Final Draft

Clean Water Act Section 303(d) List of Impaired Waters

2002 Update

California Regional Water Quality Control Board

San Diego Region

March 8, 2002

Board Members of the California Regional Water Quality Control Board, San Diego Region have not approved this document

Draft Clean Water Act Section 303(d) List of Impaired Waters

2002 Update

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Dedication

This update to the
Clean Water Act Section 303(d) List of Impaired Waters
is dedicated to the memory of

Greig Peters

His knowledge, wisdom and passion for our Region's waters were instrumental in preparing this and many past updates to the 303(d) list.

He is deeply missed as a scientist, advocate for the environment and friend to many.

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Executive Summary

A summary of the recommended additions and modifications resulting from the 2002 update to the Section 303(d) list can be found in Table 3.

Section 303(d) of the federal Clean Water Act requires States to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." Once listed, Section 303(d) mandates prioritization and development of a Total Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

The Section 303(d) list of impaired waters is to be updated every two years and submitted to the United States Environmental Protection Agency (USEPA) for approval. This report contains the draft 2002 update to the list of impaired waters and the listing methodologies for the California Regional Water Quality Control Board, San Diego Region (Regional Board). The current Section 303(d) list of impaired waterbodies was developed in 1998. The San Diego Region is listed for 34 waterbodies and 22 different types of pollutants.

Staff evaluated 58 unique sets of data and information received from public solicitation, other governmental agencies and from sources within the Regional Board. Analysis was generally limited to data for the period of July 1997 to May 15, 2001. In making listing decisions, staff utilized general guidelines developed in 1998 (ad hoc workgroup, 1997) for the 303(d) listing process in California. However, no prescriptive or rigid criteria were used in evaluating the data. In general, a weight of evidence approach was utilized to support each listing. Waterbodies and pollutants were only listed if conclusive evidence exists to show violation of the applicable water quality objectives. A waterbody listing was defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. The current draft list update recommends the addition of 18 new waterbodies and 9 new pollutants. Also recommended is the addition of 5 new pollutants to previously listed waterbodies and the change in the extent of impairment for 18 previously listed waterbodies. Combining the 1998 and draft 2002 list produces 51

listed waterbodies with 30 unique pollutants. One de-listing is recommended. The combined list of waterbodies can be found in Table 4.

For the 2002 listing update, the State Water Resources Control Board (State Board) will formulate and adopt a single statewide list of impaired waters. Regional Boards have solicited and analyzed data and made recommendations to the State Board. The 2002 draft list was presented to the Regional Board members on October 24, 2001 as an informational item only. No formal action was required or taken. The draft list was submitted to the State Board at the end of October. The Regional Board held an informational public workshop on December 5, 2001. On a regional level, public comments were accepted and considered. Numerous revisions were made to the October draft list as a result of further data review and public comments. Noteworthy changes include the de-listing of beaches along the ocean shoreline of Coronado, the modification of criteria used for listing beach and bay shorelines for bacterial contamination and consideration of the temporal component of many water quality objectives. The remaining changes were minor and primarily add clarity. The revised draft list, dated March 2002, will be sent to members of the Regional Board and to the State Board. This final draft version has considered all public comments to date, which include written comments as well as comments received at the public workshop.

Changes and updates can continue to be made and forwarded to the State Board through the formal review period. In the winter and spring of 2002, the State Board will be addressing public comments, conducting a public workshop(s) and conducting formal Public Hearings on the single, statewide list of impaired waters. In early spring, the State Board will consider adopting the statewide Clean Water Act Section 303(d) list of impaired waters. The adopted list will be submitted to USEPA in the form of the State's biennial report on water quality.

Introduction

A summary of the recommended additions and modifications resulting from the 2002 update to the Section 303(d) list can be found in Table 3.

Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits and thus, are considered "impaired." States are required to compile this information into a list and submit it to the United States Environmental Protection Agency (USEPA) for review and approval. This list is known as the Clean Water Act Section 303(d) list of impaired waterbodies. Section 303(d) of the Act establishes the total maximum daily load (TMDL) process to provide more stringent water quality-based controls when technology-based controls are inadequate to achieve State water quality standards. As part of the listing process, the impaired waterbodies are prioritized for subsequent development of TMDLs. A TMDL is a tool for attaining state water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions of impaired waterbodies. The TMDL establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for States to establish water quality-based controls. These controls should provide the pollution reduction necessary for a waterbody to meet water quality standards.

For the 2002 listing update, the State Water Resources Control Board (State Board) will formulate a single statewide list of impaired waters. Regional Boards solicited and analyzed data and made recommendations to the State Board. On October 24, 2001 Regional Board members were presented the draft Section 303(d) list of impaired waters as an informational item only. No formal action was required or taken. The draft list was submitted to the State Board at the end of October. On a regional level, public comments were accepted and considered. Numerous revisions were made to the October draft list as a result of further data review and public comments. Noteworthy changes include the de-listing of beaches along the ocean shoreline of Coronado, the modification of criteria used for listing beach and bay shorelines for bacterial contamination and consideration of the temporal component of many water quality objectives. The remaining changes were minor and primarily add clarity. The revised draft list, dated March 2002, will be sent to members of the Regional Board and to the State Board. This final draft version has considered all public comments to date, which

include written comments as well as comments received at the public workshop. Changes and updates can continue to be made and forwarded to the State Board through the formal review period. In the winter and spring of 2002, the State Board will be addressing public comments, conducting a public workshop(s) and conducting formal Public Hearings on the single, statewide list of impaired waters. In early spring, the State Board will consider adopting the statewide Clean Water Act Section 303(d) list of impaired waters. The adopted list will be submitted to USEPA in the form of the State's biennial report on water quality.

There has been increased public attention and scrutiny of water quality assessment and of the 303(d) listing process since the 1990's. Therefore, sufficient documentation and explanation of the process and rationale used to update this list is an essential component of the process. The California Regional Water Quality Control Board, San Diego Region (Regional Board), on behalf of the State Board, has compiled a draft list of recommendations for updating the Regional Board's 303(d) list of impaired waterbodies. This list includes new listings, modifications to the extents of impairments and one de-listing. The following provides a description of the process that led to these recommendations.

Background

California's current Section 303(d) list of impaired waterbodies was developed in 1998 and contains 509 waterbody/pollutant combinations. There are 34 waterbodies within the San Diego Region currently listed (Table 1). A waterbody listing was defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. For example, the Pacific Ocean Shoreline is listed several times, with each unique listing defined by hydrologic boundaries. If more than one waterbody falls within one hydrologic boundary, the name of the body or segment of water further defines the listing. These waterbodies include 15 areas of Pacific Ocean shoreline, 10 lagoons and estuaries, 6 rivers and creeks, 2 bays and 1 lake (Figure 1). The pollutants causing impairments vary widely and include 21 different types. The most common pollutant / stressor was bacteria. Other common pollutants were nutrients, pesticides, low dissolved oxygen, metals, toxicity, degraded benthic communities and sedimentation.

