



SAN DIEGO REGIONAL
WATER QUALITY CONTROL BOARD

CLEAN WATER ACT
SECTIONS 305(b) AND 303(d)
INTEGRATED REPORT
FOR THE SAN DIEGO REGION

DRAFT FINAL STAFF REPORT

August 2009



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



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**CLEAN WATER ACT SECTIONS 305(b) AND 303(d)
INTEGRATED REPORT FOR THE SAN DIEGO REGION**

Draft Final Staff Report, August 2009

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ACKNOWLEDGEMENTS

Numerous individuals provided valuable input and support in the development of this report. Shakoora Azimi-Gaylon, Jeffrey Shu, and Nancy Kapellas at the State Water Resources Control Board reviewed draft assessments and coordinated the statewide efforts. A number of stakeholders in the Region provided valuable comments on the public review draft of this report. Credit is also given to all the individuals whose long hours of sample collection, laboratory work and report preparation provided the data and information used as the basis for this report.

San Diego Water Board staff who were invaluable to this project, include: Lesley Dobalian, Phil Hammer, Craig Carlisle, Elizabeth Dorantes, Zach Vickers, and Cathryn Henning.

EXECUTIVE SUMMARY

This Integrated Report includes the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) recommendations for changes to both the Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Waterbodies, and CWA Section 305(b) report on the water quality of waterbodies within the San Diego Region.

The Introduction provides the context and purpose of this report, and an overview of the approach used to determine the status of each waterbody. In addition, it describes the public process that will be used to finalize the Integrated Report, including adoption of the proposed changes to the 303(d) list. The remainder of the report describes data sources used, the water quality objectives and criteria against which data were compared, the methodology used to compare the available data and applicable criteria to assess the water body's attainment of water quality standards and determine potential 303(d) listings, and the methodology used to categorize waterbody segments according to their ability to support the designated beneficial use(s). Following descriptions of the methodologies, the results are briefly summarized and discussed in the text, with detailed results reported in the appendices. Appendix A includes proposed changes to the 303(d) list. Appendices C through G provide lists of waterbodies in each beneficial use support category identified by the Integrated Report. Appendix H presents "fact sheets" for each waterbody-pollutant combination that was analyzed for the proposed 303(d) listing decisions. These fact sheets include a proposed listing decision and at least one "Line of Evidence" (LOE) describing the data and information used as a basis for each proposed decision. Appendix H presents fact sheets and Appendix I describes other miscellaneous changes to the 303(d) list. Appendix J provides citations for all of the references used in developing this Integrated Report. Appendix K provides San Diego Water Board staff responses to written public comments received on the Draft Integrated Report

Water quality data submitted by dischargers regulated by the San Diego Water Board and data provided by outside agencies resulted in significantly more information than was available during the previous updates of the 303d List. Over 271 fact sheets, each assessing a unique waterbody-pollutant combination, were developed during this evaluation. These fact sheets contain over 1944 new LOEs (lines of evidence) and a review of an additional 1425 LOEs from the previous listing cycle. (The number of original and revised decisions in the database is 1568. There are 162 proposed revised 303(d) listings and 116 proposed de-listings. Fifty-seven of the proposed 162 revised 303(d) listings are associated with biodiversity impacts. The large number of revised listings is likely due to the large volume of new water quality data that was available since the

most recent (2006) 303(d) list update, the protective water quality standards applicable to these waterbodies, and the requirements of the Listing Policy¹ to evaluate all readily available data. Therefore, the number of proposed revised listings does not necessarily reflect an overall decrease in water quality since the previous (2006) listing cycle and, but rather, reflects an increase in the amount of water quality data available for consideration.

For the current version of the Integrated Report, 270 waterbody segments were placed into one of five beneficial use support categories based on the evaluation of the available water quality data. The categories and numbers of waterbodies in each category are listed below.

1. All core beneficial uses are supported (no waterbody segments);
2. At least one core beneficial use is supported (81 waterbody segments);
3. Insufficient information to determine if beneficial use is supported (25 waterbody segments);
4. At least one beneficial use is not supported but a TMDL is not needed (2 waterbodies segment)
5. At least one beneficial use is not supported and a TMDL is needed (153 waterbody segments).

