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STATE WATER RESOURCES CONTROL BOARD BOARD MEETING SESSION – DIVISION OF WATER QUALITY (DATE(S) OF MEETING) - TBD

ITEM

SUBJECT

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

DISCUSSION

On February 10, 2010 the San Diego Water Quality Control Board (San Diego Water Board) adopted Resolution No. R9-2010-0001 ([Attachment](#)) amending the Basin Plan to incorporate the revised TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek).

Impairment

Twenty (20) water bodies (12 segments of the Pacific Ocean shoreline, two creek mouths, and six creeks) in the San Diego Region were placed on the 2002 303(d) List because levels of total Coliform, fecal Coliform, and/or enterococci at those locations exceeded the REC-1 Water Quality Objectives (WQOs). The 2002 and 2006 Clean Water Act 303(d) Lists included various water bodies listed for bacteria. This Revised Bacteria TMDLs Project I addresses the following bacteria-impaired water bodies: San Joaquin Hills Hydrologic subarea (HSA) (901.11), Laguna Beach HSA (901.12), Aliso HSA (901.13), Dana Point HSA (901.27), San Clemente Hydrologic Area (HA) (901.30), San Luis Rey Hydrologic Unit (HU) (903.00), San Marcos HA (904.50), San Dieguito HU (905.00), Miramar Reservoir HA (906.10), Scripps HA (906.30), Tecolote HA (906.50), Mission San Diego HSA (907.11), Santee HSA (907.12), and Chollas HSA (908.22) This document will henceforth refer to these collectively as “the 20 Beaches and Creeks.”

The 20 beaches and creeks addressed by this revised TMDLs project are located within or hydraulically downstream of five watersheds in Orange County (with a small portion in Riverside County) and eight watersheds in San Diego County. Most of the waterways flow directly to the Pacific Ocean, except Tecolote Creek, which flows to Mission Bay, and Chollas Creek which flows to San Diego Bay. The combined watersheds cover roughly 1,740 square miles (4,500 square kilometers).

Bacteria densities in these water bodies have historically exceeded the numeric water quality objectives (WQOs) for total coliform, fecal coliform, and/or *Enterococcus* indicator bacteria. These exceedances threaten or impair the water contact recreation (REC-1) and non-water contact recreation (REC-2) beneficial uses of these water bodies.

Sources

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 flows and wet weather flows. They are

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then 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 treatments 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; and Open Space, Water, and Transitional (Construction Activities). In the 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.

Targets and TMDL Allocations

The amendment establishes a numeric target equal to the Basin Plan water quality objectives for the protection of the water contact recreation beneficial use. The numeric targets used to develop the TMDLs are:

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 100ml for more than 10 percent of the total samples during any 30-day period.

Enterococci and E.Coli Water Quality Objectives for Contact Recreation were based on the USEPA published *E. Coli* and enterococci bacteriological criteria applicable to waters designated for contact recreation (REC-1) which are listed in the following Table:

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

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

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Total Coliform Water Quality Objective for Contact Recreation for Bays and Estuaries are as follows: *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 100ml (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 100ml (100 organisms per ml).

These objectives are generally based on an acceptable health risk for recreation waters of 19 illnesses per 1,000 exposed individuals as set forth by the U.S. EPA. The bacteria WQOs apply throughout the year.

Because the bacteria WQOs are expressed in numeric terms, the numeric targets used in the technical TMDL analysis were based on the numeric WQOs for bacteria for the REC-1 beneficial use. Different dry weather and wet weather numeric targets were used for mass load calculations, because the bacteria transport mechanisms to receiving waters are different under wet and dry weather conditions. The single sample maximum WQOs were appropriate for use as wet weather numeric targets since wet weather conditions are episodic and short in duration. They are also characterized by rapid wash-off and transport of high bacteria loads, with short residence times from all land use types to receiving waters. The geometric mean WQOs were appropriate for use as dry weather numeric targets because dry weather runoff is not generated from storm flows, is not uniformly linked to every land use, and is more uniform than storm flow, with lower flows, lower loads, and slower transport, making die-off and/or amplification processes more important.