Evaluation of all readily available data and information, which showed evidence of impairment, was the basis for previous updates to the 303(d) list of impaired

waterbodies. In 1998, this process was based on general listing guidance provided by both USEPA (1997) and the Ad Hoc Workgroup (1997). This same guidance, in addition to other available resources, which includes other regional assessment methodologies, other state listing guidelines, and draft federal guidelines were used in preparing recommendations for the 2002 303(d) list update. These documents offer varying degrees of guidance, but do not provide rigid or prescriptive criteria or methods to develop the current draft list recommendations. Such prescriptive criteria do not currently exist. As discussed in further detail in the methodology section of this report, a weight-of-evidence approach was applied in evaluating the information and making recommendations.

Information/Data Collection

Federal regulations (40 CFR 130.7(a) and (b)) require States to assemble and evaluate all existing and readily available water quality-related data and information when updating their 303(d) list of impaired waterbodies. The Regional Board complied with this requirement in several ways; public solicitation of information and data, compilation of applicable "in-house" information and data, assemblage of other applicable state and federal data/information/studies, and research of other water-quality related studies, projects and/or monitoring efforts completed or ongoing in the Region.

Public Solicitation

The Regional Board initiated its public solicitation for water quality-related data and information on March 7, 2001. A general letter requesting information (Appendix A, Item 1), that would be useful and pertinent to the process, was sent to the entire Regional Board agenda mailing list. This letter provided background on the list update process, an explanation of its purpose, requirements for submittals and contact information for staff working on the project. Also, a notice of the solicitation was published in local papers in each of the three counties within the Region (Appendix A, Item 2). In addition, a web page was added to the Regional Board's website providing the same information (Appendix A, Item 3). The letter and notice included a deadline of May 15, 2001, established by the State Board, to receive submittals. The solicitation also stated that only information and data generated since July 1997 would be considered in the listing process. The State Board also established this deadline as a practical consideration based on the assumption that any earlier data and information would have been reviewed during the preceding list update.

Public Participation

During the solicitation process, the Regional Board conducted two public workshops on April 4 and May 3, 2001. The first workshop was publicly noticed as described above. Approximately fifteen representatives from municipalities, environmental organizations and interested members of the public attended. At the request of members of the industrial community, who did not attend the first workshop, a second workshop was held and was attended by approximately twenty people. The same presentation was given at both workshops. The purpose of these workshops was to encourage interested individuals and parties to submit information and data to be used in updating the impaired waterbodies list and to encourage ongoing submittal of information throughout the year for use in future assessments. Another purpose was to provide information regarding the Regional Board's process in updating the list and the basis for practical deadlines. Finally, the workshops were held to answer questions and receive input from the public in an attempt to improve the list update process.

In addition to the overall process description, schedule, and information request, some of the topics highlighted at the workshops by the Regional Board included:

- State Board preparing the Statewide 303(d) list update based on recommendations provided by the regional boards
- State Board conducting formal public hearings and comment response sessions, as opposed to individual Regional Board hearings
- Allocating more staff and resources to the list update process
- Regional Board's identifying past deficiencies, increasing focus on addressing ambient monitoring needs and expanding the Surface Water Ambient Monitoring Program (SWAMP)
- Intense scrutiny of data validity and evaluation in list update.

Following the Regional Board's informational presentation, the workshop attendees' comments, concerns and discussion revolved around the following:

- Criteria used for listing/de-listing and the need for statewide consistency
- Consequences of listing and TMDL development
- Other, more appropriate and expedient mechanisms for correcting impairments

- Land use planning issues and potential for anticipated impairments
- Coastal impacts and beach closure data
- Increased citizen monitoring efforts and specific locations for focusing their efforts.

Public involvement continued after the Regional Board prepared the draft list of impaired waterbodies. During the week of October 22, 2001, a notice (Appendix A, Item 4) was sent to the Regional Board's agenda mailing list, announcing the posting of the draft 2002 update and a subsequent public workshop to be held on November 29, 2001. The draft list was also posted on the Regional Board's website. The revised draft Clean Water Act Section 303(d) List of Impaired Waters, 2002 Update was presented at the October 24, 2001 Regional Board meeting as a status report / informational item that required no formal Board action. The draft list was submitted to the State Board on October 31, 2001.

On November 5, 2001, a notice was sent to the agenda mailing list announcing a date change to December 5, 2001, for the scheduled public workshop (Appendix A, Item 5). A form was provided for comments, questions, and concerns (Appendix A, Item 6). It was stated that comments received in writing by November 28, 2001 would be given priority at the workshop. On November 27, 2001, a notice to stakeholders was sent in order to bring attention to the recent release of the 303(d) list update (Appendix A, Item 7). This letter urged the public to be involved in the list update process, and again announced the importance of attending the informal public workshop.

The public workshop was held on December 5, 2001, approximately 30 days after the posting of the draft list for pubic review. Approximately 70 people attended. The workshop provided information on the process involved in creation of the Section 303(d) List, the waterbodies and pollutants listed and gave the public a chance to comment on the draft list. The Regional Board specifically addressed each comment received in writing by November 28, 2001 and provided a forum for verbal questions and comments on each topic. Additional written and verbal comments were also received. The workshop was documented on videotape.

The draft list has been appropriately revised due to further data review, public comments and from the public workshop. The revised draft, dated February 2002, reflects all public

comments received to date. The changes will be sent to the SWRCB and are summarized on the accompanying errata sheet. Changes can continue to be made and forwarded to the SWRCB through the formal review period held this winter. All dates pertinent to public involvement can be seen in the Public Participation Timeline (Appendix A, Item 8). All public comments are part of the administrative record.

Role of State Board in Public Process

The State Board will formulate a single, statewide draft Section 303(d) list based on the recommended draft list received from each Regional Board. This winter, the State Board will conduct a full formal public review and comment period, develop written responses to comments, conduct a public workshop(s) and conduct a public hearing(s) at which the State Board will consider adoption of the draft statewide 303(d) list. The statewide list will then be submitted to the USEPA in the form of the State's biennial report on water quality. This information will in turn be submitted by USEPA to the United States Congress.

Governmental Agency Data Request

In addition to the solicitation described above, the Regional Board also researched and contacted local, state and federal agencies to obtain information and data for the list update. Though many of these entities are on the Regional Board's mailing list and therefore received the solicitation letter, they were also directly contacted individually by Regional Board. Agencies and sources contacted/consulted include:

- Department of Pesticides & Regulations
- Department of Toxic Substance Control
- Department of Fish and Game
- Department of Forestry & Fire Protection
- Department of Water Resources
- US Department of Fish & Wildlife Services
- US Geologic Survey Department
- Army Corps of Engineers
- Southern California Coastal Water Research Project
- US Marine Corps Camp Pendleton
- US Navy SPAWAR
- Cities of San Diego, Encinitas and Escondido

- University of San Diego
- San Diego State University

Most of these agencies and/or universities were responsive, although not all had water quality information or data for this Region. A complete list of the data and information received is summarized in Table 2.

Regional Board Data Review

The Regional Board assembled and reviewed many sets of in-house water quality data considered applicable for the 2002 Section 303(d) list update. This included National Pollutant Discharge Elimination System (NPDES) discharge monitoring data. Data from up and downstream receiving waters, collected by the discharger, was reviewed to determine impacts on the waterbody, as opposed to making determinations based on end-of-pipe effluent violations. Regional Board review also included storm water monitoring data submitted annually by city and county agencies within the Region. Finally, special studies conducted either by the State Board or the Regional Board, in conjunction with other agencies or by other agencies, and/or conducted by other groups and then submitted to the Regional Board (e.g. Supplemental Environmental Projects, 319(h) grant projects, etc.) were also reviewed. All reviewed data is listed in Table 2.