The Integrated Report categorizes water bodies according to their ability to support core beneficial uses, including municipal and domestic drinking water supply, aquatic life, fish consumption, shell fish harvesting, contact recreation, and non-contact recreation.

Changes to the 303(d) list for the San Diego Region must be considered for approval by the San Diego Water Board during a public meeting and after consideration of public comments. The updated 303(d) list must be approved by the State Water Resources Control Board as well as the U. S. EPA before becoming final. The Draft Integrated Report was posted in the San Diego Water Board's website on August 31, 2009, and is available for public review and comment. A public notice for the availability of the Draft Integrated Report was also published in the following newspapers: San Diego Union Tribune, Press-Enterprise, and The Orange County Register on September 1, and North County Times on September 3, 2009. The public comment period occurred from the date of public notice of September 1, 2009. The San Diego Water Board staff provided written responses to written public comments received within the comment period. A revised Draft Final Integrated Report, incorporating public comments, will be considered for adoption by the San Diego Water Board during the next available board meeting.

¹ State Water Board, Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, dated September 30, 2004.

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The San Diego Water Board circulated a draft Integrated Report for public review and comment from August 2009 to October 2009, and convened a public hearing during the San Diego Water Board meeting in October 2009 to discuss the Draft Final Integrated Report. Responses to written public comments received within the comment period are included in Appendix K. These public comments resulted in several changes to the updates of the 303(d) list, as proposed in the Draft Integrated Report and discussed in Appendix K. The Draft Final Integrated Report, including revisions to the proposed updates to the 303(d) list, is scheduled to be heard by the San Diego Water Board members on October 14, 2009.

A copy of this draft Integrated Report and all the supporting appendices is available from the San Diego Water Board web site at:
http://www.waterboards.ca.gov/sandiego/water_issues/programs/303d_list/index.shtml

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List of Abbreviations

Basin Plan	Regional Water Quality Control Plan
BPTCP	Bay Protection and Toxic Cleanup Program
CalEPA	California Environmental Protection Agency
CCAMP	Central Coast Ambient Monitoring Program
CCC	Criteria Continuous Concentration
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CFCP	Coastal Fish Contamination Program
CFR	Code of Federal Regulations
CMC	Criteria Maximum Concentration
CSTF	Contaminated Sediment Task Force
CTR	California Toxics Rule
CWA	Clean Water Act
C	degrees Celsius
F	degrees Fahrenheit
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DFG	California Department of Fish and Game
DHS	California Department of Health Services
DO	Dissolved oxygen
dw	dry weight
EDL	Elevated Data Level
ERM	Effects Range Median
HCH	Hexachlorocyclohexane
HSA	Hydrologic Sub Area
HU	Hydrologic Unit
IR	Integrated Report
kg	kilogram(s)
Listing Policy	Water Quality Control Policy for Developing California's Section 303(d) List
LOE	Line of Evidence
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/kg	milligrams per kilogram (parts per million)
mg/L	milligrams per liter (parts per million)
µg/g	micrograms per gram (parts per million)
µg/L	micrograms per liter (parts per billion)
MPN	Most Probable Number
MTBE	Methyl tertiary-butyl ether
MTRL	Maximum Tissue Residue Level
NAS	National Academy of Sciences

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ng/g	nanograms per gram (parts per billion)
ng/L	nanograms per liter (parts per trillion)
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NTU	Nephelometric Turbidity Unit
oc	organic carbon
OEHHA	Office of Environmental Health Hazard Assessment
PAH	Polynuclear aromatic hydrocarbon
PBDE	Polybrominated diphenyl ethers
PCB	Polychlorinated biphenyl
PEL	Probable Effects Level
pg/L	picograms per liter
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBI	Relative Benthic Index
RL	Reporting Level
RWQCB	Regional Water Quality Control Board
SFEI	San Francisco Estuary Institute
SMWP	State Mussel Watch Program
SQG	Sediment quality guideline
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSMP	Toxic Substance Monitoring Program
TSS	Total Suspended Solids
UAA	Use Attainability Analysis
USBR	U.S. Bureau of Reclamation
U. S. EPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirement
WQO	Water quality objective
WQS	Water quality standard
ww	wet weight
WWTP	Waste water treatment plant

