flows and bacteria densities at the critical location during the dry weather days of the critical wet year, which were used to calculate the mass-based monthly existing dry weather bacteria loads. The dry weather steady-state model-predicted flows at the critical location during the dry days of the critical wet year in combination with the dry weather numeric targets were used to calculate the mass-based monthly allowable dry weather bacteria loads, or mass-based dry weather TMDLs.

(f) Total Maximum Daily Loads and Allocations

TMDLs can be expressed as mass per time (i.e., mass-loading basis), or other appropriate measure (e.g., as a concentration).[6] For these TMDLs, the wet weather and dry weather TMDLs are expressed both in terms of concentration and on a mass loading basis. The concentration based TMDLs will be used to determine compliance with the TMDLs in the receiving waters. Mass-load based TMDLs were calculated for the impaired waterbodies in each watershed. The mass-load based TMDLs were allocated to the identified point and nonpoint sources and used to identify the controllable sources that need to reduce their bacteria loads in order for the concentration based TMDLs to be met in the receiving waters. The concentration based TMDLs, mass-load based TMDLs, and allocations are discussed below.

(1) Concentration Based TMDLs

The wet weather and dry weather concentration based TMDLs are based on meeting the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) in the

[6] Code of Federal Regulations Title 40 section 130.2(1) [40CFR130.2(i)

receiving waters. The numeric WQOs for REC-1 beneficial uses are the basis of the numeric targets used to calculate the TMDLs, expressed as number of bacteria colonies per volume. An allowable exceedance frequency is included as part of the numeric target to allow for exceedances that may be caused by natural sources, based on a reference system. Tables [Insert first two table numbers] summarize the concentration based TMDLs, which are expressed as numeric objectives and allowable exceedance frequencies in the receiving waters for each watershed, for wet weather and dry weather, respectively. Meeting the concentration based TMDLs in the receiving waters will be used to determine compliance with the TMDLs.

(2) Mass-Load Based TMDLs

The numeric targets were used to calculate the TMDLs on a mass loading basis under a set of critical conditions. The TMDLs that were calculated in terms of mass loading were used to identify the bacteria loads from controllable sources that need to be reduced in order for the numeric targets to be met in the receiving waters.

On a mass loading basis, TMDLs are defined as the maximum mass of a pollutant the waterbody can receive and still protect the designated beneficial uses. Separate mass-load based TMDLs were calculated for wet weather and dry weather conditions to account for seasonal variations, and because the transport mechanism, flow, and bacteria loads are different between dry and wet weather conditions.

On a mass-loading basis, the TMDLs are expressed as number of bacteria colonies per unit time. The wet weather mass-load based TMDLs are expressed as "annual loads" in terms of number of bacteria colonies per year (billion MPN/yr). The dry weather mass-load based TMDLs are expressed as "monthly loads" in terms of number of bacteria colonies per month (billion MPN/mth). In order for bacteria loading to be calculated, both flow rates and bacteria densities must be measured at a point in time and location. When multiplied together, these two parameters result in bacteria mass loading, or the number of bacteria colonies measured per unit time.

$$Bacteria\ Loading = flow\ rate\ (volume / time) \times bacteria\ density (number\ of\ colonies / volume)$$

Calibrated models were used to simulate flow and bacteria densities. This information was used to calculate the "existing" mass of bacteria loads to, and allowable mass of bacteria loads (i.e., mass-load based TMDLs) for, each impaired segment under critical conditions (i.e., worst case loading conditions). The existing mass loads that were calculated represent the worst case flows and bacteria densities that are expected from the watershed during the critical wet year. The mass-load based TMDLs were calculated with the numeric targets and modeled flows expected during the critical wet year. Existing mass loads were compared to the mass-load based TMDLs. The difference between the existing mass loads and the mass-load based TMDLs is the load reduction required to meet the REC-1 WQOs and allowable exceedance frequencies in the receiving water.

Existing mass loads and mass-load based TMDLs were calculated for wet weather and dry weather. The calculation of the mass-load based TMDLs included the use of an allowable

exceedance frequency of the REC-1 WQOs. The purpose of the exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces) generated in the watersheds and at the beaches, which can, by themselves, cause exceedances of WQOs.

All of the wet weather mass-load based TMDLs were calculated using a 22 percent allowable exceedance frequency.[7] All of the dry weather mass-load based TMDLs were calculated using a 0 percent allowable exceedance frequency. These allowable exceedance frequencies were used to calculate the number of wet and dry weather allowable exceedance days during the critical wet year.

The mass-load based TMDLs are calculated as the sum of the allowable load associated with the numeric REC-1 WQO and the allowable load associated with the allowable exceedance frequency during the critical wet year. Tables [Insert first two table numbers] summarize the calculated existing bacteria mass loads, allowable mass loads based on the numeric REC-1 WQOs, allowable exceedance frequencies and days, allowable mass loads based on the allowable exceedance frequencies, and mass-load based TMDLs for each watershed, for wet weather and dry weather, respectively.

(3) Allocation of Mass-Load Based TMDLs

The mass-load based TMDLs were allocated among point sources (WLAs) and nonpoint sources (LAs) in each watershed. WLAs were assigned to discharges originating from urban land use areas (i.e., MS4s and Caltrans), all of which are considered controllable. LAs were assigned to discharges from rural and undeveloped land use areas (i.e., Agriculture and Open Space). Discharges from rural and undeveloped land use areas are separated into controllable and uncontrollable nonpoint sources. Agricultural land uses (e.g., agriculture, horse ranches, and intensive livestock) are considered controllable nonpoint source land use areas. Open space land uses (e.g., open space and open recreation) are considered uncontrollable nonpoint source land use areas.

Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words, discharges of pollutant loads from these sources are not allowed as part of the TMDLs. Sources that are assigned an allowable mass load equal to the existing mass load (i.e., WLA or LA = existing mass load) are not allowed to increase their pollutant loads over time.

Allocations of the mass-load based TMDLs were different for wet weather TMDLs and dry weather TMDLs, as discussed below.

(A) Wet Weather TMDL Allocations

[7] In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

The wet weather mass-load based TMDLs were divided and assigned to point sources as WLAs and nonpoint sources as LAs based on land uses. The portions of the wet weather mass-load based TMDLs assigned to WLAs and LAs were calculated based on the percent of the TMDL mass load generated by the urban, rural, and undeveloped land uses in each watershed as determined by the wet weather models under critical conditions.

The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps:

1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

The total watershed wet weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in [Insert third through fifth table numbers].

In comments, the municipal dischargers pointed out that, for the impaired creeks, the "designated beach" usage frequency WQO for enterococci may be over-protective of water quality because of the infrequent recreational use in the impaired creeks. The dischargers claim that the recreational usage frequency in these inland freshwater creeks more likely corresponds to the "moderately to lightly used area" category in the Basin Plan, which has an enterococci WQO of 108 MPN/100mL. In these cases, using a less stringent numeric target, based on the saltwater enterococci WQO of 104 MPN/100 mL ("designated beaches" usage frequency) would result in wet weather TMDLs protective of REC-1 uses in the inland freshwater creeks and at the

downstream coastal saltwater beaches.[8] Therefore, the "moderately to lightly used area" usage frequency may be appropriate for the six impaired creeks, and the enterococci saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as basis of the numeric target for the enterococci wet weather TMDLs.

The six creeks included in these TMDLs, however, have not been designated in the Basin Plan as "moderately to lightly used area" waterbodies as of the adoption of these TMDLs. If the Basin Plan does not specify the usage frequency of a waterbody, the most stringent and conservative WQOs are appropriate and applicable. For enterococci, the most stringent and conservative WQOs for the freshwater creeks are associated with the "designated beach" usage frequency and freshwater waterbody type. Thus, the enterococci WQOs associated with the freshwater "designated beach" usage frequency are applicable until sufficient evidence is provided to warrant an amendment to the Basin Plan that designates a lower usage frequency to one or more of the six creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and Chollas Creek).

According to the federal regulations,[9] usage frequencies are defined as follows:

- Designated Beach Area: those recreation waters that, during the recreation season, are heavily used (based upon a comparison of use within the state) and may have a lifeguard, bathhouse facilities, or public parking for beach access. States may include any other waters in this category even if the waters do not meet these criteria.

- Moderate Full Body Contact Recreation: those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by at least half of the number of people as at typical designated bathing beach waters within the state. States may also include light use or infrequent use coastal recreation waters in this category.

- Lightly Used Full Body Contact Recreation: those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by less than half of the number of people as at typical designated bathing beach waters within the state, but are more than infrequently used. States may also include infrequent use coastal recreation waters in this category.

- Infrequently Used Full Body Contact: those recreation waters that are rarely or occasionally used.

[8] The enterococci WQOs in the Basin Plan are structured to reflect the frequency of recreational use. The enterococci freshwater REC-1 single sample maximum WQO for a "designated beach" area is 61 MPN/100 mL. For a "moderately or lightly used area," the REC-1 single sample maximum WQO is 108 MPN/100 mL. The saltwater REC-1 single sample maximum WQO for "designated beach" area is 104 MPN/100 mL. Where the "moderately or lightly used area" designation is appropriate for creeks, the saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as the numeric target because it is also protective of both the freshwater creek and the downstream marine beach.

[9] Code of Federal Regulations Title 40 section 131.41 [40CFR131.41]

If sufficient evidence can be provided to the San Diego Water Board that can demonstrate the usage frequency for one or more of the six impaired creeks falls under the "Lightly Used Full Body Contact Recreation" or "Infrequently Used Full Body Contact" usage frequency, the Basin Plan may be amended to designate one or more of the creeks with the "moderately to lightly used area" usage frequency.

If one or more of the six creeks (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) are designated in the Basin Plan with the "moderately to lightly used area" usage frequency, the enterococci wet weather TMDLs, WLAs, and LAs based on the 104 MPN/100mL (Table [Insert sixth table number]) can be implemented. Otherwise, the more stringent and conservative enterococci wet weather TMDLs, WLAs, and LAs based on the freshwater "designated beach" usage frequency WQO of 61 MPN/100mL (Table [Insert fifth table number]) must be implemented.

(B) Dry Weather TMDL Allocations

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria loads to surface waters during dry weather are expected to occur only in urban areas. The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., WLA_{MS4} = TMDL).

The total watershed dry weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in Tables [Insert seventh through ninth table numbers].

Because the wet weather and dry weather modeling approaches used to calculate the mass-load based TMDLs, WLAs, LAs, and existing mass wasteloads and loads were based on critical conditions (i.e., worst case loading scenario), the mass-loading numbers (i.e., existing mass loads, and mass-load based TMDLs, WLAs, and LAs expressed in terms of billion MPN/year for wet weather and billion MPN/month for dry weather) presented in Tables [Insert first through ninth table numbers] represent conservative mass-load estimates expected to be protective of the beneficial uses under extreme conditions. The mass-loading numbers also provide a tool for identifying bacteria sources that need to be controlled and existing bacteria loads that need to be reduced to meet the TMDLs in the receiving waters.

Ultimately, controllable point and nonpoint sources must reduce their anthropogenic loads so the concentration based wet weather and dry weather TMDLs, which are based on the numeric REC-1 WQOs in the Basin Plan and allowable exceedance frequencies, can be

met during wet weather and dry weather conditions during each year. Meeting the wet weather and dry weather numeric targets in the discharge and/or receiving water will indicate the TMDLs, WLAs, and/or LAs have been met.