Types of Data

As described previously, the federal Clean Water Act mandates that States evaluate all existing and readily available information in updating the list of impaired waterbodies. The Regional Board reviewed physical and chemical water quality parameters. Examples of physical parameters include temperature, turbidity and pH. Chemical parameters assessed include both organic (pesticides, benzene, MTBE, etc.) and inorganic (nitrate, phosphate, metals, etc.). Additionally, aquatic life tissue samples were examined in an effort to detect problematic conditions associated with poor water quality. Data also consisted of non-quantitative items, including photographs, newspaper articles and narrative testimonials. Table 2 contains the complete list of reviewed data and the applicable waterbodies. These data sets were the basis for recommendations for changes to the 1998 Section 303(d) list.

Listing Factors

The general factors used by the Regional Board to recommend additions and changes to the 1998 Section 303(d) list of impaired surface waters within the San Diego Region

are contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (August 11, 1997) (hereafter referred to as "Listing Guidelines"). The Listing Guidelines were developed by an ad hoc workgroup of Regional Board, State Board, and USEPA staff in 1997 and are shown below. The guidelines do not contain specific criteria for listing or de-listing (e.g. minimum number of samples, frequency of exceedances, degree of exceedances, etc.). These guidelines contain only general concepts. Furthermore, no such specific criteria currently exist. The following items were taken into consideration for evaluation / listing purposes:

- Effluent limitations or other pollution control requirements [e.g., Best Management Practices (BMPs)] are not stringent enough to assure protection of beneficial uses and attainment of SWRCB and RWQCB objectives, including those implementing SWRCB Resolution No. 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (1968).
- A fishing, drinking water, or swimming advisory is currently in effect, indicating water quality impairment. This does not apply to violations of existing Waste Discharge Requirements (WDRs) or NPDES permits. In general, adding a waterbody to the Section 303(d) list focuses on impairment of water quality and not on violations of discharge permits. If enforcement actions are currently underway that would eliminate the impairment, the affected waterbody was not placed on the 303(d) list.
- Beneficial uses are impaired or are expected to be impaired within the listing cycle (i.e., in next two years). Impairment is based upon evaluation of chemical, physical, or biological integrity. Qualitative and quantitative assessment of physical/chemical monitoring data, bioassay tests, and/or other biological monitoring will determine impairment. Applicable Federal and State criteria and statewide and Regional Water Quality Control Plans determine the basis for impairment.
- The waterbody is on the previous Section 303(d) List and either: "monitored assessment" continues to demonstrate a violation of objective(s) or "monitored assessment" has not been performed.
- Data indicate tissue concentrations in body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Such criteria or guidelines may include State Board Maximum Tissue Residue Level values, Food and Drug Administration Action Levels, National Academy of Science Guidelines, and United States Environmental Protection Agency (USEPA) tissue criteria for the protection of wildlife.

De-listing Factors

Water bodies may be removed from the list for specific pollutants or stressors if any one of these factors is met:

- Objectives are revised (for example, a site-specific objective is established), and the exceedance is thereby eliminated.
- A beneficial use, which is not an existing use, has been removed or a beneficial use has been de-designated after USEPA approval of a Use Attainability Analysis, and the non-support issue is thereby eliminated.
- Faulty data led to the initial listing. Faulty data includes, but is not limited to typographical errors, improper quality assurance/quality control (QA/QC) procedures, or limitations related to the analytical methods that would lead to an improper conclusion regarding the water quality status of the water body.
- It has been documented that the objectives are being met and beneficial uses are not impaired based upon an evaluation of available monitoring data. This evaluation should discuss foreseeable changes in hydrology, land use, or product use and describe why such changes should not lead to future exceedance.
- A TMDL has been approved by the USEPA for that specific water body and pollutant (40 CFR 130.7(b)(4)).
- There are regulatory control measures in place, which will result in attainment of water quality standards and protection of beneficial uses. Control measures include permits, enforcement orders and Basin Plan requirements, which are enforceable and include a time schedule (see 40 CFR 130.7(b)(1)(iii).

Water Quality Objectives

Regional Board evaluated all readily available information generated after July 1, 1997 and before May 15, 2001 as requested by the State Board, in preparing recommendations to the 2002 Section 303(d) list. When possible, the data was compared against appropriate water quality standards or objectives. Standards and objectives were only applied if appropriate to the beneficial uses designated for that waterbody by the Basin Plan (SDRWQCB, 1994). For example, drinking water standards were only applied to waterbodies designated for Municipal and Domestic Supply. In general, the following hierarchy was used in evaluating data relative to applicable water quality standards or objectives.

- Applicable numeric water quality objectives contained in the Water Quality Control Plan for the San Diego Basin 9 (SDRWQCB, 1994). These values were often site and use specific. This includes maximum contaminant levels (MCLs) for inorganic chemicals, organic chemicals, pesticides and radioactivity set forth in the California Code of Regulations (CCR), Title 22 and for trihalomethanes as set forth in the CCR, Title 40. These MCLs are incorporated by reference in to the Water Quality Control Plan for the San Diego Basin 9 (SDRWQCB, 1994). This incorporation is prospective, and includes future changes to the incorporated provisions as the changes take effect. This incorporation includes both primary and secondary MCLs.
- Water quality objectives contained in the California and National Toxics Rule (Federal Register, 2000). Standards were only applied if applicable beneficial uses were designated by the Basin Plan (SDRWQCB, 1994) for that waterbody.
- Criteria developed by the State Board, including the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, and the California Ocean Plan (SWRCB, 2000; 1997).
- Criteria developed by the USEPA, California Department of Fish and Game, the California Department of Health Services, United States Food and Drug Administration and the National Academy of Science.
- Criteria developed in the California Code of Regulations, Title 17 for bacteriological standards (State of California, 2001).

Narrative water quality objectives are also contained in the Basin Plan and were applied wherever appropriate. Their interpretation and application were assessed on a case by case basis, using a weight of evidence approach and best professional judgement. If no applicable standards or objectives could be found, numeric data was summarized (mean and total number of samples). In cases of photographic or narrative information, the data was reviewed and considered as part of the weight of evidence for that waterbody.

Evaluation Methods

Regional Board reviewed each piece of information and/or data and prepared a summary fact sheet for each data set / waterbody combination. These fact sheets can be found in Appendix B. The Regional Board used a weight of evidence approach,

evaluating all available waterbody-specific data, in recommending changes for the 2002 Section 303(d) list of impaired waterbodies. While one set of data may not have been rigorous enough to show impairment, two or more sets of data showing the some level of impairment may have been sufficient to support Section 303(d) listing. Placing a waterbody on the 303(d) list implied only that sufficient information exists to consider at least one segment of the waterbody to have exceeded objectives for at least one significant period of time. If there is a temporal component to a water quality objective, the time constraint was applied appropriately.