INTRODUCTION

The federal Clean Water Act (CWA) gives states the primary responsibility for protecting and restoring water quality. In California, the State Water Resources Control Board and nine Regional Water Quality Control Boards (Water Boards) are the agencies with the primary responsibility for implementing federal Clean Water Act requirements, including developing and implementing programs to achieve water quality standards. Water quality standards include designated beneficial uses of waterbodies, criteria or objectives (numeric or narrative) which are protective of those beneficial uses, and policies to limit the degradation of water bodies. The water quality standards for waterbodies in the San Diego Region are primarily² contained in the Water Quality Control Plan (Basin Plan) for San Diego Region Basin.

Clean Water Act Section 305(b) requires each state to report biennially to the United States Environmental Protection Agency (U. S. EPA) on the water quality condition of its waters. CWA Section 303(d) requires each State to develop, update, and submit biennially to the U. S. EPA a list of waterbodies or segments that are “impaired or threatened” which either do not meet, or not expected to meet, water quality standards. Impaired waterbodies or segments on the 303(d) list must be addressed through the development of TMDLs or by other means as described in the State’s Water Quality Control Policy of Addressing Impaired Waters (SWRCB, 2005).

In conformance with U. S. EPA guidance (U. S. EPA, 2005), the Water Boards are preparing a single state-wide Integrated Report that meets the reporting requirements of CWA sections 303(d) and 305(b). The proposed changes to the 303(d) list (see Appendix A) were developed by the San Diego Water Board staff in conformance with the Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List (Listing Policy, SWRCB, 2004), which describes the requirements for developing the 303(d) List in California. Not all of the Listing Policy requirements are reiterated in this report, but key requirements are mentioned in the context of explaining the methodologies used.

In order to meet CWA Section 305(b) requirements of reporting on the water quality condition of waters, each waterbody segment was assigned to one of five non-overlapping, overall beneficial use-support categories based on the assessment of the available water quality data. For each waterbody segment assessed, a beneficial use support rating of fully supporting, not supporting, or insufficient information is determined for each of six “core” beneficial uses: drinking water supply, aquatic life, fish consumption, shell fishing, contact recreation, and non-contact recreation. Each waterbody segment is then assigned to one of the Integrated Report beneficial use categories below. These categories are based on the U. S. EPA guidance (U. S. EPA, 2005), but contain some modifications based on California’s 303(d) Listing Policy:

² Additional water quality standards applicable to the surface waters in the San Diego Region are contained in the State Board’s Ocean Plan and Thermal Plan, as well as federally promulgated California Toxics Rule (CTR) (U. S. EPA, 2003).

<u>Category</u>	<u>Description</u>
1	Evidence shows all beneficial uses supported.
2	Evidence shows that at least one beneficial use is supported and available information either does not show impairment or is insufficient to determine impairment of other uses.
3	Evidence is insufficient to make use support determinations.
4A.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). A TMDL has been developed and approved by U. S. EPA and is expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4B.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). An existing regulatory program is expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4C.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). Impairment caused by non-pollutant sources. No provision for this exists in California.
5	Evidence shows at least one use not supported (and a TMDL is needed).

Category lists 4A, 4B and 5 represent the 303(d) list of impaired or threatened waterbody segments in the San Diego region, and thus require public review and approval by the San Diego Water Board. Once the changes to the 303(d) list of impaired or threatened waterbody segments in the San Diego Region are approved by the San Diego Water Board, the Integrated Report for the San Diego Region, including proposed changes to the 303(d) list will be submitted to the State Water Resources Control Board (SWRCB). The SWRCB will review and approve changes to the 303(d) list for all Regions and produce a California Integrated Report to be submitted to the U. S. EPA for final approval. California's current 303(d) list was adopted by the SWRCB and the U. S. EPA in 2006.