(g) Margin of Safety

The numeric targets used for the mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 WQOs contained in the Ocean Plan and/or Basin Plan. Additionally, the mass-load based TMDLs were calculated under a set of critical conditions that assumed the highest potential mass loading would occur at a critical point during a critical wet year, which is expected to be protective of beneficial uses during extreme conditions. The conservative assumptions that were used result in conservative mass-load based and concentration based TMDLs that are expected to restore and protect the beneficial uses of the receiving waters.

Because of the numeric targets and critical conditions that were included in the calculation of the TMDLs, there was no explicit margin of safety included. Instead, the TMDLs include an implicit margin of safety (MOS). The implicit MOS is included via conservative estimates and assumptions (meaning worst-case scenarios were assumed in terms of existing bacteria loading) throughout the calculations and not as a separate, additional factor.

[Insert table number]. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	TotalAllowable Load [=TMDL] (Billion MPN/year)
San Joaquin Hills HSA (901.11)	Fecal Coliform	705,015	**400**	16,043				648,591	664,634
and Laguna Hills HSA (901.12)	Total Coliform	8,221,901	**10,000**	401,049	69	**22%**	15	7,044,601	7,445,649
- Pacific Ocean Shoreline	Enterococcus	852,649	**104**	4,175				778,624	782,799
Aliso HSA (901.13)	Fecal Coliform	1,752,096	**400**	84,562				1,494,512	1,579,073
- Pacific Ocean Shoreline	Total Coliform	23,210,774	**10,000**	2,109,600	69	**22%**	15	18,081,198	20,190,798
- Aliso Creek	Enterococcus	2,230,206	**104***	22,682				1,929,834	1,952,517
- Aliso Creek mouth		2,230,206	**61**	13,644				1,937,321	1,950,964
Dana Point HSA (901.14)	Fecal Coliform	403,911	**400**	14,894				362,419	377,313
- Pacific Ocean Shoreline	Total Coliform	6,546,962	**10,000**	372,328	69	**22%**	15	5,659,144	6,031,472
	Enterococcus	501,526	**104**	3,875				458,431	462,306
Lower San Juan HSA (901.27)	Fecal Coliform	15,304,790	**400**	358,410				14,356,423	14,714,833
- Pacific Ocean Shoreline	Total Coliform	130,258,863	**10,000**	8,947,114	76	**22%**	17	113,932,076	122,879,189
- San Juan Creek	Enterococcus	12,980,098	**104***	95,357				12,063,781	12,159,138
- San Juan Creek mouth		12,980,098	**61**	56,119				12,096,327	12,152,446
San Clemente HA (901.30)	Fecal Coliform	1,441,723	**400**	36,481				1,342,450	1,378,931
- Pacific Ocean Shoreline	Total Coliform	16,236,606	**10,000**	911,994	73	**22%**	16	14,235,609	15,147,603
	Enterococcus	1,663,100	**104**	9,491				1,553,696	1,563,187
San Luis Rey HU (903.00)	Fecal Coliform	33,120,012	**400**	640,595				31,803,647	32,444,242
- Pacific Ocean Shoreline	Total Coliform	231,598,677	**10,000**	15,993,384	90	**22%**	20	208,157,151	224,150,535
	Enterococcus	18,439,920	**104**	167,152				17,296,466	17,463,618
San Marcos HA (904.50)	Fecal Coliform	20,886	**400**	1,559				15,665	17,224
- Pacific Ocean Shoreline	Total Coliform	515,278	**10,000**	38,984	49	**22%**	11	386,099	425,083
	Enterococcus	40,558	**104**	406				32,559	32,966
San Dieguito HU (905.00)	Fecal Coliform	21,286,910	**400**	425,968				20,675,680	21,101,649
- Pacific Ocean Shoreline	Total Coliform	163,541,133	**10,000**	10,637,225	98	**22%**	22	149,176,959	159,814,184
	Enterococcus	14,796,210	**104**	113,253				14,193,834	14,307,087
Miramar Reservoir HA (906.10)	Fecal Coliform	10,392	**400**	312				9,943	10,256
- Pacific Ocean Shoreline	Total Coliform	212,986	**10,000**	7,809	94	**22%**	21	202,371	210,180
	Enterococcus	11,564	**104**	81				11,323	11,405

[Insert table number]. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	TotalAllowable Load [=TMDL] (Billion MPN/year)
Scripps HA (906.30)	Fecal Coliform	204,057	**400**	10,329				166,578	176,907
- Pacific Ocean Shoreline	Total Coliform	5,029,519	**10,000**	258,228	57	**22%**	13	4,098,745	4,356,973
	Enterococcus	377,839	**104**	2,686				321,347	324,032
Tecolote HA (906.50)	Fecal Coliform	261,966	**400**	25,080				204,241	229,322
- Tecolote Creek	Total Coliform	7,395,789	**10,000**	626,414	57	**22%**	13	5,753,355	6,379,770
	Enterococcus	708,256	**104***	6,522				597,659	604,180
		708,256	**61**	3,825				599,936	603,761
Mission San Diego HSA (907.11)	Fecal Coliform	4,932,380	**400**	310,820				4,370,018	4,680,838
and Santee HSA (907.12)	Total Coliform	72,757,569	**10,000**	7,752,284	86	**22%**	19	58,352,938	66,105,222
- Forrester Creek - San Diego River (lower) - Pacific Ocean Shoreline	Enterococcus	7,255,759	**104***	80,899				6,514,309	6,595,208
		7,255,759	**61**	47,479				6,543,487	6,590,966
Chollas HSA (908.22)	Fecal Coliform	603,863	**400**	55,516				464,924	520,440
- Chollas Creek	Total Coliform	15,390,608	**10,000**	1,386,037	65	**22%**	14	11,861,589	13,247,626
	Enterococcus	1,371,972	**104***	15,008				1,138,590	1,153,599
		1,371,972	**61**	9,073				1,143,572	1,152,645

* Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the freshwater creeks can be established as "moderately to lightly used" in the Basin Plan, alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml may be used.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Single Sample Maximum Objective = Target bacteria densities based on numeric single sample maximum water quality objectives that are protective of REC-1 beneficial uses
Allowable Numeric Objective Load = Allowable load from the watershed calculated by the LSPC model using modeled flows and the numeric single sample maximum water quality objective bacteria densities for all wet days during the critical year 1993

Total Wet Days in Critical Year = Number of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)
Allowable Exceedance Frequency = Assumed to be 22 percent exceedance frequency. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
Allowable Wet Exceedance Days = (Total Wet days in Critical Year) X (Allowable Exceedance Frequency)
Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days with the highest exceedance loads calculated by the LSPC model using modeled flows and bacteria densities for all wet days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load)

Attachment A
Tentative Resolution No. R9-2010-0001

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	TotalAllowable Load [=TMDL] (Billion MPN/mth)
San Joaquin Hills HSA (901.11)	Fecal Coliform	2,741	**200**	227				0	227
and Laguna Hills HSA (901.12)	Total Coliform	13,791	**1,000**	1,134	296	**0%**	0	0	1,134
- Pacific Ocean Shoreline	Enterococcus	2,321	**35**	40				0	40
Aliso HSA (901.13)	Fecal Coliform	5,470	**200**	242				0	242
- Pacific Ocean Shoreline - Aliso Creek	Total Coliform	26,639	**1,000**	1,208	296	**0%**	0	0	1,208
- Aliso Creek mouth	Enterococcus	4,614	**33***	40				0	40
Dana Point HSA (901.14)	Fecal Coliform	1,851	**200**	92				0	92
- Pacific Ocean Shoreline	Total Coliform	9,315	**1,000**	462	296	**0%**	0	0	462
	Enterococcus	1,567	**35**	16				0	16
Lower San Juan HSA (901.27)	Fecal Coliform	6,455	**200**	1,665				0	1,665
- Pacific Ocean Shoreline - San Juan Creek	Total Coliform	30,846	**1,000**	8,342	289	**0%**	0	0	8,342
- San Juan Creek mouth	Enterococcus	5,433	**33***	275				0	275
San Clemente HA (901.30)	Fecal Coliform	3,327	**200**	192				0	192
- Pacific Ocean Shoreline	Total Coliform	16,743	**1,000**	958	292	**0%**	0	0	958
	Enterococcus	2,817	**35**	33				0	33
San Luis Rey HU (903.00)	Fecal Coliform	1,737	**200**	1,058				0	1,058
- Pacific Ocean Shoreline	Total Coliform	8,549	**1,000**	5,289	275	**0%**	0	0	5,289
	Enterococcus	1,466	**35**	185				0	185
San Marcos HA (904.50)	Fecal Coliform	149	**200**	26				0	26
- Pacific Ocean Shoreline	Total Coliform	751	**1,000**	129	316	**0%**	0	0	129
	Enterococcus	126	**35**	5				0	5
San Dieguito HU (905.00)	Fecal Coliform	1,631	**200**	1,293				0	1,293
- Pacific Ocean Shoreline	Total Coliform	7,555	**1,000**	6,468	267	**0%**	0	0	6,468
	Enterococcus	1,368	**35**	226				0	226
Miramar Reservoir HA (906.10)	Fecal Coliform	205	**200**	7				0	7
- Pacific Ocean Shoreline	Total Coliform	1,030	**1,000**	36	271	**0%**	0	0	36
	Enterococcus	173	**35**	1				0	1

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	TotalAllowable Load [=TMDL] (Billion MPN/mth)
Scripps HA (906.30)	Fecal Coliform	3,320	**200**	119				0	119
- Pacific Ocean Shoreline	Total Coliform	16,707	**1,000**	594	308	**0%**	0	0	594
	Enterococcus	2,811	**35**	21				0	21
Tecolote HA (906.50)	Fecal Coliform	4,329	**200**	234				0	234
- Tecolote Creek	Total Coliform	21,349	**1,000**	1,171	308	**0%**	0	0	1,171
	Enterococcus	3,657	**33***	39				0	39
Mission San Diego HSA (907.11)	Fecal Coliform	4,928	**200**	1,506				0	1,506
and Santee HSA (907.12)	Total Coliform	28,988	**1,000**	7,529	279	**0%**	0	0	7,529
- Forrester Creek (lower 1 mile) - San Diego River (lower 6 miles) - Pacific Ocean Shoreline	Enterococcus	4,106	**33***	248				0	248
Chollas HSA (908.22)	Fecal Coliform	5,068	**200**	398				0	398
- Chollas Creek	Total Coliform	25,080	**1,000**	1,991	300	**0%**	0	0	1,991
	Enterococcus	4,283	**33***	66				0	66

* Total Allowable Load [=TMDL] calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for watersheds with impaired freshwater creeks.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

30-Day Geometric Mean Objective = Target bacteria densities based on numeric 30-day geometric mean water quality objectives that are protective of REC-1 beneficial uses
Allowable Numeric Objective Load = Allowable load from the watershed calculated by the plug-flow reactor model using estimated flows and the numeric 30-day geometric mean water quality objective bacteria densities for 30 dry days during the critical year 1993

Total Dry Days in Critical Year = Number of dry days (i.e., day not including rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)
Allowable Exceedance Frequency = Assumed to be zero; data collected from reference systems generally do not show exceedances of REC-1 water quality objectives
Allowable Wet Exceedance Days = (Total Dry Days in Critical Year) X (Allowable Exceedance Frequency)
Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days for all dry days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load) for a 30-day period