The nature and quantity of the data was a consideration. As previously discussed, there are no specific guidelines or requirements for a minimum number of sampling events, data points or frequency of exceedances to declare a waterbody impaired. These specific criteria do not currently exist. In general, more data was required to interpret environmental results that are specific to time and geography. This type of data would include water chemistry concentrations that describe conditions at a specific time and place. Less data was needed to make a determination based on environmental results that serve as integrators over space or time. This type of data would include pollutant concentrations in aquatic animal tissue that has accumulated over time as the animal has moved about its geographic range. For example, more water column chemistry data was generally needed to determine impairment than fish tissue chemistry data.

When possible, averaging of data was utilized to assess water quality trends over time in comparison to objectives. A mean or median value that exceeded the objective was considered more evident of impairment than individual exceedances. In particular, a median value above the water quality objective would demonstrate that more of the data was above the objective than below. Mean values above water quality objectives were also considered to carry more weight of impairment than individual exceedances.

The degree to which an objective was exceeded was also a consideration. Values that exceeded the objective by orders of magnitude carried more weight than a value just above the objective. If the data that exceeded the water quality objective was barely above the objective, no Section 303(d) listing was recommended. Only if a sufficient percentage of the data were well above the objective, would a listing be considered. Again, no minimum number of samples was required. Section 303(d) listing only

required evidence of impairment for one significant period of time, unless otherwise specified by a temporal component of a water quality objective. What constituted a significant period of time was determined on a case by case basis using best professional judgement while considering the nature of the pollutant, the designated beneficial uses of the waterbody and the overall sensitivity of the receiving water.

The rigor of evidence used to recommend that a waterbody be listed was ultimately a judgement decision by the Regional Board. Each waterbody and pollutant combination was considered on a case-by-case basis by evaluating all evidence pertaining to the situation. Sufficiency of evidence was a judgement decision that was unique to each listing recommendation. The evidence and basis for each listing is contained in Fact Sheets unique to each listed waterbody. These Fact Sheets are in Appendix B.

An example of data evaluation that led to a listing recommendation is found in the evidence of elevated phosphorus concentrations in Cloverdale Creek. Data was received from the City of San Diego's water quality lab and deemed to be reliable. Eight data points were reviewed, 1 each in April, May and June of 1999 and 4 during February and March of 2000. Each data point was compared against the appropriate water quality objective and all 8 exceeded the numeric concentration objective. Therefore, the water quality objective was exceeded for more than 10% of the time during a one-year period. The mean and median were calculated and were also found to exceed the appropriate objective. This amount and quality of information was deemed sufficient to recommend this creek as impaired for excess phosphorus. This is only an example of the process that led to a listing recommendation. None of the data parameters in this example should be viewed as rigid criteria for 303(d) listing.

It was kept in mind that a decision to list does not require the same certainty that is applied when determining violations of permit conditions. Constructing the list is not a regulatory action. It is an informational and administrative exercise that prioritizes work and highlights problem locations. As such, best professional judgement was a sufficient basis for listing. What is necessary is a reasonable rationale to support the listing or de-listing, and documentation of the information relied upon to reach that conclusion. All relevant data and supporting rationale are included in this staff report (Appendix B). The regulatory actions associated with listing come as a response to the list. Total Maximum

Daily Loads (TMDLs), enforcement actions, or other means of resolving the non-attainment condition are the regulatory instruments.

Development of a TMDL "Problem Statement" (and subsequent TMDL components) is the more appropriate mechanism to evaluate data in a more rigorous manner and to determine a stronger, clearer, scientific basis for impairment. This more rigorous assessment is performed at a future date. If the problem can be confirmed and clearly defined, Regional Board proceeds with TMDL development. If the problem remains unclear or there does not appear to be adequate data to proceed with TMDL development, additional monitoring can be scheduled at this point or at any point during TMDL development to fill data gaps or improve available information. If, after collecting adequate data, it is determined that there is not a significant water quality problem, the waterbody can be de-listed.

Regional Board evaluation methods were established to allow consideration of all available information and to make recommendations that were defensible with credible evidence. Regional Board's weight of evidence approach allowed small data sets and those with no documented quality control or quality assurance to be considered during the decision making process. Sample collection protocols, quality control (QC) and quality assurance (QA) information was requested in the general data solicitation letter and with each individual request. In almost all cases, this information was not submitted. If this data was submitted, it was reviewed for appropriateness of methods of collection and analysis. If QC and QA information was not received, some assumptions were made. It was assumed that most permit compliance data is mandated to follow strict guidelines for data collection and analysis. Other types of data and sources were evaluated on an individual basis. Often, these other information submissions had no quality control or assurance. These types of data were considered to carry significantly less weight in the weight of evidence approach. No data was excluded.

Regional Board took a conservative approach to listing and de-listing impaired waters. Sufficient evidence and reasonable rationale were necessary for placing a waterbody on, or removing from, the Section 303(d) list of impaired waterbodies. If the evidence was not sufficient, listed waterbodies remained on the list and potentially new waterbodies

were not Section 303(d) listed, but were targeted for further investigation. These constituents and waterbodies can be found in Table 5.

Bacterial Data Evaluation

Two different types of bacterial data were reviewed. The first type was raw data in the form of concentration values. This data was restricted to inland surface waters (with the exception of Coronado Beach) and was reviewed in the same manner as the other types of raw data discussed above. However, instead of calculating arithmetic means as described above, the log mean was calculated for bacterial data. This was done to prevent one or two high values from giving over-estimates of levels of contamination, which would be the case with the use of an arithmetic mean. Listing recommendations were based upon an analysis of each waterbody and it's associated bacterial data as compared to the appropriate water quality objectives. Each case was reviewed on an individual basis using the weight of evidence approach and best professional judgement to determine if sufficient evidence for listing exists.

The second data type was in the form of beach closure and advisory reports that were provided by the San Diego County Department of Environmental Health (DEH) and the Orange County Health Care Agency. These reports specify the number of days per year that a beach / bay segment had known exceedances of applicable bacterial standards or objectives, as indicated by beach advisories or beach closures. Both advisories and closures are based on high bacterial concentrations as revealed by routine monitoring, or resulting from a known sewage spill. The criteria for closure and advisory reporting are found in guidance provided by the California Department of Health Services (DHS) and are identical to the Basin Plan and Ocean Plan water quality objectives for total and fecal coliform and enterococci. Therefore, these occurrences are considered to be evidence of an exceedance of a bacterial water quality objective. The Regional Board's evidence supporting 303(d) listing and the significance of advisories and closures are discussed in Appendix B, pages B-69 to B-74.

Beach closure and advisory information, used to determine impairment, was limited to ocean and bay coastal areas. Segments were recommended for Section 303(d) listing if applicable water quality objectives were exceeded for more than 10 days per year. The days did not have to be consecutive and the season of the bacterial exceedance was not a consideration in the listing decision. However, the data reviewed was representative

of all seasons of the year. The choice of >10 days per year was based upon best professional judgement and is believed to be indicative of water contact beneficial use impairment due to elevated bacterial concentrations.

TMDL Priority Ranking

A priority ranking is required for listed waters to guide TMDL planning pursuant to 40 CFR 130.7. TMDLs are ranked into high, medium and low priority categories based on:

- Waterbody significance (such as importance and extent of beneficial uses, threatened and endangered species concerns and size of waterbody)
- Degree of impairment or threat (such as number of pollutants/stressors of concern, number of beneficial uses impaired, degree of exceedance over the water quality objective and the frequency of exceedance).
- Conformity with related activities in the watershed (such as existence of watershed assessment, planning, pollution control and remediation, or restoration efforts in the area).
- Potential for beneficial use protection and recovery.
- Degree of public concern and involvement.
- Availability of funding and information to address the water quality problem.
- Overall need for an adequate pace of TMDL development for all listed waters.
- Other water bodies and pollutants have become a higher priority.