Assessment Process

The water quality assessment process for 305(b) and 303(d) begins with the evaluation of data collected from the monitoring activities in the region. The monitoring information is critical to understand and protect beneficial uses of water, develop water quality standards, and determine the effect of pollution and pollution prevention programs. Determining the exceedances of water quality standards, objectives, criteria, and guidelines (protective limits) forms the basis of water quality assessment for 303(d) and 305(b). Whether or not these protective limits are exceeded determines a water segment's ability to support its assigned beneficial uses and also determines whether to list, or not list, the pollutant exceeding its protective limits.

DATA AND INFORMATION USED FOR THE ASSESSMENT

The State Water Board solicited data from the public by issuing a formal solicitation notification on December 4, 2006, and again on January 30, 2007. Data were received through December 2007. In addition to the data received during solicitation, other readily available

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data from numerous other sources were assessed for the preparation of this Integrated Report, including the following:

- Data and information supporting the 2006 California CWA Section 303(d) list;
- National Pollutant Discharge Elimination System (NPDES) Program, including storm-water permit monitoring
- Surface Water Ambient Monitoring Program (SWAMP)³
- San Diego Water Board TMDL Program monitoring
- San Diego County Beach monitoring
- Orange County Beach monitoring
- Regional Harbor Monitoring Program Pilot Project 2005-06 and 2006-07

³ More detail on the SWAMP water monitoring studies is available on the San Diego Water Board SWAMP website at: <http://www.waterboards.ca.gov/sabdiego/>

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- Cities of Orange County, 2008, Orange County Stormwater Program 2004-2007
- City of Dana Point Public Works Department, 2007, Ocean Bacteriological Data Evaluation for Dana Point HAS
- City of Laguna Beach, 2008, Supporting Data for the Ocean Bacteriological Data Evaluation for City of Laguna Beach, 1999 through 2006
- City of San Diego, 2009, Semi-Annual Report: Addressing Floating Material in Chollas and Paleta Creeks
- County of Orange, 2007, The National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit, Coastal Storm Drain Outfall Program
- County of Orange, 2007, Annual Ocean and Bay Water Quality Report, 2006
- County of San Diego, 2008, Department of Environmental Health, Ocean & Bay Recreational Water Quality Program, 2007, AB 411 monitoring data 1999 – 2007
- County of San Diego Department of Environmental Health. 2007. Department of Environmental Health, Land and Water Quality Division. San Diego County Beach Closure and Advisory Report
- Department of Fish and Game, 2008, Fish and Game IBI Data
- Department of Fish and Game, 2008, Post Fire Study IBI Data
- Orange County Ocean Water Protection Program. 2008. Orange County. 2007.
- Historical Bacteriological Water Quality Data, Riverside County, 2008, Santa Margarita Region Monitoring Annual Report Fiscal Year 2006-2007, Stream Bioassessment Data.
- San Diego County, 2008, Stream Bioassessment Data 2002-2007
- San Diego Regional Water Quality Control Board, 2008, SDRWQCB Bioassessment data 2007
- Weston Solution, Inc., 2008, Rapid Stream Bioassessment Field Sampling
- Others

Data that were considered to be a priority for 303(d) listing review included: indicator bacteria for beaches, the Surface Water Ambient Monitoring Program (SWAMP) data, NPDES storm water program data, and reservoir drinking water assessment data. Staff also reviewed the macroinvertebrate community structure data from streams collected by SWAMP, California Department of Fish and Game, and others. The SWRCB prioritized the SWAMP and beach data. The San Diego Water Board management requested that the other three datasets be made a priority.

Water quality data developed from internal regulatory programs and provided by outside agencies resulted in significantly more information than was available during previous 303(d) list updates. The individual “fact sheets” (described below) for each assessed waterbody segment-pollutant combination contain specific references to the data upon which each proposed 303(d) listing decision is based. The electronic versions of these fact sheets⁴ also contain Internet links to the files and documents containing the actual data and information used.

Data Processing and Analysis

⁴ See Appendix H of this Integrated Report.

This section provides a description of the process for development of Lines of Evidence (LOEs), the contents of the LOEs, and the standards and evaluation guidelines used to determine the categories of water segments.

Data Processing

All readily available data and information in the administrative record was considered in the development of the 2008 Integrated Report. Four San Diego Water Board staff developed LOEs in the State's California Water Quality Assessment (CalWQA) database that summarized the available data and information, and used these LOEs to make 303(d) listing decisions and overall beneficial use support ratings.