Attachment A
Tentative Resolution No. R9-2010-0001

[Insert table number]. Wet Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	705,015	664,634	77,548	37,167	52.07%	179	179	0.00%	7,346	7,346	0.00%	619,942	619,942	0.00%
Aliso HSA (901.13)	1,752,096	1,579,073	650,092	477,069	26.62%	260	260	0.00%	26,508	26,508	0.00%	1,075,237	1,075,237	0.00%
Dana Point HSA (901.14)	403,911	377,313	179,043	152,446	14.86%	13	13	0.00%	0	0	0.00%	224,854	224,854	0.00%
Lower San Juan HSA (901.27)	15,304,790	14,714,833	1,326,469	1,156,419	12.82%	1,713	1,713	0.00%	3,275,477	2,855,570	12.82%	10,701,131	10,701,131	0.00%
San Clemente HA (901.30)	1,441,723	1,378,931	255,445	192,653	24.58%	335	335	0.00%	366	366	0.00%	1,185,577	1,185,577	0.00%
San Luis Rey HU (903.00)	33,120,012	32,444,242	943,501	914,026	3.12%	1,537	1,537	0.00%	20,687,954	20,041,659	3.12%	11,487,019	11,487,019	0.00%
San Marcos HA (904.50_	20,886	17,224	8,095	6,558	18.98%	8	8	0.00%	11,199	9,073	18.98%	1,585	1,585	0.00%
San Dieguito HU (905.00)	21,286,910	21,101,649	810,008	798,175	1.46%	1,310	1,310	0.00%	11,872,240	11,698,811	1.46%	8,603,352	8,603,352	0.00%
Miramar Reservoir HA (906.10)	10,392	10,256	6,839	6,703	1.99%	0	0	0.00%	0	0	0.00%	3,552	3,552	0.00%
Scripps HA (906.30)	204,057	176,907	128,403	101,253	21.14%	0	0	0.00%	0	0	0.00%	75,654	75,654	0.00%
Tecolote HA (906.5)	261,966	229,322	159,449	126,806	20.47%	553	553	0.00%	0	0	0.00%	101,963	101,963	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,932,380 +1,302**	4,680,838 +1,302*	472,660	221,117	53.22%	1,009	1,009	0.00%	414,721	414,721	0.00%	4,043,991	4,043,991	0.00%
Chollas HSA (908.22)	603,863	520,440	335,901	252,479	24.84%	892	892	0.00%	0	0	0.00%	267,070	267,070	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for fecal coliform (400 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

Attachment A
Tentative Resolution No. R9-2010-0001

[Insert table number]. Wet Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
Watershed	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	8,221,901	7,445,649	1,656,904	880,652	46.85%	7,722	7,722	0.00%	50,774	50,774	0.00%	6,506,501	6,506,501	0.00%
Aliso HSA (901.13)	23,210,774	20,190,798	11,943,241	8,923,264	25.29%	11,003	11,003	0.00%	179,828	179,828	0.00%	11,076,702	11,076,702	0.00%
Dana Point HSA (901.14)	6,546,962	6,031,472	3,919,497	3,404,008	13.15%	634	634	0.00%	0	0	0.00%	2,626,830	2,626,830	0.00%
Lower San Juan HSA (901.27)	130,258,863	122,879,189	19,919,322	16,093,160	19.21%	60,480	60,480	0.00%	18,499,884	14,946,372	19.21%	91,779,178	91,779,178	0.00%
San Clemente HA (901.30)	16,236,606	15,147,603	4,566,742	3,477,739	23.85%	13,534	13,534	0.00%	2,370	2,370	0.00%	11,653,960	11,653,960	0.00%
San Luis Rey HU (903.00)	231,598,677	224,150,535	15,229,456	14,373,954	5.62%	54,508	54,508	0.00%	117,360,800	110,768,160	5.62%	98,953,913	98,953,913	0.00%
San Marcos HA (904.50_	515,278	425,083	366,021	298,430	18.47%	533	533	0.00%	122,414	99,809	18.47%	26,311	26,311	0.00%
San Dieguito HU (905.00)	163,541,133	159,814,184	17,406,569	16,660,538	4.29%	47,969	47,969	0.00%	69,551,416	66,570,499	4.29%	76,535,178	76,535,178	0.00%
Miramar Reservoir HA (906.10)	212,986	210,180	174,243	171,436	1.61%	9	9	0.00%	0	0	0.00%	38,734	38,734	0.00%
Scripps HA (906.30)	5,029,519	4,356,973	4,120,310	3,447,764	16.32%	0	0	0.00%	0	0	0.00%	909,209	909,209	0.00%
Tecolote HA (906.5)	7,395,789	6,379,770	6,152,484	5,136,598	16.51%	27,095	27,095	0.00%	0	0	0.00%	1,216,077	1,216,077	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	72,757,569	66,105,222	17,442,867	10,790,520	38.14%	53,141	53,141	0.00%	3,495,960	3,495,960	0.00%	51,765,601	51,765,601	0.00%
Chollas HSA (908.22)	15,390,608	13,247,626	12,023,766	9,880,784	17.82%	45,652	45,652	0.00%	0	0	0.00%	3,321,191	3,321,191	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for total coliform (10,000 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting total coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

Attachment A
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[Insert table number]. Wet Weather Entercoccus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
Watershed	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	852,649	782,799	136,267	66,417	51.26%	365	365	0.00%	3,201	3,201	0.00%	712,816	712,816	0.00%
Aliso HSA (901.13)	2,230,206	1,950,964**	1,014,732	735,490	27.52%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Dana Point HSA (901.14)	501,526	462,306	258,747	219,528	15.16%	25	25	0.00%	0	0	0.00%	242,753	242,753	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,152,446**	1,900,520	1,385,094	27.12%	2,823	2,823	0.00%	1,151,266	839,040	27.12%	9,925,490	9,925,490	0.00%
San Clemente HA (901.30)	1,663,100	1,563,187	395,581	295,668	25.26%	635	635	0.00%	148	148	0.00%	1,266,736	1,266,736	0.00%
San Luis Rey HU (903.00)	18,439,920	17,463,618	1,472,296	1,300,235	11.69%	2,397	2,397	0.00%	6,881,755	6,077,514	11.69%	10,083,473	10,083,473	0.00%
San Marcos HA (904.50_	40,558	32,966	29,784	23,771	20.19%	26	26	0.00%	7,825	6,246	20.19%	2,923	2,923	0.00%
San Dieguito HU (905.00)	14,796,210	14,307,087	1,911,170	1,763,603	7.72%	2,288	2,288	0.00%	4,423,566	4,082,010	7.72%	8,459,187	8,459,187	0.00%
Miramar Reservoir HA (906.10)	11,564	11,405	8,269	8,109	1.93%	0	0	0.00%	0	0	0.00%	3,295	3,295	0.00%
Scripps HA (906.30)	377,839	324,032	285,842	232,035	18.82%	0	0	0.00%	0	0	0.00%	91,997	91,997	0.00%
Tecolote HA (906.5)	708,256	603,761**	575,708	471,211	18.15%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	7,255,759	6,590,966*	1,555,411	890,617	42.74%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,152,645**	1,022,245	802,918	21.46%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL or 61 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the ffreshwater creeks can be established as "moderately to lightly used," alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml presented in Table 9-5 may be used.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all lan uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load))

[Insert table number]. Alternative Wet Weather Entercoccus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
Aliso HSA (901.13)	2,230,206	1,952,517**	1,014,732	737,042	27.37%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,159,138**	1,900,520	1,389,261	26.90%	2,823	2,823	0.00%	1,151,266	841,564	26.90%	9,925,490	9,925,490	0.00%
Tecolote HA (906.50)	708,256	604,180**	575,708	471,630	18.08%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	7,255,759	6,595,208**	1,555,411	894,859	42.47%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,153,599**	1,022,245	803,871	21.36%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 104 MPN/ml protective of the REC-1 "moderately to lightly used area" usage frequency that is protective freshwater creeks and downstream beaches. Acceptable evidence that impaired freshwater creeks can be considered "moderately to lightly used areas" must be provided before these alternative wet weather TMDLs, WLAs, and LAs can be implemented in these watersheds.

Watershed Existing Load Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = = Predicted exiting Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

Attachment A
Tentative Resolution No. R9-2010-0001

[Insert table number]. Dry Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,741	227	2,741	227	91.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	5,470	242	5,470	242	95.58%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,851	92	1,851	92	95.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	6,455	1,665	6,455	1,665	74.21%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	3,327	192	3,327	192	94.23%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,737	1,058	1,737	1,058	39.09%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	149	26	149	26	82.55%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,631	1,293	1,631	1,293	20.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	205	7	205	7	96.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	3,320	119	3,320	119	96.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	4,329	234	4,329	234	94.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,928 +461**	1,506 +461*	4,928	1,506	69.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	5,068	398	5,068	398	92.15%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for fecal coliform (200 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Dry Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	13,791	1,134	13,791	1,134	91.78%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	26,639	1,208	26,639	1,208	95.47%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	9,315	462	9,315	462	95.04%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	30,846	8,342	30,846	8,342	72.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	16,743	958	16,743	958	94.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	8,549	5,289	8,549	5,289	38.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	751	129	751	129	82.82%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	7,555	6,468	7,555	6,468	14.39%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	1,030	36	1,030	36	96.50%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	16,707	594	16,707	594	96.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	21,349	1,171	21,349	1,171	94.51%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	28,988	7,529	28,988	7,529	74.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	25,080	1,991	25,080	1,991	92.06%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for total coliform (1,000 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Total coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Dry Weather Entercoccus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
Watershed	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,321	40	2,321	40	98.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	4,614	40**	4,614	40	99.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,567	16	1,567	16	98.98%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	5,433	275**	5,433	275	94.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	2,817	33	2,817	33	98.83%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,466	185	1,466	185	87.38%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	126	5	126	5	96.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,368	226	1,368	226	83.48%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	173	1	173	1	99.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	2,811	21	2,811	21	99.25%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	3,657	39**	3,657	39	98.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,106	248**	4,106	248	93.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	4,283	66**	4,283	66	98.46%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for enterococcus (35 MPN/100mL or 33 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

(h) TMDL Implementation Plan

The ultimate goal of the Implementation Plan is to restore the impaired beneficial uses of the waterbodies addressed by these TMDLs. Restoring the impaired beneficial uses will be accomplished by achieving the TMDLs in the receiving waters, and the wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. The actions taken by the San Diego Water Board depends on the regulatory authority and the source. The regulatory authorities and actions that the San Diego Water Board will use to compel the controllable sources to implement these TMDLs are as follows.

(1) Basin Plan Waste Discharge Prohibitions

The San Diego Water Board may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted, known as "waste discharge prohibitions," in the Basin Plan.[43] Basin Plan waste discharge prohibitions that are applicable to the implementation of these TMDLs include the following:

- The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.

- The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

- The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.

- Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

- The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

Existing discharges are violating one or more of these of these Basin Plan prohibitions. The existing Basin Plan prohibitions are consistent with the TMDLs, WLAs, and LAs. If

[43] Authorized pursuant to Water Code section 13243

necessary, the San Diego Water Board may amend the Basin Plan to revise current waste discharge prohibitions or include new waste discharge prohibitions. The controllable sources must comply with the Basin Plan waste discharge prohibitions.