It should be noted that the criteria can be applied in different ways to different water bodies and pollutants. For example, a water body may be severely impaired, but if there is little likelihood of beneficial use recovery than a lower priority might be given.

Results of Data Assessment

The final draft results of the Regional Board's assessment of surface waters are presented in Tables 3 and 4. A waterbody listing is defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. For example, the Pacific Ocean Shoreline is listed several times, with each unique listing defined by hydrologic boundaries. Also, the 901.14 HSA hydrologic boundary is listed twice, with each unique listing containing a different waterbody. This report recommends the addition of 18 new waterbodies and 9 new pollutants to the Section 303(d) list (Figure 2). Also recommended is the addition of 5 pollutants to previously

listed waterbodies and changes in the extent of impairment for 1 previously listed inland waterbody and for 16 previously listed beach and bay coastlines. All changes in the extent of impairment pertain to waters listed for bacterial contamination. One de-listing is recommended. Table 3 shows recommended additions, deletions and modifications to the updated draft Section 303(d) list for 2002, including reservoirs, lagoons, rivers, harbors and coastal and bay shorelines. The specific pollutant is described as well as the rationale for listing, source of the information and scheduling for TMDL development. Individual Fact Sheets (Appendix B) summarize the pertinent information for each de-listed or newly added Section 303(d) listed waterbody, including a summary of data reviewed.

Table 4 shows the combined existing 1998 Section 303(d) listed waterbodies, as well as the new recommended draft 2002 additions. The single recommended de-listing from the 1998 list is not included in Table 4. A Fact Sheet supporting the de-listing decision is included in Appendix B, pages B-62 to B-64. Older listings (prior to 1998) are included in the 1998 list. When the proposed 2002 draft list is ultimately adopted by the State Board, the final 2002 Clean Water Act Section 303(d) list of impaired waters for the California Regional Water Quality Control Board, San Diego Region will consist of the 1998 and 2002 lists combined. In total, for the San Diego Region there will be 51 listed waterbodies, and 30 different pollutants on the combined list.

Constituents \ Waterbodies of Potential Concern: Waterbodies Requiring Additional Investigation & Data

Data for several waterbodies and constituents was reviewed that did not lead to a 303(d) listing in the 2002 update. The pollutants / stressors may be impairing water quality and the beneficial uses of a particular waterbody, but more data and further analysis is necessary before any conclusions can be made. These waterbodies and stressors have been classified as "Constituents \ Waterbodies of Potential Concern" and are listed in Table 5. Listing was not deemed appropriate for one or more of the following reasons:

- Data contained very few samples, with only a few samples exceeding objectives or other applicable criteria.
- Data was not representative of year-round conditions (i.e. biased towards wet weather data).

- Data exceeded water quality objectives / criteria, however this constituent could not be linked to the beneficial uses of the waterbody.
- Regional Board believes that a problem exists, but data is missing or inadequate to support a Section 303(d) listing.

If a waterbody or a constituent is not 303(d) listed or listed as a Constituent of Potential Concern, it is considered to have little available data. The following assumptions have been made of waterbodies and constituents not on either list:

- The constituent was not measured.
- Available data pertaining to a particular constituent was never received by the Regional Board.
- Data showed little or no evidence of exceeding water quality objectives / criteria.
- Sample size was too small for assessment.

In the next few months, staff will begin compiling a comprehensive inventory and assessment of all waterbodies in the San Diego Region pursuant to Section 305(b) of the Clean Water Act. This process is known as the state's "Water Quality Assessment" and results in the Section 305(b) list of waterbodies for the Region.

Corrections and Clarifications to the 1998 Section 303(d) List

Minor corrections or clarifications have been made to the 1998 list of impaired waters to more accurately describe the listed sites. These corrections/clarifications are reflected in Tables 1 and 4 to ensure that none of the old, incorrect or unclear information is promulgated. They reflect either minor corrections to wrong, misleading or unclear information or ensure language consistency with the 2002 Update. These changes are different from new listings or de-listings and are described below.

The impairment for Rainbow Creek has been changed from "eutrophication" to "nitrate and phosphorus." The original designation was based upon a faulty assumption that eutrophic conditions existed because of the elevated levels of nutrients. Data collected for development of the TMDL has revealed that eutrophic conditions do not exist, but concentrations of nitrate and phosphorus in excess of Basin Plan objectives do exist.

All previous listings of "High Coliform Count" have been changed to "Bacterial Indicators." This ensures consistency between the 1998 List and the 2002 Updated List. For 1998 listings, Bacterial Indicators implies that impairment was due to fecal coliform, total coliform, or both. For the 2002 update, Bacterial Indicators implies impairment was due to fecal coliform, total coliform, enterococci or a combination of any of the three. In the San Diego Region, enterococci measurements commenced in 1999.

The 1998 beach and bay shoreline bacterial listings are designated by hydrologic unit (HU), hydrologic area (HA) or hydrologic subarea (HSA). These descriptions provide little information about the actual segment or extent of the impairment. The 1998 list, as adopted by the Regional Board, contained specific segments of impairment. These specific segments were omitted from the final statewide list adopted by SWRCB and the USEPA. To better identify the exact locations of the impairments, the specific segments are now listed within each larger HU, HA or HSA designation.

Two issues have been corrected that affect the extent of impairment for beach and bay shoreline listings. First, in 1998, unless more information was available, the extent of impairment was assumed to be 0.01 miles for each storm drain or creek outlet or for each segment of shoreline. This applied to each unique segment of known contamination. For the 2002 update, the extent of impairment has been increased to 0.4 miles for each unique segment, unless more information was available. If the 1998 extent of impairment was larger than 0.4 miles, no change was recommended. Extents of impairment for each individual segment have been summed to provide the total extent of impairment within the larger hydrologic listing. Often, the individual segments within a single listing are closer than 0.4 miles apart. In these cases, the total extent of impairment for each listing is less than the sum of all individual segments and takes overlapping spatial extents into account.

Secondly, several specific segments described in the 1998 list were inadvertently placed within incorrect hydrologic boundaries. These individual segments have been placed into the correct hydrologic boundaries. Placing these specific segments in the correct hydrologic boundaries results in modification to the extents of impairment for several coastal bacterial listings. This also resulted in the renaming of the "Pacific Ocean, Laguna Beach HSA" listing to "Pacific Ocean, Laguna Beach and San Joaquin Hills

HSAs" and the renaming of "Pacific Ocean, San Clemente HA" to "Pacific Ocean, San Clemente, San Mateo and San Onofre HSA." These changes correctly define the hydrologic subareas where impairment was found.

The renaming of "San Diego Bay, Downtown Piers" is another recommended name change. The suggested new name is "San Diego Bay, Vicinity of B Street and Broadway Piers." This change adds clarification to the location of impairment as evidenced by degraded benthic communities and sediment toxicity.