Prohibitions

Water Boards may specify certain conditions or areas where the discharge of waste, or certain types of waste, is not permitted. California Water Code section 13243. These are known as “waste discharge prohibitions.” Waste discharge prohibitions can apply to any controllable sources, including both point- and nonpoint sources which may be discharged to groundwater or surface waters. Basin Plan waste discharge prohibitions listed in Section 4 (page 4-20) that are applicable to the implementation of these TMDLs include:

- 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.
- 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 San Diego Water Board.
- Any discharge to a storm water conveyance system that is not composed entirely of “storm water” is prohibited unless authorized by the San Diego Water Board.
- The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

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Implementation

The TMDLs will be implemented primarily through the revision of the National Pollutant Discharge Elimination System (NPDES) permits that regulate discharges from the Phase I MS4s. The basis for this approach is that the Phase I MS4s are located at the base of the watersheds, and have been identified as the most significant controllable source of bacteria discharging into the receiving waters. The Phase I MS4s and 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 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. 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 wasteload allocations (CFR 40 Section 122.44(d)(1)(vii)(B)). WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored best management practices (BMPs). CFR 40 Section 122.44(k)(2)&(3). 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 Phase I MS4s and Caltrans 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 Phase I MS4s and Caltrans 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.

For these indicator bacteria TMDLs, the reference system and antidegradation approach (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 that of the reference system in a particular location, no degradation of existing bacteriological water quality is permitted.

Evaluation

Full implementation of the TMDLs for indicator bacteria must be completed within 10 to 20 years from the date the TMDLs are approved by the Office of Administrative Law (OAL).

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the date the TMDLs are approved by OAL. 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 after the OAL approval 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 date of OAL approval. The dry weather TMDL

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compliance schedule cannot be extended to be more than 10 years from the date of OAL approval.

Agricultural Costs & Sources of Financing

Costs for purchase and maintenance of Management Practices (MPs) varies not only by the type of MP needed, but also for the cost of a specific MP depending upon the type and number of livestock, the number of acres for runoff to filter, and the physiography of the acreage. The costs reported in Table R-4 located in Appendix R page R-82 of the amendment, are based on actual MPs that have been funded through the Farm Bill Environmental Quality Incentives Program (EQIP) in San Diego County from 2004 to 2006.

Considering that Waste Discharge Requirements (WDRs) and the San Diego Water Board's Waiver Policy already require animal feeding operations to conform with regulations that prevent pollutants from being discharged to waters of the U.S., additional costs to install MPs should not be needed for existing facilities, and therefore are estimated to be \$0. However, new facilities, or facilities out of compliance, will be required to install the appropriate MPs to meet the conditions in the WDRs and Waiver Policy, and will have a start up cost ranging from \$40,000 to \$100,000 for poultry, and \$3,000 to \$50,000 for equestrian facilities (which generally have many fewer animals than poultry farms and dairies in the San Diego Region). Average start up costs for dairy MPs can range from \$50,000 to \$200,000, depending upon the number of cows. The sheer volume of manure generated at the larger dairy operations requires more ambitious and effective MPs ranging in cost from \$100,000 to \$500,000. These MPs include composting, solid/liquid waste separation facilities, or anaerobic digestion. To reduce individual operator expenses, these more expensive MP facilities can be shared among dairy operators.

When manure is transferred from an animal feeding operation to be used as fertilizer for crops, then runoff from these fields that contribute to bacterial loading must be considered for MPs. MPs for fields with manure application may include upgrades or installation of new irrigation equipment, and filter or buffer strips. Prices listed in Table R-5 for irrigation systems are for a complete system, and will be less for upgrading a system already in place. Costs for MPs per site range from \$5,000 to \$50,000, assuming an irrigation system will not need to be completely replaced.