(2) Waste Discharge Requirements

The primary regulatory authority used by the San Diego Water Board to protect water resources and water quality in the San Diego Region is the issuance of waste discharge requirements (WDRs).[44] The San Diego Water Board will issue, or revise and re-issue WDRs to point sources and/or nonpoint sources in the San Diego Region to be consistent with the TMDLs, WLAs, and LAs. The controllable sources regulated under WDRs must comply with the requirements to be consistent with the TMDLs, WLAs, and LAs. Specific San Diego Water Board actions with regard to WDRs for point sources and nonpoint sources are discussed in the following subsections.

(A) Point Sources

The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). NPDES requirements must contain water quality-based effluent limitations (WQBELs) consistent with the assumptions and requirements of the WLAs of any applicable TMDL.[45]

When developing WQBELs to be incorporated in to NPDES requirements, the following summarizes the requirements and assumptions included in the calculation of the TMDLs, WLAs, and LAs that should be considered:

Numeric Targets

- The numeric targets consist of the numeric WQOs from the Basin Plan and/or Ocean Plan and an allowable exceedance frequency.
- The numeric targets for the wet weather TMDLs consist of the REC-1 single sample maximum WQOs and a 22 percent allowable exceedance frequency.
- The numeric targets for dry weather TMDLs consist of the REC-1 30-day geometric metric mean WQOs and a 0 percent allowable exceedance frequency.
- The TMDL calculations are based on either the single sample maximum WQO (for wet weather) or 30-day geometric mean WQOs (for dry weather), but both the single sample maximum and 30-day geometric mean numeric WQOs must be met in the receiving waters.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets for all three indicator bacteria (fecal coliform, total coliform, and *Enterococcus*) are met in the receiving waters.

Critical Conditions

- The mass-load based TMDLs were calculated under critical conditions consisting of flows generated during a critical wet year and estimation of existing and allowable loads at a critical location.

[44] Authorized pursuant to Water Code sections 13263 and 13264
[45] Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)

- The flow from the critical wet year is a "worst case" annual wet weather flow and loading scenario. Actual annual wet weather flow and loading will vary from year to year.
- The mass-load based TMDLs calculated at the critical location are dependent on the flow, which can vary from year to year, but the numeric targets will not vary. When the numeric targets are met in the receiving water, the TMDLs are assumed to be met.
- The mass-load based TMDLs, WLAs, and LAs are calculated for the critical location, but the appropriate numeric targets (based on freshwater and/or saltwater REC-1 WQOs and allowable exceedance frequencies) must be met throughout the waterbodies addressed by these TMDLs.

Linkage Analysis

- The linkage analysis was performed by utilizing calibrated and validated models to predict flow from surface runoff and predict bacteria densities under the critical conditions (i.e., during the critical wet year at the critical location). Existing mass loads and allowable mass loads (i.e., TMDLs) were calculated for each watershed. The existing mass loads were calculated based on model-predicted flow and model-predicted bacteria densities. The allowable mass loads (i.e., TMDLs) were calculated based on model-predicted flow and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies).
- The wet weather existing mass loads and allowable mass loads (i.e., wet weather mass-load based TMDLs) are calculated assuming surface runoff is generated by rainfall from storm events and discharged from all land use categories to receiving waters.
- The dry weather existing mass loads and allowable mass loads (i.e., dry weather mass-load based TMDLs) are calculated assuming surface runoff is generated only by anthropogenic activities and discharged from specific land use categories to receiving waters.

Allocations

- Each mass-load based TMDL is allocated to known point sources and nonpoint sources. Wasteload allocations (WLAs) are assigned to point sources, and load allocations (LAs) are assigned to nonpoint sources. WLAs and LAs are the maximum load a source can discharge and still achieve the TMDL in the receiving water.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets are met in the receiving waters.
- The sources were identified based on land use and grouped in to Municipal MS4, Caltrans MS4 (Caltrans), Agriculture, and Open Space categories. The Municipal MS4 and Caltrans land use categories are point sources, and the Agriculture and Open Space land use categories are nonpoint sources.
- Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words, discharges of pollutant loads from these sources are not expected or allowed as part of the TMDLs.

- Sources that are assigned an allowable load equal to the existing mass load as part of the mass-load based TMDL (i.e., WLA or LA = existing mass load) are not expected or allowed to increase their mass load in the future. In other words, discharges of pollutant loads (i.e., flows and bacteria densities) from these sources are not allowed to increase.
- The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., WLA_{MS4} = TMDL) (see Tables [Insert seventh through ninth table numbers]).
- The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps (see Tables [Insert third through sixth table numbers]):
  1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
  2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
  3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
  4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

Load Reductions

- The load reductions required to meet the mass-load based TMDLs, WLAs, and LAs are based on reducing the loads compared to pollutant loads from 2001 to 2002.
- Load reductions for each source are calculated based on the difference between the existing mass load and the mass-load based WLA or LA for each source (see Tables [Insert third through ninth table numbers]).
- WLAs and LAs that are set equal to the existing mass loads do not require load reductions to be calculated, but this also means that existing mass loads from those sources cannot increase over time (i.e., pollutant loads should be less than or equal to pollutant loads relative to 2001 to 2002).
- The load reductions needed to meet the WLAs for point sources and LAs for nonpoint sources are assumed to be achieved when the numeric targets are met in the receiving waters.

The persons identified as responsible for point source discharges causing or contributing to bacteria impairments at the beaches and creeks addressed in these TMDLs include:

- Phase I MS4s,
- Phase II MS4s,
- Caltrans,
- POTWs and wastewater collection systems, and
- CAFOs.

According to Tables [Insert third through ninth table numbers], Municipal (Phase I and Phase II) MS4s and Caltrans are the only point sources that have been assigned WLAs. POTWs,[46] CAFOs, and any other unidentified point sources were not assigned WLAs, which is equivalent to being assigned a WLA of zero. All these identified point sources are subject to NPDES regulations.

In order for the WDRs, NPDES requirements, and discharges from these point sources to be consistent with the TMDLs and WLAs, the San Diego Water Board will issue or revise and re-issue the WDRs for these point sources as follows:

(i) Phase I MS4s

The TMDLs and Municipal MS4 WLAs, with respect to discharges from Phase I MS4s, will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Phase I MS4 discharges.

The Phase I MS4s subject to these TMDLs are regulated under San Diego Water Board WDRs that implement NPDES requirements.[47] The NPDES requirements regulating the Phase I MS4s include discharge prohibitions and receiving water limitations that are applicable to the implementation of these TMDLs, as summarized below:

- Discharges from MS4s are subject to all Basin Plan prohibitions.

- Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

- Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance, in waters of the state are prohibited.

[46] Not including Padre Dam, which has been allocated a fecal coliform TMDL based on the effluent limitations in the WDRs for Padre Dam

[47] Phase I MS4s in Orange County are regulated under San Diego Water Board Order No. R9-2002-0001 or subsequent orders; Phase I MS4s in San Diego County are regulated under San Diego Water Board Order No. R9-2007-0001 or subsequent orders.

- Effectively prohibit all types of non-storm water discharges into the MS4 unless such discharges are either authorized by separate NPDES requirements, or not prohibited (i.e., exempted) by the NPDES requirements regulating the MS4. Exempted non-storm water discharges into the MS4 are not prohibited unless the discharge category is identified as a significant source of pollutants to waters of the United States.

The available data reported by the Phase I MS4s and the results of the technical TMDL analysis indicate that discharges into and from MS4s are in violation of the discharge prohibitions and receiving water limitations above. Enforcement of the current discharge prohibitions and receiving water limitations is an action that the San Diego Water Board can immediately implement to compel the MS4s to reduce discharge of bacteria to the receiving waters.

In addition to the discharge prohibitions and receiving water limitations, WQBELs consistent with the assumptions and requirements of the WLAs of any applicable TMDL must also be incorporated into the NPDES requirements. The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:

- WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.[48]

- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule for Phase I MS4s to attain the MS4 WLAs and TMDLs in the receiving waters.

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase I MS4s will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs.[49] The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The BLRPs or CLRPs should be developed and incorporated as part of the Watershed Runoff Management Programs required under the

[48] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)
[49] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

Phase I MS4 NPDES requirements. Ideally, the Phase I MS4s and Caltrans will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters, the Phase I MS4s will be responsible for reducing their bacteria loads and/or demonstrating that discharges from the Phase I MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(ii) Phase II MS4s

The TMDLs and MS4 WLAs, with respect to discharges from Phase II MS4s, will be implemented primarily by requiring compliance with the existing general WDRs and NPDES requirements that have been issued for Phase II MS4 discharges. Phase II MS4s are subject to regulation under State Water Board general WDRs implementing NPDES requirements.[50]

Owners and operators of Phase II MS4s in the watersheds subject to these TMDLs, identified by the San Diego Water Board as significant sources of bacteria discharging to the receiving waters and/or Phase I MS4s, will be required to submit a Notice of Intent[51] to comply with the NPDES requirements in the State Water Board general WDRs as soon as possible after the effective date of these TMDLs.[52] Once enrolled under the general WDRs, Phase II MS4 owners and operators are required to comply with the provisions of the State Water Board general WDRs and NPDES requirements to reduce the discharge of bacteria to the maximum extent practicable (MEP) as specified in their Stormwater Management Plans/Programs (SWMPs).

For any individual Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may also issue individual WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs. Upon issuance of such individual WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected individual Phase II MS4s.[53]

Similarly, for any category of Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may issue general WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs above. Upon issuance of such general WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected category of Phase II MS4s.[54]

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[50] Phase II MS4s in the San Diego Region are subject to regulation under State Water Board Order No. 2003-0005-DWQ, or subsequent orders.
[51] The Notice of Intent, or NOI, is attachment 7 to Order No. 2003-0005-DWQ.
[52] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[53] As authorized under State Water Board Order No. 2003-0005-DWQ, section G.
[54] Ibid.

In the event that the San Diego Water Board issues individual or general WDRs for Phase II MS4s in the San Diego Region, the WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase II MS4s will likely be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water, acceptable to the San Diego Water Board. When and where possible, the San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale and have the Phase II MS4 BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the Phase II MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters and one or more Phase II MS4 dischargers are identified as sources of bacteria causing exceedances, the specific Phase II MS4s will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those specific Phase II MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iii) Caltrans

The TMDLs and Caltrans WLAs will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Caltrans discharges.

Caltrans is regulated under State Water Board general WDRs that implement NPDES requirements.[55] The San Diego Water Board will request the State Water Board to revise and re-issue the WDRs and NPDES requirements to incorporate the following for Caltrans discharges in the San Diego Region:

- WQBELs consistent with the requirements and assumptions of the Caltrans WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.[56]

- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule for Caltrans to attain the Caltrans WLAs and TMDLs in the receiving waters.

[55] Caltrans is subject to regulation under State Water Board Order No. 99-06-DWQ, and subsequent orders.
[56] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve TMDLs in the receiving waters. Caltrans will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of attaining the TMDLs in the receiving waters, acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs.[57] The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. Ideally, Caltrans and the Phase I MS4s will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that Caltrans has met its WLAs. If, however, the receiving water limitations are not being met in the receiving waters, and Caltrans MS4s are identified as a source of bacteria causing exceedances, Caltrans will be responsible for reducing its bacteria loads and/or demonstrating that discharges from the Caltrans MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iv) Publicly Owned Treatment Works and Wastewater Collection Systems

The TMDLs, with respect to discharges from POTWs and wastewater collection systems, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. POTWs are subject to regulation under individual WDRs that implement NPDES requirements. Wastewater collection systems are subject to regulation under general WDRs issued by the State Water Board and San Diego Water Board.[58]

Because POTWs and wastewater collection systems have been assigned WLAs of zero,[59] no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs.