The specific locations of impairment due to lead and eutrophication in Mission Bay are now specified as "Rose and Tecolote Creek Mouths." Each location accounts for ½ of the 1 acre listed as impaired. These specifications come from interpretation of the 1996 Section 303(d) Fact Sheet (SWRCB, 1996) in support of that years' listing of Mission Bay.

The TMDL scheduling dates presented in Table 1 have been updated to reflect the current estimated start and completion dates. These dates are subject to change after USEPA approval of the final 2002 Section 303(d) list of impaired waters.

Updates to the 1998 list that Do Not Constitute New Listings or De-listings

As mentioned previously, the 1998 Section 303(d) list, as adopted by the Regional Board, contained specific segments of impairment. These specific segments were omitted from the final statewide list adopted by SWRCB and the USEPA. In an attempt to better identify the exact locations of impairment, Tables 1 and 4 have been modified to include previously missing information. While modifying the Tables, two segments were never successfully identified. These segments were listed in 1998 as "La Ladera," and "Salem Tressel." Since these segments cannot be currently placed, the Regional Board has removed them from the draft 2002 List Update.

The 1998 beach and bay shoreline bacterial listings are designated by hydrologic unit (HU), hydrologic area (HA) or hydrologic sub area (HSA). Applying listing criteria developed for the 2002 List Update, which is described in Appendix B, pgs B-69 to B-74, resulted in expanding the number of segments in the previously listed hydrologic areas. The segments of South Capistrano Beach at Beach Road, San Mateo Creek outlet,

Ocean Beach at Bermuda Avenue, San Diego Bay at Kellogg Street, Shelter Island Shoreline Park and Tidelands Park are new, additional segments within previously listed hydrologic areas. They are not newly recommended listings. For example, the hydrologic sub area of 901.27 (Lower San Juan HSA) was previously listed in 1998. However, the specific segment of South Capistrano Beach at Beach Road (also HSA 901.27) was not included. Adding these specific segments results in a recommended increase in the extent of impairment of previously listed waterbodies.

In contrast, new Section 303(d) beach and bay bacterial listings are those that do not exist within the hydrologic boundaries specified in the 1998 listings, or are within previously listed hydrologic boundaries but are considered distinct waterbodies from those previously listed. Dana Point Harbor at Baby Beach and Pacific Ocean Shoreline: Torrey Pines State Beach at Los Penasquitos Lagoon outlet are newly listed waterbodies. Although the hydrologic subarea 901.14 (Dana Point HSA) was previously listed, the segment specified in 1998 consisted of Pacific Ocean shoreline. Dana Point Harbor at Baby Beach is considered a distinct waterbody, and is therefore a new listing. While the hydrologic area 906.10 (Miramar Reservoir HA) was on the 1998 Section 303(d) list, the Pacific Ocean Shoreline waterbody was not listed within this hydrologic boundary. Therefore, Pacific Ocean Shoreline: Torrey Pines State Beach at Los Penasquitos Lagoon outlet is also a new listing.

Conclusion

The draft Section 303(d) list of impaired waters update presented in this document is only a recommendation from the California Regional Water Quality Control Board, San Diego Region. It is the State Board that will conduct the formal public process and it is the State Board that will adopt a single, statewide list to forward to the USEPA. Board Members of the California Regional Water Quality Control Board, San Diego Region have not approved this document. Comments, updates and modifications can continue to be made by the Regional Board and the public throughout the State Board's upcoming formal public review and comment period.

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Table 1 - 1998 303(d) Waterbodies[A] (includes corrections and clarifications)

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	TMDL Priority	TMDL Schedule[D]
1	San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)[E]	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	Bacterial Indicators[F]	2.4 miles	Low	07/04 - 11/07
			at Heisler Park - North				
			at Main Laguna Beach				
			Laguna Beach at Ocean Avenue				
			Laguna Beach at Laguna Avenue				
			Laguna Beach at Cleo Street				
			Arch Cove at Bluebird Cnyn Road				
			Laguna Beach at Dumond Drive				
2	Aliso HSA (901.13)	Aliso Creek	lower portion	Bacterial Indicators[F]	lower 1 mile	Medium	07/04 - 11/07
3	Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place / Blue Lagoon Place	Bacterial Indicators[F]	0.7 miles	Medium	07/04 - 11/07
			at Aliso Beach				
4	Aliso HSA (901.13)	Aliso Creek	at creek mouth	Bacterial Indicators[F]	0.3 acres	Medium	07/04 - 11/07
5	Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	Bacterial Indicators[F]	1.9 miles	Low	07/04 - 11/07
			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				
6	Mission Viejo HA (901.20)	San Juan Creek	at creek mouth	Bacterial Indicators[F]	2 acres	Low	07/04 - 11/7
7	Lower San Juan HSA (901.27)	San Juan Creek		Bacterial Indicators[F]	1 mile	Low	07/04 - 11/07
8	Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	at North Beach Creek	Bacterial Indicators[F]	1.2 miles	Low	07/04 - 11/07
			at San Juan Creek (large outlet)				
			at Capistrano Beach				
9	San Clemente HA (901.30), San Mateo Canyon HA (901.40) & San Onofre HA (901.50)[G]	Pacific Ocean Shoreline	at Poche Beach (large outlet)	Bacterial Indicators[F]	3.0 miles	Low	07/04 - 11/07
			Ole Hanson Beach Club Beach at Pico Drain				
			San Clemente City Beach at El Portal St. Stairs				
			San Clemente City Beach at Mariposa St.				
			San Clemente City Beach at Linda Lane				
			San Clemente City Beach at South Linda Lane				
			San Clemente City Beach at Lifeguard Headquaters				
			Under San Clemente Municipal Pier				
			San Clemente City Beach at Trafalgar Canyon (Trafalgar Ln.)				
			San Clemente State Beach at Riviera Beach				
			San Clemente State Beach at Cypress Shores				

Table 1 - 1998 303(d) Waterbodies[A] (includes corrections and clarifications)

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	TMDL Priority	TMDL Schedule[D]
10	Lower Ysidora HSA (902.11)	Santa Margarita Lagoon		Eutrophic	1 acres	High	07/08 - 12/09
11	De Luz HA (902.20)	Rainbow Creek		Nitrogen Phosphorus	5 miles	High	07/98 - 04/02
12	San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	Bacterial Indicators[F]	0.4 miles	Low	07/6 - 07/08
13	Mission HSA (903.11)	Lake Guajome		Eutrophic	25 acres	Medium	07/08 - 10/09
14	Loma Alta HA (904.10)	Pacific Ocean Shoreline	at Loma Alta Creek Mouth	Bacterial Indicators[F]	1 mile	Low	07/06 - 10/08
15	Loma Alta HA (904.10)	Loma Alta Slough		Bacterial Indicators[F]	8 acres	Low	07/06 - 09/08
				Eutrophic	8 acres	Low	07/07 - 04/10
16	Buena Vista Creek HA (904.20)	Pacific Ocean Shoreline	at Buena Vista Creek Carlsbad City Beach at Carlsbad Village Drive Carlsbad State Beach at Pine Avenue	Bacterial Indicators[F]	0.65 miles	Low	07/06 - 10/08
17	El Salto HSA (904.21)	Buena Vista Lagoon		Bacterial Indicators[F]	350 acres	Low	07/06 - 09/08
				Sedimentation / Siltation	350 acres	Medium	07/09 - 06/11
				Nutrient	150 acres	Low	07/07 - 04/10
18	Los Monos HSA (904.31)	Agua Hedionda Lagoon		Bacterial Indicators[F]	5 acres	Low	07/06 - 09/08
				Sedimentation / Siltation	5 acres	Medium	07/09 - 06/11
19	San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	Bacterial Indicators[F]	0.4 miles	Low	07/06 - 10/08
20	Escondido Creek HA (904.60)	Pacific Ocean Shoreline	at San Elijo Lagoon at Solana Beach	Bacterial Indicators[F]	0.8 miles	Low	07/06 - 10/08
21	San Elijo HSA (904.61)	San Elijo Lagoon		Bacterial Indicators[F]	150 acres	Low	07/06 - 09/08
				Eutrophic	330 acres	Low	07/07 - 04/10
				Sedimentation / Siltation	150 acres	Medium	07/09 - 06/11
22	San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth Torrey Pines State Beach at Del Mar (Anderson Canyon)	Bacterial Indicators[F]	0.8 miles	Low	07/05 - 11/06
23	Miramar Reservoir HA (906.10)	Los Penasquitos Lagoon		Sedimentation / Siltation	385 acres	Medium	07/09 - 02/10