Contents of the LOEs

LOEs contain an assessment of available data. An assessment can either be of numeric or narrative data. LOEs are entered into the CalWQA database and contain specific information that is used to determine if water quality standards for that water segment-pollutant combination are being met. This specific information includes the beneficial use(s) impacted; the pollutant name(s) pertaining to that water segment and data; the water quality objective (WQO), criterion (WQC) or guideline used to assess the data; detailed information specific to that data; how the data were assessed including the type of data, the total number of samples assessed and those samples that exceeded the WQO, WQC or guideline; where and when the monitoring occurred; and references on the sources of the data.

Analysis

Analysis begins when the pollutant sampling results, described in the LOE, are compared with the pollutant's water quality standards, criteria, objectives and guidelines that were developed to protect water quality. Results of this comparison, in terms of numbers of exceedances, and beneficial use being evaluated in this comparison, are recorded in the LOE.

Standards Used in the Analysis

Standards used include applicable water quality objectives or water quality criteria; and, for interpretation of narrative water quality objectives, the evaluation guidelines are identified and used in data analysis.

WATER QUALITY OBJECTIVES, CRITERIA AND GUIDELINES USED TO ASSESS ATTAINMENT OF WATER QUALITY STANDARDS

The development of the 303(d)/305(b) Integrated Report, includes readily available water quality data compared to water quality objectives established in federal and state legal documents, including the following:

- Water Quality Control Plan for the San Diego Basin (Basin Plan)
- Maximum Contaminant Levels (MCLs) promulgated by the California Department of Public Health or US EPA, whichever is more stringent

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- California Toxics Rule (CTR) Criteria
- California State Water Resources Control Board, 2006, Water Quality Control Plan Ocean Waters of California (Ocean Plan)

For pollutants without numeric water quality objectives, MCLs or CTR Criteria, “evaluation guidelines” were used to interpret the Basin Plan’s narrative objectives in accordance with Section 6.1.3 of the Listing Policy, which states:

“Narrative water quality objectives shall be evaluated using evaluation guidelines. When evaluating narrative water quality objectives or beneficial use protection, RWQCBs and SWRCB shall identify evaluation guidelines... (that) ...may be used if it can be demonstrated that the evaluation guideline is:

- *Applicable to the beneficial use*
- *Protective of the beneficial use*
- *Linked to the pollutant under consideration*
- *Scientifically-based and peer reviewed*
- *Well described*
- *Identifies a range above which impacts occur and below which no or few impacts are predicted. For non-threshold chemicals, risk levels shall be consistent with comparable water quality objectives or water quality criteria.*

RWQCBs shall assess the appropriateness of the guideline in the hydrographic unit. Justification for the alternate evaluation guidelines shall be referenced in the waterbody fact sheet” (SWRCB, 2004).

For screening and assessing data for potential 303(d) list changes, evaluation guidelines were selected that provide adequate protection to the most sensitive designated beneficial use, which is consistent with the Listing Policy. The evaluation guidelines used include the following:

- U. S. EPA’s Ambient Water Quality Criteria for Bacteria (U. S. EPA, 1986)
- OEHHA fish contaminant guidelines (OEHHA 1998, OEHHA 2008)
- For ammonia, the U. S. EPA ambient freshwater aquatic life criteria were used.
- For salt, the low-end value (900 uS/cm) of the Secondary Drinking Water MCL range (900 uS/cm – 1600 uS/cm) was used.
- For temperature, sections 3.2 and 6.1.5.9 of the Listing Policy were followed. Temperature criteria developed by U. S. EPA Region 10, Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards (U. S. EPA, 2003), were used as evaluation guidelines. Information available on current water temperature conditions and information on historic use of the waters by salmon and steelhead were used to develop proposed 303(d) list changes.
- For bacteria, section 3.3 of the Listing Policy was followed. Water quality criteria for bacteria were from the California Ocean Plan (SWRCB, 2005), they are expressed in two forms: Single Sample Maximum and Geometric Mean. Three indicator bacteria

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(Total Coliform, Fecal Coliform and Enterococcus) were evaluated for beneficial uses of Shellfish Harvesting, Contact Water Recreation, and Non-contact Water Recreation.