If necessary, individual WDRs for POTWs and/or the San Diego Water Board WDRs for wastewater collection systems can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are eliminated.

(v) Concentrated Animal Feeding Operations

The TMDLs, with respect to discharges from CAFOs, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. CAFOs that discharge to surface waters are subject to regulation under general WDRs that implement NPDES requirements.

[57] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[58] State Water Board Order No. 2006-0003-DWQ and San Diego Water Board Order No. R9-2007-0005
[59] With the exception of Padre Dam, which has a fecal coliform mass-load based WLA that is calculated based on numeric effluent limitations derived from the REC-1 WQOs in the Basin Plan.

Because CAFOs have been assigned WLAs of zero, no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs.

If necessary, the general WDRs and NPDES requirements for CAFOs can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are minimized and/or eliminated.

(vi) Other Unidentified Point Sources

Unidentified point sources have not been assigned WLAs, which is equivalent to being assigned a WLA of zero. No discharges of bacteria are expected or allowed from unidentified point sources under the wet weather TMDLs or dry weather TMDLs.

Therefore, the TMDLs, with respect to discharges from unidentified point sources to surface waters, will be implemented primarily by issuing WDRs implementing NPDES requirements, or requiring the point sources to cease their discharges.

(B) Nonpoint Sources

The persons identified as responsible for controllable nonpoint source bacteria discharges causing or contributing to bacteria impairments at the beaches and creeks in these watersheds include the owners and operators of the following:

- agricultural facilities,
- nurseries,
- dairy/intensive livestock facilities,
- horse ranches,
- manure composting and soil amendment operations not regulated by NPDES requirements, and
- individual septic systems.

Agriculture (including nurseries), dairy/livestock, and horse ranch land uses (collectively called "agriculture" land uses) are controllable nonpoint sources that have been assigned LAs, as shown in Tables [Insert third through ninth table numbers]. Manure composting operations, soil amendment operations, and individual septic systems that are not part of agriculture land uses, and any other unidentified controllable nonpoint sources were not assigned LAs, which is equivalent to being assigned a LA of zero. Any controllable nonpoint source that has not been assigned a LA or has a LA of zero is not expected or allowed to discharge a pollutant load as part of the TMDL.

Controllable nonpoint source discharges are present in most watersheds, however, in only four watersheds do these discharges require load reductions to meet the Agriculture LAs. These watersheds are the Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU watersheds (see Tables [Insert table numbers]).

If individual or general WDRs are developed and issued to controllable nonpoint sources, the WDRs should incorporate one or more the following:

- Effluent limitations that are consistent with the requirements and assumptions of the nonpoint source LAs. Effluent limitations should be expressed as numeric effluent limitations, if feasible, and/or as a BMP program.

- Periodic reporting requirements on BMP planning, implementation, and effectiveness in improving the water quality of discharges from the nonpoint source (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule and/or implementation milestones.

The San Diego Water Board will work with the nonpoint source dischargers and/or stakeholders when developing the WDRs. When and where possible, the San Diego Water Board will have the nonpoint source BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that controllable nonpoint sources have met their LAs. If, however, the receiving water limitations are not being met in the receiving waters, and one or more controllable nonpoint source dischargers are identified as sources of bacteria causing exceedances, the San Diego Water Board may regulate those identified nonpoint sources, as needed, with WDRs or other enforcement actions, and those nonpoint sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those nonpoint sources are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(3) Conditional Waivers of Waste Discharge Requirements

There are several types of point source discharges to land, as well as nonpoint source discharges to land and surface waters that may not have an adverse affect on the quality of the waters of the state, and/or are not readily amenable to regulation under WDRs. For these types of discharge, the San Diego Water Board has the authority to issue conditional waivers of WDRs.[60]

There are controllable nonpoint source land uses (agriculture, horse ranches, and dairies/intensive livestock) that were identified in 8 watersheds that are contributing to the bacteria impairments. Four of the 8 watersheds were identified as requiring load reductions (Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU) to meet the assigned wet weather Agriculture LAs.

In general, the San Diego Water Board utilizes conditional waivers of WDRs to address the discharges from controllable nonpoint sources. Development and enforcement of waiver

[60] Authorized pursuant to Water Code section 13269

conditions that are protective of water quality will likely be sufficient to implement the Agriculture LAs. The controllable nonpoint sources eligible for conditional waivers must comply with the conditions of the waiver to be consistent with the TMDLs and Agriculture LAs. Controllable nonpoint sources that do not comply with the waiver conditions are no longer eligible for the waiver and must either come into compliance with the waiver conditions, become regulated under WDRs, or cease any discharge of wastes to waters of the state.

Currently, discharges from these controllable nonpoint sources may be eligible for one of the general conditional waivers of WDRs, which are currently provided in the Basin Plan.[61] Conditional waivers of WDRs may not exceed 5 years in duration, but may be revised and renewed, or may be terminated at any time.[62] The San Diego Water Board will implement the conditional waivers of WDRs applicable to the Agriculture land uses to be consistent with the TMDLs and Agriculture LAs.

Because the conditional waivers of WDRs that may be utilized to implement the Agriculture LAs are contained in the Basin Plan, any revision of the conditions will require a Basin Plan amendment. If needed, the San Diego Water Board may amend the Basin Plan to remove these conditional waivers of WDRs from the Basin Plan and re-issue the conditional waivers of WDRs as a general order to reduce the administrative requirements for revising waiver conditions.

As required, the effectiveness of the conditional waivers of WDRs must be evaluated at least once every 5 years. If the conditions in the waivers of WDRs are not sufficient to implement the TMDLs and Agriculture LAs, the San Diego Water Board will amend the waiver conditions to include more stringent conditions, including, but not limited to, additional BMP implementation, monitoring, and/or reporting.

If a conditional waiver of WDRs no longer appears to be effective in protecting water quality from discharges from specific nonpoint source facilities or category of nonpoint source facilities, the waiver may be terminated. For nonpoint source facilities that are no longer eligible for a conditional waiver of WDRs, they will need to be regulated under WDRs, or cease any discharges of waste to waters of the state.

(4) Enforcement Actions

The San Diego Water Board shall consider enforcement actions, as necessary, for any discharger failing to comply with applicable waiver conditions, WDRs, or Basin Plan waste discharge prohibitions.[63] Enforcement actions can also be taken, as necessary, to control the discharge of bacteria to impaired beaches and creeks, to attain compliance with the assumptions and requirements of the TMDLs, WLAs, and LAs.

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[61] The current general conditional waivers in the Basin Plan were adopted under San Diego Water Board Resolution No. R9-2007-0104. These waivers will expire December 31, 2012. Conditional Waiver No. 3 (Animal Operations) and Conditional Waiver No. 4 (Agriculture and Nursery Operations) may be utilized to implement the Agriculture LAs. Future iterations of these conditional waivers may be issued in a separate implementing order and removed from the Basin Plan.

[62] Pursuant to Water Code section 13269(a)(2)

[63] Authorized pursuant to Water Code sections 13300-13304, 13308, 13350, 13385, and/or 13399

In order for implementation of the TMDLs to begin as soon as possible, the San Diego Water Board may issue enforcement actions, in lieu of or before revising and re-issuing general WDRs and NPDES requirements, for Phase I MS4s and Caltrans, directing them to begin implementing additional measures to restore compliance with the bacteria WQOs. Enforcement actions may also be issued to require the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) to the San Diego Water Board within 18 months after the effective date of these TMDLs,[64] or sooner. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale.

The San Diego Water Board will also issue enforcement actions, as necessary, to any other discharger that is identified by the San Diego Water Board and/or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(5) Investigative Orders

The San Diego Water Board has the authority to require any state or local agency to investigate and report on any technical factors involved in water quality control or to obtain and submit analyses of water.[65] The San Diego Water Board has the authority to require technical or monitoring program reports from persons who have discharged or are discharging waste that could affect the quality of the waters in the San Diego Region.[66] The San Diego Water Board also has the authority to establish monitoring and recordkeeping requirements for discharges regulated under NPDES requirements.[67]

Investigative orders may be issued requiring the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs), acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs,[68] or sooner. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The San Diego Water Board may require the Phase I MS4s and Caltrans to develop and coordinate the elements of their BLRPs or CLRPs together. The BLRPs or CLRPs will be incorporated into the WDRs and NPDES requirements.

The San Diego Water Board may issue subsequent investigative orders to confirm items in the BLRPs or CLRPs. The BLRPs or CLRPs must be capable of achieving the WLAs for the bacteria TMDLs, restoring the beneficial uses in receiving waters for other impairing pollutants in the watershed, and achieving the goals and objectives of any other water quality improvement projects included in the BLRPs or CLRPs within the time frame of the compliance schedule.

[64] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[65] Authorized pursuant to Water Code section 13225
[66] Authorized pursuant to Water Code section 13267
[67] Authorized pursuant to Water Code section 13383
[68] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The San Diego Water Board will also issue investigative orders requiring BLRPs or CLRPs, or other technical or monitoring program reports, as necessary, to any other discharger that is identified by the San Diego Water Board or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(6) Basin Plan Amendments

As the implementation of these TMDLs progress, the San Diego Water Board recognizes that revisions to the Basin Plan may be necessary in the future. The San Diego Water Board will initiate a Basin Plan amendment project to revise the requirements and/or provisions for implementing these TMDLs if all the following conditions are met:

- Sufficient data are collected to provide the basis for the Basin Plan amendment.
- A report is submitted to the San Diego Water Board documenting the findings from the collected data.
- A request is submitted to the San Diego Water Board with specific revisions proposed to the Basin Plan, and the documentation supporting such revisions.

The San Diego Water Board will work with the project proponents to ensure that the data and documentation will be adequate for the initiation of the Basin Plan amendment. If the data and documentation are adequate, the San Diego Water Board staff will be responsible for taking the Basin Plan amendment project through the administrative and regulatory processes for adoption by the San Diego Water Board, and approval by the State Water Board, OAL, and USEPA.

(7) Other Actions

For these TMDLs, the San Diego Water Board shall recommend that the State Water Board assign a high priority to awarding grant funding[69] for projects to implement the bacteria TMDLs. Special emphasis will be given to projects that can achieve quantifiable bacteria load reductions consistent with the specific bacteria TMDLs, WLAs, and LAs.

Implementation of these TMDLs by the San Diego Water Board should not require any special studies to be conducted by the dischargers or other entities. The San Diego Water Board, however, will encourage and support any special studies proposed and undertaken by the dischargers or other entities that will provide information to refine and improve the implementation of these TMDLs. The San Diego Water Board may develop agreements (e.g., a Memorandum of Understanding) with one or more entities to support and use the findings from any special studies that may be conducted. Proposing a special study project

[69] The State Water Board administers the awarding of grants funded from Proposition 13, Proposition 50, Clean Water Act section 319(h) and other federal appropriations to projects that can result in measurable improvements in water quality, watershed condition, and/or capacity for effective watershed management. Many of these grant fund programs have specific set-asides for expenditures in the areas of watershed management and TMDL project implementation for non-point source pollution.

and initiating an agreement with the San Diego Water Board to use the results of the study to modify this TMDL Implementation Plan is the responsibility of the project proponent(s).