Table 1 - 1998 303(d) Waterbodies[A] (includes corrections and clarifications)

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	TMDL Priority	TMDL Schedule[D]
24	Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	Bacterial Indicators[F]	3.1 miles	Low	07/04 - 01/07
			La Jolla Shores Beach at Caminito Del Oro				
			La Jolla Shores Beach at Vallecitos				
			La Jolla Shores Beach at Avenita de la Playa				
			at Casa Beach, Childrens Pool				
			South Casa Beach at Coast Blvd.				
			Whispering Sands Beach at Ravina St.				
			Marine St. Beach at Vista de la Playa				
			Windansea Beach at Bonair St.				
			Windansea Beach at Playa del Norte				
			Windansea Beach at Palomar Ave.				
			at Tourmaline Surf Park				
			Pacific Beach at Grand Ave.				
25	Miramar HA (906.40)	Famosa Slough & Channel		Eutrophic	28 acres	Medium	07/07 - 02/10
26	Miramar HA (906.40)	Mission Bay Shoreline	Entire Bay	Bacterial Indicators[F]	1540 acres	Low	07/01 - 12/05
			Rose and Tecolote Creek Mouths[H]	Eutrophic	0.5 acres each	Medium	07/07 - 02/10
			Rose and Tecolote Creek Mouths[H]	Lead	0.5 acres each	Medium	07/07 - 02/10
27	Tecolote HA (906.50)	Tecolote Creek		Bacterial Indicators[F]	6 miles	Low	07/04 - 01/07
				Cadmium	6 miles	Medium	07/07 - 02/10
				Copper	6 miles	Medium	07/07 - 02/10
				Lead	6 miles	Medium	07/07 - 02/10
				Toxicity	6 miles	Medium	07/07 - 02/10
				Zinc	6 miles	Medium	07/07 - 02/10
28	San Diego HU (907.00)	Pacific Ocean Shoreline	at San Diego River Mouth (aka Dog Beach)	Bacterial Indicators[F]	0.5 miles	Low	07/05 - 10/06
29	Chollas HSA (908.22)	Chollas Creek		Bacterial Indicators[F]	1 mile	Low	07/04 - 02/06
				Cadmium	1 mile	High	01/99 - 08/02
				Copper	1 mile	High	01/99 - 08/02
				Lead	1 mile	High	01/99 - 08/02
				Toxicity	1 mile	High	01/98 - 04/02
				Zinc	1 mile	High	01/99 - 08/02

Table 1 - 1998 303(d) Waterbodies[A] (includes corrections and clarifications)

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	TMDL Priority	TMDL Schedule[D]
30	Pueblo San Diego HU (908.00) and Sweetwater HU (909.00)	San Diego Bay Shoreline Point Loma HA (908.10)	near Sub Base	Degraded Benthic Comm. Sediment Toxicity	16 acres	High	01/02 - 11/04
			in Shelter Island Yacht Basin	Copper (dissolved)	50 acres	High	01/99 - 08/02
		San Diego Bay Shoreline Lindbergh HSA (908.21)	vicinity of B Street and Broadway Piers[J]	Degraded Sediment Toxicity	10 acres	High	01/02 - 05/05
			at G Street	Bacterial Indicators[F]	0.4 miles	Low	07/04 - 02/06
			at B Street Pier	Bacterial Indicators[F]	0.4 miles	Low	07/04 - 02/06
			near Grape Street	Degraded Benthic Comm. Sediment Toxicity	7 acres	High	01/02 - 05/05
		San Diego Bay Shoreline Chollas HSA (908.22)	near Coronado Bridge	Degraded Benthic Comm. Sediment Toxicity	30 acres	High	01/02 - 11/04
			near Chollas Creek	Degraded Benthic Comm. Sediment Toxicity	14 acres	High	01/00 - 02/05
		San Diego Bay Shoreline El Toyan HSA (908.31)	at 32nd St. Naval Station	Degraded Benthic Comm. Sediment Toxicity	76 acres	High	01/01 - 08/03
		San Diego Bay Shoreline Paradise HSA (908.32)	at 7th St. Channel	Degraded Benthic Comm. Sediment Toxicity	9 acres	High	01/00 - 02/05
			at 24th St. Marine Terminal	Degraded Benthic Comm. Sediment Toxicity	10 acres	High	01/01 - 08/03
		San Diego Bay Shoreline Telegraph HSA (909.11)	at Chula Vista Marina	Bacterial Indicators[F]	0.4 miles	Low	07/04 - 02/06
31	Coronado HA (910.10)	Pacific Ocean Shoreline	at North Beach[K] at Sunset Park[K] Cental Beach at Loma Avenue[K] Central Beach at Pine Street[K]	Bacterial Indicators[F]	1.05 miles	Low	07/04 - 02/06

Table 1 - 1998 303(d) Waterbodies[A] (includes corrections and clarifications)

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	TMDL Priority	TMDL Schedule[D]
32	Tijuana HU (911.00)	Pacific Ocean Shoreline	from the border, extending north along the shore	Bacterial Indicators[F]	3.2 miles	Low	07/10 - 12/12
33	San Ysidora HSA (911.11)	Tijuana River		Bacterial Indicators[F]	7 miles	Low	07/10 - 12/12
				Eutrophic	7 miles	Low	07/10 - 12/12
				Oxygen (dissolved)	7 miles	Low	07/10 - 12/12
				Pesticides	7 miles	Low	07/10 - 12/12
				Solids	7 miles	Low	07/10 - 12/12
				Synthetic Organics	7 miles	Low	07/10 - 12/12
				Trace Elements	7 miles	Low	07/10 - 12/12
				Trash	7 miles	Low	07/10 - 12/12
34	San Ysidora HSA (911.11)	Tijuana River Estuary		Bacterial Indicators[F]	150 acre	Low	07/10 - 12/12
				Eutrophic	1 acre	Low	07/10 - 12/12
				Lead	1 acre	Low	07/10 - 12/12
				Nickel	1 acre	Low	07/10 - 12/12
				Pesticides	1 acre	Low	07/10 - 12/12
				Thallium	1 acre	Low	07/10 - 12/12
				Trash	1 acre	Low	07/10 - 12/12

[A] Table 1 reflects corrections made to the 1998 List as described in the text, pgs 17-18.