The most prevalent source of funding for agricultural MPs is the funding associated with the Farm Bill EQIP. These funds can be obtained through the USDA Natural Resources Conservation Service (NRCS) Office. For the San Diego Region, the local NRCS Field Office is located at 332 S. Juniper St., Suite 110, Escondido, CA 92025. Upon review and approval of a project, the NRCS will authorize payment for up to 50 percent of the estimated costs for purchasing and installing agricultural MPs.

Other sources of funding are administered by the State Water Board, which receives funding, through the U.S. EPA, for Federal CWA section 319(h) programs, and from the state's Proposition 13 program.

POLICY ISSUE

Should the State Water Board approve the amendment to the Basin Plan to incorporate the revised Total Maximum Daily Loads (TMDLs) for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)?

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FISCAL IMPACT

San Diego Water Board and State Water Board staff work associated with or resulting from this action will be addressed with existing and future budgeted resources.

REGIONAL BOARD IMPACT

Yes, approval of this resolution will amend the San Diego Water Board's Basin Plan.

STAFF RECOMMENDATION

That the State Water Board:

1. Approves the amendment to the Basin Plan adopted under San Diego Water Board Resolution No. R9-2010-0001.
2. Authorizes the Executive Director or designee to submit the amendment adopted under San Diego Water Board Resolution No. R9-2010-0001, as approved and the administrative record for this action to the OAL and the TMDLs to the U.S. Environmental Protection Agency for approval.

State Water Board action on this item will assist the Water Boards in reaching Goal 1 of the Strategic Plan Update: 2008-2012 to implement strategies to fully support the beneficial uses for all 2006-listed water bodies by 2030. In particular, approval of this item will assist in fulfilling Action 1 to prepare, adopt, and take steps to carry out Total Maximum Daily Loads (TMDLs), designed to meet water quality standards, for all impaired water bodies on the 2006 list.

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STATE WATER RESOURCES CONTROL BOARD RESOLUTION NO. 2010-

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

WHEREAS:

1. On February 10, 2010, the San Diego Regional Water Quality Control Board (San Diego Water Board) adopted Resolution No. R9-2010-0001 ([Attachment 1](#)) amending the Basin Plan to incorporate the revised TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).
2. The San Diego Water Board found that the analysis contained in the California Environmental Quality Act (CEQA) “substitute documentation” for the proposed Basin Plan amendment, including the CEQA Checklist, the staff report, and the responses to comments complies with the requirements of the State Water Board’s certified regulatory CEQA process, as set forth in the California Code of Regulations, Title 23, section 3775 et seq.
3. The San Diego Water Board found the Basin Plan amendment is consistent with the Statement of Policy with Respect to Maintaining High Quality of Waters in California ([State Water Board Resolution No. 68-16](#)) and the federal Antidegradation Policy (40 CFR section 131.12).
4. The State Water Board found that the Basin Plan amendment is in conformance with Water Code section 13240, which specifies that Regional Water Quality Control Boards may revise Basin Plans, and section 13242, which requires a program of implementation of water quality objectives. The State Water Board also finds that the TMDL as reflected in the Basin Plan amendment is consistent with the requirements of federal Clean Water Act section 303(d).
5. A Basin Plan amendment does not become effective until approved by the State Water Board and until the regulatory provisions are approved by the Office of Administrative Law (OAL). The TMDL must also receive approval from the U.S. Environmental Protection Agency (U.S. EPA).

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THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Approves the amendment to the Basin Plan adopted under San Diego Water Board Resolution No. R9-2010-0001.
2. Authorizes the Executive Director or designee to submit the amendment adopted under San Diego Water Board Resolution No. R9-2010-0001 to OAL for approval of the regulatory provisions and to USEPA for approval of the TMDL.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on (TBD).

Jeanine Townsend
Clerk to the Board