- U.S. EPA, 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition, October 2002
- United State Environmental Protection Agency, 2006, Fact Sheet: Final Recommended Aquatic Life Ambient Water Quality Criteria for Diazinon
- Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments
- Peter R. Ode, Andrew C. Rehn, and Jason T May. 2005. Environmental Management Volume 35, No. 1, pp. 1-13. A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams.
- Toxicity – SWAMP data was evaluated according to SWAMP toxicity guidelines. Other toxicity data evaluated with guidelines in the Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego, the San Diego Unified Port District, and the San Diego County Regional Airport. Order No. R9-2007-0001.

DEVELOPMENT OF THE PROPOSED 303(D) LIST CHANGES

Pollutant water segment listing decisions and beneficial use support ratings are determined and developed in the CalWQA database. These decisions are created by summarizing all relevant LOEs for a water segment pollutant combination and, based on the Listing Policy, determine if the number of exceedances constitute listings.

2008 303(d) Listing Decisions in the San Diego Region

Available data were evaluated for quality control and suitability for use. Data of acceptable quality were used to assess water quality in associated waterbodies, and waterbody-pollutant combinations were developed to determine “list” or “de-list” status. Detailed assessments were documented in the “fact sheets” and each source of available data and information was considered as one line of evidence (LOE) in the fact sheets.

All of the fact sheet information and beneficial use support ratings for assessed California waterbodies are stored in the Water Boards’ California Water Quality Assessment (CalWQA) database. The CalWQA database was developed to store detailed water quality assessment information and to help produce the Integrated Report. The database is designed so that this information can be exported to the U. S. EPA’s Assessment Database at the end of each assessment cycle. The assessment fact sheets (contained in Appendix H), as well as the lists of waterbody segments in each Integrated Report category (contained in Appendices C through G), were produced directly from the report functions of the CalWQA database. The electronic versions of the CalWQA fact sheets contain Internet links to the water quality objectives and evaluation guideline documents, and to the documents containing the water quality data and information for each assessed waterbody segment.

For the purposes of meeting SWAMP program goals, all available SWAMP data were evaluated by San Diego Water Board staff. Fact sheets were developed for contaminants that had adequate data and established water quality objectives. The bioassessment data were used in evaluating waterbodies for biodiversity impacts. These lines of evidence were associated with pollutant lines of evidence in order to meet the Listing Policy guidelines section 3.9 and 6.1.5.8.

In a letter dated January 31, 2006, the San Diego Water Board suggested revising the delisting recommendation for Mission Bay because individual shoreline segments in Mission Bay should be listing or delisted based on sampling results from those areas rather than clumping all the data together and considering the Bay as a whole. Due to different tidal flushing effect through out the Bay, some shoreline segments consistently meet water quality objective, while other areas are routinely in violation of water quality objectives. The State Board agreed to this approach, but did not have the time or resources to make the changes in 2006. Mission Bay and other coastal segments were separated individually according to sampling stations for bacteria assessment. In the 2008 303(d) listing cycle, previously defined shorelines have been split into smaller coastal segments. These segments are now represented as an estimated size of 50 yards (25 yards either side of the sample station location). The 50 yard representation is based on recommendations from the Beach Water Quality Workgroup and are estimates that

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can be modified if additional monitoring or TMDL work identify more or less of an impacted area.

Data were aggregated by waterbody segment following the requirements of Section 6.1.5.4 of the Listing Policy, and assessments were performed on the individual segments. Waterbodies were segmented to account for hydrologic features, such as major tributaries, and for land use. The segmentation included, at a minimum, the reaches listed in the Basin Plan. Many small waterbodies were not divided into multiple segments.