(i) Monitoring for TMDL Compliance and Compliance Assessment

An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, , compliance with the TMDLs will be achieved. Additionally, sufficient water quality data are necessary to support the removal of a waterbody from the 303(d) List. Water quality data can also be used identify additional regulatory actions that may need to be implemented by the San Diego Water Board to restore and protect beneficial uses.

The minimum components for any monitoring program that will be used to evaluate progress toward attainment of the TMDLs should include the following:

- For beaches addressed by these TMDLs, monitoring locations should consist of, at a minimum, the same locations used to collect data required under MS4 NPDES monitoring requirements and beach monitoring for Health and Safety Code section 115880.[70] If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations must be added to identify the sources causing the exceedances. An adequate number of additional monitoring locations and frequency of monitoring must be added to identify the sources causing the exceedances in the receiving waters. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the sources have been addressed and no longer causing exceedances in the receiving waters.

- For creeks addressed by these TMDLs, monitoring locations should consist of, at a minimum, a location at or near the mouth of the creek (e.g., Mass Loading Station or Mass Emission Station) and one or more locations upstream of the mouth (e.g., Watershed Assessment Stations). If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations must be added to identify the sources causing the exceedances. An adequate number of additional monitoring locations and frequency of monitoring must be added to identify the sources causing the exceedances in the receiving waters. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the sources have been addressed and no longer causing exceedances in the receiving waters.

- Because there are dry weather and wet weather TMDLs, monitoring under both conditions is needed. Wet weather[71] monitoring should occur at least once within 24 hours of the end of a storm event[72] that occurs during the rainy season (i.e., October 1

[70] Commonly referred to as AB 411 monitoring
[71] Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event
[72] The end of a storm event is when there is no more precipitation

through April 30). Dry weather[73] monitoring should occur at least on a monthly basis, and may be required more often during the summer months (e.g., weekly) when the REC-1 and REC-2 beneficial uses occur most frequently in the creeks and at the beaches.

Compliance with the TMDLs, WLAs, and LAs will be assessed primarily by comparing receiving water indicator bacteria results from the monitoring locations outlined above with receiving water limitations expressed in terms of the appropriate numeric REC-1 WQOs and allowable exceedance frequencies of the appropriate numeric REC-1 WQOs. The appropriate numeric WQOs and allowable exceedance frequencies are dependent upon the type of receiving water (i.e., beach or creek) and weather conditions (i.e., dry weather or wet weather), as shown in Tables [Insert table numbers].

[Insert table number]. Receiving Water Limitations for Beaches

	Wet Weather Days [a]		Dry Weather Days [b]	
Indicator Bacteria	**Wet Weather Numeric Objective [c] (MPN/100mL)**	**Wet Weather Allowable Exceedance [d] Frequency**	**Dry Weather Numeric Objective [e] (MPN/100mL)**	**Dry Weather Allowable Exceedance Frequency**
Fecal Coliform	400	22%	200	0%
Total Coliform	10,000	22%	1,000	0%
Enterococcus	104	22%	35	0%

a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
c. Wet weather numeric objectives based on the single sample maximum water quality objectives in the California Ocean Plan (2005). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
e Dry weather numeric objectives based on the 30-day geometric mean water quality objectives in the California Ocean Plan (2005). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.

[73] Defined as days with less than 0.2 inches of rainfall on each of the previous three days

[Insert table number]. Receiving Water Limitations for Creeks

Indicator Bacteria	Wet Weather Days [a]		Dry Weather Days [b]	
	Wet Weather Numeric Objective [c] (MPN/100mL)	Wet Weather Allowable Exceedance [d] Frequency	Dry Weather Numeric Objective [e] (MPN/100mL)	Dry Weather Allowable Exceedance Frequency
Fecal Coliform	400	22%	200	0%
Total Coliform [f]	10,000	22%	1,000	0%
Enterococcus	61 (104) [g]	22%	33	0%

a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
c. Wet weather numeric objectives based on the single sample maximum (or equivalent) water quality objectives in the Water Quality Control Plan for the San Diego Basin (1994). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
e. Dry weather numeric objectives based on the 30-day geometric mean (or equivalent) water quality objectives in Water Quality Control Plan for the San Diego Basin (1994). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.
f. Wet and dry weather numeric objectives for total coliform apply at the point in a creek that discharges to a beach, bay, or estuary.
g. A wet weather numeric objective for *Enterococcus* of 104 MPN/100mL may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the wet weather numeric objective of 61 MPN/100mL for Enterococcus will be used to assess compliance with the wet weather allowable exceedance frequency.

At the end of the TMDL Compliance Schedules, which are given in the following section, the receiving waters must meet the receiving water limitations above to be considered in compliance with these TMDLs, WLAs, and LAs. Determination of compliance with the TMDLs will be assessed differently for dry weather and wet weather as follows:

1. *Compliance with Dry Weather TMDLs*: At the end of the dry weather TMDL compliance schedule, the bacteria densities in the receiving waters for all dry weather days[74] must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., dry weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time). In addition, the bacteria densities must be consistent with the single sample maximum REC-1 WQOs in the Ocean Plan for beaches, and the Basin Plan for creeks.

   The method and number of samples needed for calculating the 30-day geometric mean should be consistent with the number of samples required by the Ocean Plan for beaches, and the Basin Plan for creeks. Analysis of the monitoring results should also be consistent with the methods given in the Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List.

   Because the dry weather TMDLs are assigned entirely to the Municipal MS4s as WLAs, the Municipal MS4s are assumed to be the only source of bacteria during dry

[74] Defined as days with less than 0.2 inches of rainfall on each of the previous three days

weather (i.e., dry weather TMDL = MS4 WLA). Discharges from other sources (i.e., Caltrans, Agriculture, and Open Spaces) during dry weather are not expected and/or not allowed (i.e., WLA = 0 or LA = 0). If at the end of the dry weather TMDL compliance schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time, the municipal Phase I MS4s are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

The Phase I MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the dry weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the dry weather TMDL Compliance Schedule as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend existing NPDES requirements or conditional waivers), as needed, to bring all controllable sources into compliance with the dry weather TMDLs.

2. *Compliance with Wet Weather TMDLs*: At the end of the wet weather TMDL compliance schedule, the bacteria densities in the receiving waters for all wet weather days[75] cannot exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency. In addition, the bacteria densities must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., both dry and wet weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time).

   As described in the minimum monitoring components above, at least one sample should be collected within 24 hours of the end of a storm event that occurs during the rainy season (i.e., October 1 through April 30). If only one sample is collected for a storm event, the bacteria density for every wet weather day associated with that storm event shall be equal to the results from that one sample. If more than one sample is collected for a storm event, but not on a daily basis, the bacteria density for all the wet weather days not sampled shall be equal to the highest bacteria density result reported from samples collected. The exceedance frequency shall be calculated by dividing the number of wet weather days that exceed the single sample maximum REC-1 WQOs by the total number of wet weather days during the rainy season. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency, all controllable sources are responsible for demonstrating their discharges

[75] Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event

into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

The data collected for compliance with the dry weather TMDLs, described above, shall be used in addition to the data collected for wet weather with the wet weather TMDLs to calculate the wet weather 30-day geometric mean. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs at any time, all controllable sources are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

Because the Phase I MS4s are located at the base of the watersheds and have been identified as the most significant controllable source of bacteria, the municipal Phase I MS4s will have the primary responsible for monitoring the receiving waters. The municipal Phase I MS4s are responsible for reducing their bacteria loads and/or demonstrating their discharges into the receiving waters are not causing the exceedances.

The municipal MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the wet weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the wet weather TMDL Compliance Schedules as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend existing NPDES requirements or conditional waivers), as needed, to bring all those controllable sources into compliance with the wet weather TMDLs.

Between the effective date of these TMDLs and the end of the TMDL Compliance Schedules, monitoring is also required to demonstrate progress toward achieving and complying with the TMDLs, WLAs, and LAs. Progress can be demonstrated with reductions in exceedance frequencies in the receiving waters until the allowable exceedance frequencies ultimately are achieved at the end of the TMDL Compliance Schedules. Demonstrating progress toward attaining the TMDLs in the receiving waters will be assessed differently for dry weather and wet weather as follows:

1. *Measuring Progress Toward Attaining Dry Weather TMDLs*: For the dry weather TMDLs, available historical monitoring data from the year 2002 to the effective date of these TMDLs should be used to calculate the "existing" dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs for each watershed.

"Existing" dry weather exceedance frequencies may be calculated separately for each impaired waterbody listed, or an "existing" dry weather exceedance frequency may be calculated that is applicable to the entire watershed.

The "existing" dry weather exceedance frequencies should be reduced until the final allowable dry weather exceedance frequency is achieved by the end of the dry weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the dry weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the "existing" dry weather exceedance frequency is 60 percent, the final dry weather exceedance frequency is 0 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 30 percent or less by the interim milestone date. By the end of the dry weather TMDL Compliance Schedule, the final allowable dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs is 0 percent in the receiving waters for both beaches and creeks.

2. *Measuring Progress Toward Attaining Wet Weather TMDLs*: For the wet weather TMDLs, the number of wet days and number of wet exceedance days during the critical wet year from the wet weather model were used to calculate the "existing" wet weather exceedance frequency that needs to be reduced to the allowable wet weather exceedance frequency. For example, if a watershed had 69 wet weather days during the critical wet year, and the wet weather model predicted that all the subwatersheds had an average of 41 wet weather exceedance days during the critical wet year, the "existing" wet weather exceedance frequency is 41/69=59%. For the watershed addressed by these TMDLs, the number of wet weather exceedance days for each indicator bacteria predicted by the wet weather model for the critical wet year are summarized below in Table [Insert Table Number]:

[Insert table number]. "Existing" Wet Weather Exceedance Frequencies by Watershed

Watershed	Number of Wet Days in Critical Wet Year	"Existing" Wet Weather Exceedance Frequency of Simgle Sample Maximum REC-1 WQO [a]		
		Fecal Coliform	Total Coliform	Enterococcus
San Joaquin Hills HSA/ Laguna Beach HSA	69	52%	54%	55%
Aliso HSA	69	59%	59%	62% (62%) [b]
Dana Point HSA	69	50%	50%	50%
Lower San Juan HSA	76	66%	66%	74% (72%) [b]
San Clemente HA	73	47%	47%	50%
San Luis Rey HU	90	68%	66%	76%
San Marcos HA	49	57%	57%	59%
San Dieguito HU	98	43%	44%	49%
Miramar Reservoir HA	94	30%	30%	30%
Scripps HA	57	52%	52%	52%
Tecolote HA	57	75%	75%	81% (79%) [b]
Mission San Diego HSA/ Santee HSA	86	70%	63%	79% (76%) [b]
Chollas HSA	65	60%	60%	63% (63%) [b]

a. Calculated by taking the average number of wet days that are predicted by the wet weather model to exceed the single sample maximum REC-1 water quality objective (400 MPN/100mL for fecal coliform, 10,000 MPN/100mL for total coliform, and 61 or 104 MPN/100mL) divided by the total number of wet days in the critical wet year (1993).

b. Allowable exceedance frequency calculated based on an *Enterococcus* single sample maximum REC-1 water quality objective of 61 MPN/100mL. Allowable exceedance frequency in parenthesis calculated based on an Enterococcus single sample maximum REC-1 water quality objective of 104 MPN/100mL, which may be applicable if the usage frequency of the creeks in these watersheds are designated as "moderately to lightly used area" or less frequent usage frequency in the Basin Plan.