In most instances, data were assessed using the binomial methodology contained in the Listing Policy (sections 3.1, 3.2, 4.1 and 4.2) to determine the frequency of water quality objective exceedances that would support listing or de-listing decision for an impaired water body segment. In cases where Basin Plan objective, CTR criterion, or other water quality criteria contained an explicit maximum exceedance frequency, these exceedance frequencies were used in addition to the Listing Policy's binomial methodology to assess potential impairments, under Sections 3.11 and 4.11, Situation-Specific Weight of Evidence Listing/Delisting Factors of the Listing Policy. Assessments of bioassessment data used Listing Policy sections 3.2, 3.9, and 6.1.5.8.

Spatial and temporal representation of data was assessed using the requirements and guidance of the Listing Policy. The available data were used to represent concentrations during the averaging period, as required by Section 6.1.5.6 of the Listing Policy. For example, if only one data point were available during a 4-day period, it was used to represent the four-day average concentration for that period.

Proposed 303(d) List Additions and Deletions

Appendix A shows the proposed changes to the 303d list. Additions are shown in bold and de-listings are shown in strikethrough. The rationale for all 303(d) listing/de-listing decisions are documented in "fact sheets" in Appendix H. Over 271 fact sheets were prepared in the development of this Integrated Report, resulting in the proposed 162 revised 303(d) listings (revised waterbody segment/pollutant combinations) and 116 proposed de-listing of waterbody segments. The proposed changes to the 303(d) list also include changes to show that TMDLs have been completed since the 303(d) list was last updated in 2006. In addition to the changes discussed above and shown in Appendix A, some waterbody segments' geographic delineations or names have been revised, as documented in the "Miscellaneous Changes" fact sheets in Appendix I.

For Biodiversity Impacts, sections 3.2, 3.9, and 6.1.5.8 of the Listing Policy were abided. A San Diego Basin Plan objective states that: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the San Diego Water Board (San Diego Basin Plan). Biodiversity impacts are measured by the Index of Biological Integrity (IBI). The IBI is an analytical tool that can be used to assess the biological and physical condition of streams and rivers within a zero to one

hundred scoring range: Very Poor 0-19, Poor 20-39, Fair 40-59, Good 60- 79, Very Good 80-100. An IBI score of 39 was set as an impairment threshold because it is a statistical criterion of two standard deviations below the mean reference site score which defines the boundary between 'fair' and 'poor' IBI creek conditions (Ode, 2005). An IBI score of 39 or less was considered impaired and counted as an exceedance in Calwqa. This IBI criteria is used as an evaluation guideline to develop proposed 303(d) list changes. Revised listings on the 2008 303(d) list for waterbody-pollutant combinations associated with biodiversity impacts are consolidated in a table in the "Miscellaneous Changes" in Appendix I.

TMDL Scheduling

For waterbodies on the 303(d) list identified as needing Total Maximum Daily Loads (TMDLs), completion dates for the TMDLs are proposed and indicated in Appendix A. The proposed TMDL completion date is the year that the TMDL is expected to be brought before the San Diego Water Board for potential adoption. TMDLs with completion dates prior to 2011 already have resources allocated.⁵ Changes to the section 303(d) list in the future could result in substantial changes of the completion dates scheduled later than 2011. TMDLs for listings on the current (2006) 303(d) list are scheduled to be completed no later than 2019. TMDLs for proposed new listings are tentatively scheduled to be completed no later than 2021.

The proposed TMDL completion schedule was developed in compliance with federal law and regulation based on consideration of the criteria in Section 5 of the Listing Policy:

- "Water segment significance (such as importance and extent of beneficial uses, threatened and endangered species concerns, and size of water segment);
- Degree that water quality objectives are not met or beneficial uses are not attained or threatened (such as the severity of the pollution or number of pollutants/stressors of concern) [40 CFR 130.7(b)(4)];
- Degree of impairment;
- Potential threat to human health and the environment;
- Water quality benefits of activities ongoing in the watershed;
- Potential for beneficial use protection and recovery;
- Degree of public concern;
- Availability of funding; and
- Availability of data and information to address the water quality problem."

DETERMINATION OF BENEFICIAL USE SUPPORT AND INTEGRATED REPORT WATERBODY CATEGORIES

To meet CWA Section 305(b) requirements of reporting on water quality conditions, the Integrated Report places each assessed water segment into one of five non-overlapping categories.

⁵ Schedule may be impacted by resource and funding allocation priorities dictated by the State budget and timely allocation of financial resources and approval of contract resources by U.S. EPA.

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ries of water bodies based on the overall beneficial use support of the water segment. These Integrated Report categories below are based on the U. S. EPA guidance for states Integrated Reports, but contain some modifications based on California's 303(d) Listing Policy. For consistency with other Regions in California and other States, water segments are evaluated for at least one of six "core" beneficial uses. Most of the designated beneficial uses in the Basin Plan fit within these six "core" beneficial uses, which include:

1. Drinking Water Supply,
2. Aquatic Life Support,
3. Fish Consumption,
4. Shellfish harvesting,
5. Contact Recreation, and
6. Non-Contact Recreation

For each core beneficial use associated with each waterbody segment, a rating of fully supporting, not supporting, or insufficient information was assigned based on the readily available data and on proposed 303(d) listing decisions. The Integrated Report categories, below, are based on the use support ratings for all assessed core beneficial uses.

<u>Category</u>	<u>Description</u>
1.	Evidence shows all core uses supported.
2.	Evidence shows that at least one core use is supported and available information either does not show impairment or is insufficient to determine impairment of other uses.
3.	Evidence is insufficient to make use support determinations.
4A.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). A TMDL has been developed and approved by U. S. EPA and is expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4B.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). An existing regulatory program is expected to result in the attainment of the water quality standard within a reasonable, specified time frame.
4C.	Evidence shows at least one use not supported (but a Total Maximum Daily Load (TMDL) is not needed). Impairment caused by non-pollutant sources. No provision for this exists in California.
5.	Evidence shows at least one use not supported (and a TMDL is needed). Waterbody segments in this category are included on the 303(d) list submitted to U.S. EPA.

If a waterbody segment is currently or proposed to be listed on the 303(d) list, then the beneficial use(s) impacted by exceedance of water quality standards are considered not fully attained, and the waterbody is put into either Category 5 requiring TMDL(s), or Categories 4A, 4B, or 4C, where TMDLs have been developed or are not required. Categories 1, 2, or 3 contain waterbody segments that are not listed or are not proposed for listing for impairment under 303(d). Relatively few water bodies were identified as fully supporting all beneficial uses because there was insufficient information to evaluate attainment of all beneficial uses for most water bodies. This conservative approach prevents waterbodies with insufficient data

from being classified as fully attaining standards, thus providing a more accurate baseline for future assessments.

Based on the approach described above, the number of San Diego Region waterbody segments in each beneficial use support category are summarized as follows:

Table 1. Number of Waterbody Segments per Support Category.

BU Support Category	Description	Number of Waterbody Segments
1	All core uses supported	0
2	No documented impairment and at least one core beneficial use is attained	81
3	Waterbody impaired, but lacked adequate data to determine full attainment of one or more beneficial uses	25
4A	Waterbody listed as impaired, but already have TMDLs	1
4B	Existing regulatory program reasonably expected to result in attainment of water quality standard	1
4C	Impairment caused by non-pollutant sources.	0
5	At least one BU not supported and requires TMDL	153

The 2008 303(d) listing cycle is the first time that the Water Boards have prepared an Integrated 303(d)/305(b) Report under the current Listing Policy and U. S. EPA Integrated Report Guidance. Combining the 303(d) list update with the 305(b) Report adds efficiency and supports consistency, but provides challenges in terms of workload, project management, and level of detail. The readily available data are also often biased towards areas with more potential discharges of wastes, since these areas are where the bulk of the monitoring activity takes place. For these reasons, the number of waterbody segments in each Integrated Report category is not necessarily a representative sampling of all the waterbodies within the San Diego Region. Despite the limitations discussed above, this Integrated Report provides the most complete 305(b) report to date for the San Diego Region. The Water Boards' approach will continue to be refined in future Integrated Reports.

REFERENCES

For a complete list of references used in all the assessment fact sheets, see Appendix J.

- California Regional Water Quality Control Board, San Diego Region (CRWQCB-CVR). 2004. The Water Quality Control Plan (Basin Plan) for The Tulare Lake Basin. Second Edition. CRWQCB-CVR. Rancho Cordova, CA.
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