The "existing" wet weather exceedance frequencies should be reduced until the final allowable wet weather exceedance frequency is achieved by the end of the wet weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the wet weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the "existing" wet weather exceedance frequency is 59 percent, the final wet weather exceedance frequency is 22 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 41 percent or less by the interim milestone date. By the end of the wet weather TMDL Compliance Schedule, the allowable wet weather exceedance frequency is 22 percent in the receiving waters for both beaches and creeks.

The specific receiving waters (i.e., specific beaches and creek segments) identified on the 2002 303(d) List are shown in the TMDL Compliance Schedule in the following section. Because the REC-1 WQOs must be met throughout the 20 waterbodies addressed by these bacteria TMDLs, monitoring data from these locations and any other beach segments and/or creek monitoring points in the watersheds addressed by these TMDLs may be used to determine compliance.

Because the municipal MS4s are the most significant controllable sources of bacteria and the Phase I MS4s often discharge directly to the receiving waters addressed by these TMDLs, the municipal Phase I MS4s will be primarily responsible for conducting the monitoring. Additional monitoring locations and frequency may be required to identify sources that need additional controls to reduce bacteria loads. While this TMDL Implementation Plan recommends monitoring at one or two locations for each waterbody, monitoring only one or two locations in the receiving waters may not provide the data to differentiate between and locate sources of bacteria in the watershed. Therefore, the municipal Phase I MS4s may wish to establish additional monitoring locations at key jurisdictional boundaries as part of their monitoring programs, especially in watersheds where Caltrans and Agriculture have been identified as sources contributing bacteria loads to the receiving waters.

Investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs issued by the San Diego Water Board should require monitoring program plans that include, as applicable, the minimum monitoring locations and frequencies outlined above, but also provide the dischargers an opportunity to propose additional or alternative monitoring locations and frequency of monitoring events. The San Diego Water Board may also issue investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs that specify additional or alternative monitoring, monitoring locations, and/or frequency of monitoring events.

The San Diego Water Board will coordinate, to the extent possible, the monitoring that is required by the dischargers, to minimize the monitoring resources required and maximize the temporal and spatial coverage of the data collection.

(j) TMDL Compliance Schedule

The purpose of these TMDLs is to restore the impaired beneficial uses of the waterbodies addressed through mandated reductions of bacteria from controllable point and nonpoint sources discharging to impaired waters. The requirements of these TMDLs mandate that the San Diego Water Board require dischargers improve water quality conditions in impaired waters by achieving the assigned WLAs and LAs. After the controllable sources achieve their assigned WLAs and LAs, the TMDLs in the receiving waters will be met and beneficial uses restored.

Until the dischargers achieve their assigned WLAs and LAs, the beneficial uses of the waterbodies addressed by this project will likely remain impaired, and the dischargers will continue violating one or more Basin Plan waste discharge prohibitions. The San Diego Water Board recognizes that restoring the beneficial uses of the waterbodies impaired by elevated bacteria levels will require time and multiple approaches to implement. Therefore, the bacteria TMDLs are expected to be implemented in a phased approach with a monitoring component to identify bacteria sources, determine the effectiveness of each phase, and guide the selection of BMPs, as outlined in the BMP programs proposed in the BLRPs or CLRPs that are accepted by the San Diego Water Board.

(1) Prioritization of Waterbodies

"Impaired" waters were prioritized based on several factors, because the waterbodies included in these TMDLs are numerous and diverse in terms of geographic location, swimmer accessibility and use, and degree of contamination.

Dischargers accountable for attaining load reductions in multiple watersheds may have difficulty providing the same level of effort simultaneously in all watersheds. In order to address these concerns a scheme for prioritizing implementation of bacteria reduction strategies in waterbodies within watersheds was developed. The prioritization scheme is largely based on the following criteria:

- Level of beach (marine or freshwater) swimmer usage;
- Frequency of exceedances of WQOs; and
- Existing programs designed to reduce bacteria loading to surface waters.

Dischargers were placed into one of three groups (North, Central, and South), based on geographic location. Group N consists of dischargers located in watersheds within Orange County, the northernmost region watersheds included in these TMDLs. Group C consists of dischargers located in watersheds in northern San Diego County, outside the City of San Diego limits, the central region watersheds included in these TMDLs. Group S consists of dischargers who are located in watersheds within and south of the City of San Diego limits, the southernmost region watersheds included in these TMDLs. Table [Insert table number] shows the dischargers in each of the three groups.

[Insert table number]. Responsible Municipalities and Lead Jurisdictions[†]

Watershed	Waterbody	Segment or Area**	Responsible Municipalities	Group
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	City of Laguna Beach **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		at Heisler Park – North		
	Pacific Ocean Shoreline	at Main Laguna Beach	City of Aliso Viejo **County of Orange** City of Laguna Beach City of Laguna Woods Orange County Flood Control District Caltrans Owners/operators of small MS4s*	
		Laguna Beach at Ocean Avenue		
		Laguna Beach at Laguna Avenue		
		Laguna Beach at Cleo Street		
		Arch Cove at Bluebird Canyon Road		
		Laguna Beach at Dumond Drive		
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	City of Aliso Viejo City of Laguna Beach City of Laguna Hills City of Laguna Niguel City of Laguna Woods City of Lake Forest City of Mission Viejo **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek		
	Aliso Creek (mouth)	At creek mouth		
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	City of Dana Point City of Laguna Beach City of Laguna Niguel **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		Aliso Beach at Table Rock Drive		
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)		
		at Salt Creek (large outlet)		
		Salt Creek Beach at Salt Creek service road		
		Salt Creek Beach at Dana Strand Road		

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody	Segment or Area**	Responsible Municipalities	Group
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	City of San Juan Capistrano City of Mission Viejo City of Laguna Hills City of Laguna Niguel City of Dana Point City of Rancho Santa Margarita **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
	San Juan Creek	Lower 1 mile		
	San Juan Creek (mouth)	At creek mouth		
San Clemente HA (901.30)	Pacific Ocean Shoreline	Poche Beach	City of San Clemente **County of Orange** Orange County Flood Control District Dana Point Caltrans Owners/operators of small MS4s*	N
		Ole Hanson Beach Club Beach at Pico Drain		
		San Clemente City Beach at El Portal Street Stairs		
		San Clemente City Beach at Mariposa Street		
		San Clemente City Beach at Linda Lane		
		San Clemente City Beach at South Linda Lane		
		San Clemente City Beach at Lifeguard Headquarters		
		Under San Clemente Municipal Pier		
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)		
		San Clemente State Beach at Riviera Beach		
		San Clemente State Beach at Cypress Shores		
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	**City of Oceanside** City of Vista County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody	Segment or Area**	Responsible Municipalities	Group
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	City of Carlsbad **City of Encinitas** City of Escondido City of Oceanside City of San Marcos City of Solana Beach City of Vista County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	City of Del Mar **City of Escondido** City of Poway City of San Diego City of Solana Beach County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C/S
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	City of Del Mar **City of Poway** City of San Diego County of San Diego Caltrans Owners/operators of small MS4s*	S
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	**City of San Diego** Owners/operators of small MS4s*	S
		La Jolla Shores Beach at Caminito Del Oro		
		La Jolla Shores Beach at Vallecitos		
		La Jolla Shores Beach at Ave de la Playa		
		at Casa Beach, Children's Pool		
		South Casa Beach at Coast Blvd.		
		Whispering Sands Beach at Ravina Street		
		Windansea Beach at Vista de la Playa		
		Windansea Beach at Bonair Street		
		Windansea Beach at Playa del Norte		
		Windansea Beach at Palomar Ave.		
		at Tourmaline Surf Park		
		Pacific Beach at Grand Ave.		

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody	Segment or Area**	Responsible Municipalities	Group
Tecolote HA (906.50)	Tecolote Creek	Tecolote Creek	**City of San Diego** Owners/operators of small MS4s*	S
Mission San Diego HSA (907.11) & Santee HSA (907.12)	Forrester Creek	Lower 1 mile	**City of El Cajon** City of La Mesa City of Santee County of San Diego Caltrans Owners/operators of small MS4s*	S
	San Diego River, Lower	Lower 6 miles	**City of El Cajon** City of La Mesa City of San Diego City of Santee County of San Diego Caltrans Owners/operators of small MS4s* Padre Dam Water Treatment Facility	S
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach		
Chollas HSA (908.22)	Chollas Creek	Lower 1.2 miles	City of La Mesa City of Lemon Grove **City of San Diego** County of San Diego San Diego Unified Port District Caltrans Owners/operators of small MS4s*	S

† Developed based on the 2002 Clean Water Act Section 303(d) List
*Owners/operators of small MS4s are listed in Appendix Q.
** As listed on the 2002 Clean Water Act Section 303(d) List

Impaired waters were given a priority number of 1, 2, or 3 with 1 being the highest priority. Priority 1 waters also included waterbodies likely to be removed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments. Priority schemes are designated within watersheds. A prioritized list of impaired beaches and creeks included in this project is shown below in Table [Insert table number].

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation

Watershed	Waterbody	Segment or Area[a]	Priority
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	1
		at Heisler Park – North	1
	Pacific Ocean Shoreline	at Main Laguna Beach	1
		Laguna Beach at Ocean Avenue	1
		Laguna Beach at Laguna Avenue	1
		Laguna Beach at Cleo Street	1
		Arch Cove at Bluebird Canyon Road	1
		Laguna Beach at Dumond Drive	1
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	1
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek	3
	Aliso Creek (mouth)	At creek mouth	3
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	1
		Aliso Beach at Table Rock Drive	1
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)	1
		at Salt Creek (large outlet)	1
		Salt Creek Beach at Salt Creek service road	2
		Salt Creek Beach at Dana Strand Road	2
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	1
	San Juan Creek	Lower 1 mile	3
	San Juan Creek (mouth)	At creek mouth	1

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation [†] *(Cont'd)*

Watershed	Waterbody	Segment or Area[a]	Priority
San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach (large outlet)	1
		Ole Hanson Beach Club Beach at Pico Drain	1
		San Clemente City Beach at Linda Lane	1
		San Clemente State Beach at Riviera Beach	1
		San Clemente City Beach at Mariposa Street	2
		San Clemente State Beach at Cypress Shores	2
		San Clemente City Beach at Lifeguard Headquarters	2
		Under San Clemente Municipal Pier	2
		San Clemente City Beach at El Portal Street Stairs	2
		San Clemente City Beach at South Linda Lane	3
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	3
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	2
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	1
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	1
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline[a]	Torrey Pines State Beach at Del Mar (Anderson Canyon)	1
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	1
		La Jolla Shores Beach at Caminito Del Oro	1
		La Jolla Shores Beach at Vallecitos	1
		La Jolla Shores Beach at Ave de la Playa	1
		at Casa Beach, Children's Pool	1
		South Casa Beach at Coast Blvd.	1
		Whispering Sands Beach at Ravina Street	1
		Windansea Beach at Vista de la Playa	1
		Windansea Beach at Bonair Street	1
		Windansea Beach at Playa del Norte	1
		Windansea Beach at Palomar Ave.	1
		at Tourmaline Surf Park	1
		Pacific Beach at Grand Ave.	1
Tecolote HA (906.10)	Tecolote Creek	The entire reach and associated tributaries	1

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation † *(Cont'd)*

Watershed	Waterbody	Segment or Area[a]	Priority
Mission San Diego HSA (907.11) & Santee HSA (907.12)	San Diego River, Lower	Lower 6 miles	3
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach	3
	Forrester Creek	Lower 1 mile	3
Chollas HSA (908.22)	Chollas Creek	Bottom 1.2 miles	3

† Developed based on the 2002 Clean Water Act Section 303(d) List
a As listed on the 2002 Clean Water Act Section 303(d) List

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually, and may not be identified in the same way as those segments listed in the table above. Several of the segments or areas in the list above have been delisted or redefined in the 2008 303(d) List. In addition, other segments or areas have been added to the Pacific Ocean shorelines listed above. The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists.

The prioritized list above recognizes that there are segments or areas where bacterial water quality improvements are most likely to occur first (Priority 1), and segments or areas where bacterial water quality improvements are most likely to require more time to achieve (Priority 3). In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List.

The BLRPs or CLRPs that are developed are expected to focus on implementing BMP programs to reduce bacteria loads to those segments or areas where exceedances of the receiving water limitations continue to occur. The BMP programs that are included in the BLRPs or CLRPs should include short-term and long-term implementation strategies. The short-term strategies should be able to result in bacteria load reductions that can result in achieving the TMDLs for Priority 1 segments or areas. The long-term strategies should be able to result in bacteria load reductions that will result in achieving the TMDLs in all segments or areas by the end of the TMDL compliance schedules and maintain the protection of the REC-1 beneficial use after the end of the TMDL compliance schedules.

In the segments or areas where the receiving water limitations are being met, the BLRPs or CLRPs also need to include a monitoring component to ensure that protection of the REC-1 beneficial use is maintained. If receiving water limitations are exceeded in the future in those locations, the BLRPs or CLRPs must include the implementation of a BMP program

that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules.

(2) Compliance Schedule

Full implementation of the TMDLs for indicator bacteria shall be completed as soon as possible, but no later than 10 years[76] from the effective date[77] for both the dry weather and wet weather TMDLs. The effective date of these TMDLs is [*insert date on which OAL approves this Basin Plan amendment]*.

The San Diego Water Board will require the Phase I MS4s to submit Bacteria Load Reduction Plan (BLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the bacteria TMDLs in the receiving waters, acceptable to the Regional Board within 18 months after the effective date of these TMDLs. The Phase I MS4 BLRPs should be incorporated into their Watershed Runoff Management Programs. Caltrans will also be required to develop and submit BLRPs outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the Regional Board, within 18 months after the effective date of these TMDLs. To the extent possible, the Phase I MS4s and Caltrans should develop and coordinate the elements of their BLRPs together. The BLRPs will allow the Phase I MS4s and Caltrans to propose a compliance schedule for WQBELs that implement the bacteria TMDLs. The compliance schedule for the Phase I MS4s and Caltrans to attain their respective WLAs and the TMDLs in the receiving waters will be based on the BMP program proposed in the BLRPs.

If the Phase I MS4s and Caltrans choose to submit BLRPs that address only bacteria, the proposed schedule for compliance with the wet weather and dry weather TMDLs cannot extend beyond 10 years from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board. If the BLRPs do not include a proposed compliance schedule that is acceptable to the Regional Board, the compliance schedule will be as follows.

The compliance schedule for achieving the dry weather and wet weather bacteria TMDLs (Tables [Insert table numbers], respectively) are structured in a phased manner, with 100 percent of dry weather exceedance frequency reductions, and 100 percent of wet weather exceedance frequency reductions within 10 years from the effective date. At the end of the dry weather TMDL compliance schedule, the receiving waters must not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time. At the end of the wet weather TMDL compliance schedule, the receiving waters must not exceed the single sample maximum REC-1 WQOs more than the wet weather allowable exceedance frequency. All of these reductions are aimed at restoring water quality to a level that

[76] If a Comprehensive Load Reduction Plan (CLRP) is developed to address several pollutants, including bacteria, the implementation of the wet weather bacteria TMDLs shall be completed as soon as possible, but no later than 20 years from the effective date. See Alternative Compliance Schedules under section (j)(3).
[77] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

supports REC-1 beneficial uses in the ocean shoreline and in impaired creeks. These reductions required by the compliance schedule vary on the timeline based on the priority scheme described in Table [Insert table number]. Intermediate milestone reductions in bacteria wasteloads are required sooner in the higher priority waters.

[Insert Table Number]. Dry Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Dry Weather)		
6		50% (All Dry Weather)	
7			50% (All Dry Weather)
10+	100% (All Dry Weather)	100% (All Dry Weather)	100% (All Dry Weather)

[Insert Table Number]. Wet Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Wet Weather)		
6		50% (All Wet Weather)	
7			50% (All Wet Weather)
10+	100% (All Wet Weather)	100% (All Wet Weather)	100% (All Wet Weather)

The first four years of the compliance schedules above do not require any exceedance frequency reductions from current conditions. These years will provide the dischargers time to identify sources, develop plans and implement enhanced and expanded BMPs capable of achieving the mandated decreases in exceedance frequencies of the REC-1 WQOs in the impaired beaches and creeks. The Regional Board may also include additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

If appropriate and acceptable to the Regional Board, the proposed compliance schedules included in the BLRPs will be incorporated into the various TMDL implementing orders, such as the municipal Phase I MS4 stormwater WDRs and NPDES requirements. Otherwise, the compliance schedules given above will be implemented.

(3) Alternative Compliance Schedules

The dischargers to Chollas Creek in the Chollas HSA watershed will have to address reductions from multiple water quality improvement projects in addition to bacteria, namely TMDLs for copper, lead, zinc, and diazinon,[78] and a trash reduction program. Addressing multiple pollutants (in addition to bacteria) will require the development and submittal of a Comprehensive Load Reduction Plan (CLRP) by the Phase I MS4s and Caltrans. The CLRP will allow the Phase I MS4s and Caltrans to propose a compliance schedule to address impairments due to loads from multiple pollutants, including bacteria.

Full implementation of the TMDLs for indicator bacteria included under the CLRP for the Chollas HSA watershed shall be completed as soon as possible, but cannot extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs. The proposed compliance schedules for the bacteria TMDLs included under the CLRP must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged. If the CLRP for the Chollas HSA watershed does not include a proposed compliance schedule, specifically for bacteria, the compliance schedule will be as given in Table [*Insert table number*].

[*Insert table number*]. *Alternative Compliance Schedule Chollas Creek*

Compliance Year*	Exceedance Frequency Reduction Milestone**
7	50% for dry weather
10	100% for dry weather 50% for wet weather
20	100% for wet weather

* Year after effective date for the TMDL that initiated the development of the CLRP.
** The Regional Board may also include additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

Likewise, dischargers in other bacteria-impaired watersheds may also find that undertaking concurrent load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, is more cost effective, and has fewer potential environmental impacts from structural BMP construction. In these cases, the dischargers may develop and submit a CLRP for all constituents of concern in lieu of the BLRP, and to propose an appropriately tailored alternative compliance schedule. Proposed alternative compliance schedules tailored under this provision may not extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board.

[78] As described in *Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay*, adopted under Resolution No. R9-2007-0043, and *Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, adopted under Resolution No. R9-2002-0123.

If appropriate and acceptable to the Regional Board, the proposed alternative compliance schedules included in the CLRPs will be incorporated into the various TMDL implementing orders. Otherwise, the alternative compliance schedule given above as an example for Chollas Creek will be implemented for a CLRP that is developed for any other watershed.

(k) TMDL Implementation Milestones

Accomplishing the goals of the implementation plan will be achieved by cooperative participation from all responsible parties, including the San Diego Water Board. Major milestones are described in Table [*Insert table number*].

[*Insert table number*]. *TMDL Implementation Milestones*

Item	Implementation Action	Responsible Parties	Date
1	Obtain approval of Beaches and Creeks Indicator Bacteria TMDLs from the State Water Board, OAL, and USEPA.	San Diego Water Board	Effective date[a] [Insert Date of OAL Approval]
2	Issue investigative orders to Phase I MS4s and Caltrans requiring the development and submittal of BLRPs or CLRPs acceptable to the Regional Board within 18 months of effective date	San Diego Water Board	As soon as possible (if necessary)
3	Issue, reissue, or revise general WDRs and NPDES requirements for the Phase I MS4s to incorporate the requirements for complying with the TMDLs and MS4 WLAs.	San Diego Water Board	Within 5 years of effective date[b]
4	Issue, reissue, or revise general WDRs and NPDES requirements for Caltrans to incorporate the requirements for complying with the TMDLs and Caltrans WLAs.	San Diego Water Board, State Water Board	Within 5 years of effective date[b]
5	Issue, reissue, or revise the WDRs and NPDES requirements for POTWs and wastewater collection systems to incorporate new requirements for sewer line surveillance and maintenance, consistent with the zero WLA.	San Diego Water Board	Within 5 years of effective date[b]
6	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	5 years after effective date[b]
7	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	5 years after effective date[b]
8	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	6 years after effective date[b]
9	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	6 years after effective date[b]

Item	Implementation Action	Responsible Parties	Date
10	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	7 years after effective date[b]
11	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	7 years after effective date[b]
12	Meet 100% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	10 years after effective date[b,c]
13	Meet 100% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	10 to 20 years after effective date[b,c]
14	Amend discharge conditions of appropriate waivers to be consistent with the requirements for complying with the TMDLs and Agriculture LAs.	San Diego Water Board	As needed after effective date
15	Issue individual or general WDRs or Basin Plan prohibitions consistent with the TMDLs and LAs for controllable nonpoint source discharges not eligible conditional waivers.	San Diego Water Board	As needed after effective date
16	Submit BLRP or CLRP Progress Reports to San Diego Water Board	Phase I MS4s, Caltrans	In accordance with BLRPs or CLRPs accepted by the Regional Board
17	Enroll Phase II MS4s identified as significant sources of bacteria to receiving waters under State Water Board general WDRs and NPDES requirements.	San Diego Water Board	As needed after effective date
18	Issue individual or general WDRs and NPDES requirements consistent with the TMDLs and WLAs for specific Phase II MS4s or category of Phase II MS4s.	San Diego Water Board	As needed after effective date
19	Take enforcement actions against controllable point sources and nonpoint sources to attain compliance with the WLAs and LAs.	San Diego Water Board	As needed after effective date
20	Recommend TMDL-related projects as high priority for grant funds.	San Diego Water Board	As needed after effective date
21	Amend the Basin Plan and/or provisions of these TMDLs (e.g., usage frequency or creeks or watershed-specific allowable exceedance frequency) based on evidence provided by dischargers and/or other entities	San Diego Water Board, Municipal Dischargers, Caltrans, Agriculture/Livestock Dischargers	As needed after effective date

[a] Effective date = date of approval by OAL

[b] May defer to alternative compliance schedule proposed in BLRPs or CLRPs that have been incorporated into implementing orders (e.g., WDRs, cleanup and abatement orders)

[c] Compliance schedules for dry weather and wet weather TMDLs proposed in BLRPs cannot extend beyond 10 years from the effective date. Compliance schedules proposed in CLRPs for dry weather TMDLs cannot extend beyond 10 years and for wet weather TMDLs cannot extend beyond 20 years from the effective date.