[B] The 1998 list, as adopted by the Regional Board, contained specific locations of impairment. These specific locations were omitted from the list as adopted by the USEPA. In 2002, it is recommended that these specific locations be included to better illustrate the location of impairment.

[C] In 1998, unless more information was available, the extent of impairment was assumed to be 0.01 miles for each bacteria shoreline impairment. The extents of impairment have been increased to 0.4 miles. Extents of impairments that were greater than 0.4 miles in 1998 were not changed. Rationale is described in Appendix B, pgs B69- B74.

[D] TMDL scheduling reflects updates as sent to the State Board in January, 2002.

[E] This location was previously listed as "Pacific Ocean, Laguna Beach HSA".

[F] Bacterial Indicators implies that impairment was due to either total coliform, fecal coliform, or both.

[G] This location was previously listed as "Pacific Ocean, San Clemente HA".

[H] These locations and extents of impairment are approximated from interpretation of the 1996 Section 303(d) Report.

[J] This location was previously known as "San Diego Bay, at Downtown Piers".

[K] These listings are suggested for removal in 2002. Evidence for de-listing is described in Appendix B, pgs B62 - B64.

Table 2 - List of Data Reviewed

Name of Data Set	Reference	Waterbodies Covered
1999 - 2000 City of San Diego & Co-Permittee NPDES Stormwater Monitoring Report	URS Greiner Woodward Clyde, August 2000	Agua Hedionda Creek, Chollas Creek, Tecolote Creek
Aliso Creek Water Quality Planning Study	205(j) Planning Study	Aliso Creek, Sulfur Creek
Analytical Report, QA/QC Report	Enviromatrix Analyitical Inc, May 2001	San Diego River
Attachment A & B of letter re: CWA Section 303(d) Listing	Baykeeper, S. Michel	San Diego River
Baykeeper letter	Bruce Reznik, San Diego Baykeeper, May 2001	Dana Point Harbor, Escondido Creek, Forrester Creek, Otay River, Salt Creek, San Diego River, San Juan Creek, San Luis Rey River
Bight 98 Study (bacteriology only)	Southern California Coastal Water Research Project	Mission Bay, San Diego Bay, Pacific Ocean Coastline
Bay Protection Toxic Cleanup Program 1998 Amendment, SW monitoring report	UCSC, SWRCB, SDRWCB, D of F&G, Moss Landing Marine Laboratories	San Diego Bay, Switzer Creek
Chollas Creek Water Quality Sampling 1999-2000 Wet-Weather Season	URS, October 2000	Chollas Creek
City of El Cajon NPDES Field Screen Data	City of El Cajon	Forrester Creek
City of El Cajon - Spill Reports	City of El Cajon	Forrester Creek
City of Encinitas Municipal Stormwater Permit Compliance Report (90-42)	Keri Miller, City Manager, City of Encinitas	Batiquitos Lagoon, Cottonwood Creek, Escondido Creek, San Elijo Lagoon
City of Oceanside Water Utilities Lab	Mary Gonzales, Lab Supervisor, May 2000	San Luis Rey River
County of Orange Health Care Agency Beach Closures 97-98 and 1999, 2000 and 2001	County of Orange Health Care Agency	Numerous Locations in Orange County
Final Report for Cease and Desist Order No. 98-74; Demonstration of Compliance.	City of Coronado, January 2000	Pacific Ocean Shoreline (North Beach & Central Beach)
Final Report of Water Quality Studies and Proposed Watershed Monitoring Program for Portions of San Mateo and Santa Margarita River Watershed	Law Crandall, Division of Law Eng. and Env. Services Inc., March 2001	Cristianitos Creek, San Mateo Creek, Deluz Creek, Fallbrook Creek, Groundwater Santa Margarita River at Deluz Rd, Groundwater - Deluz Creek, Murrieta Creek, Rainbow Creek, Sandia Creek, Santa Margarita River
Discharge monitoring report in compliance of Order 98-10	NPDES NO. CA0108944 File NO. 010833.01, Reports on file at RWQCB R9	Escondido Creek

Table 2 - List of Data Reviewed

Name of Data Set	Reference	Waterbodies Covered
Discharge monitoring report in compliance of Order 98-60	NPDES NO. CA0107492 File NO. 010053.01, Reports on file at SWRCB R10	Sycamore Cyn Creek
Department of Water Resources electronic file	Gary Gilbreath, Dept. of Water Res.	Escondido Creek, San Diego River, Santa Margarita River
Regional Board Memo on Fish Kill in SD River	Lisa Brown, RWQCB R9	San Diego River
H-SWRI / OREHP = Report of Waste Discharge Agua Hedionda Lagoon Fish Hatchery	L. Richter, April 2001	Agua Hedionda Lagoon
Hydrology Studies - San Juan and Aliso Creeks Watersheds	US Army Corps of Eng.	Aliso Creek, San Juan Creek
Lakeside - A River Rus Through It Photographic Tour and News Articles	Diane E. York, May 2001	San Diego River
Letter and Photos to J. Robertus	Tom Achter, President Lake San Marcos Community Ass., May 2001	San Marcos Lake
Letter to J. Medina from R. Odiorne - Spill Report	Chem-tronics Inc., July 2000	Forrester Creek
Mission Viejo Golf Course Data	Bob Jordan, Santa Margarita Water District	Oso Creek
MTBE and the Future of Clean Water in Lakeside, California	Tisa Bizzarri, Senior Thesis, SDSU, May 2000	San Diego River
Orange Co Environmental Health - Beach Closures for 1999	Orange Co Environmental Health	Salt Creek
Orange Co Environmental Health - Beach Closures for 2000	Orange Co Environmental Health	Aliso Beach, Dana Point Harbor, Laguna Beach
Orange Co Municipal Stormwater NPDES Permit Data	County of Orange Public Facilities & Resources Department	Aliso Creek, Arroyo Trabuco Creek, Dana Point Harbor, Laguna Canyon Channel, Oso Creek, Prima Deshecha, San Juan Creek, Segunda Deshecha, Sulphur Creek
Order No. 97-63 Waste discharge requirements for the US Navy Project P-338s, Pire 3 dredging	SWRCB, December 1997	San Diego River
Padre Dam Data	Padre Dam Municipal Water District	Forrester Creek, San Diego River
Photographs	US Navy	Chollas Creek
Rancho Cal Water District - Summary and Analysis of Year 2000 Data Receiving Water Stations 1-4	Rancho California Water District, April 2001	Murrieta Creek, Santa Margarita River
Referral - Co of SD Dept of Envrionmental Health	Randy Olms, May 2001	Forrester Creek
samples taken	File NO. 8-954.01	Reidy Creek
Santa Margarita River Hydrology, Hydraulics and Sedimentation Study - Disc 2	WEST Consultants Inc., July 2000	Santa Margarita River
SD County Beach Closure Report 1997, 98, 99 and 00	SD County	Numerous beaches through out county

Table 2 - List of Data Reviewed

Name of Data Set	Reference	Waterbodies Covered
SD River Photographic Tour of a Polluted Watershed - Santee Segment	V.K. Collinsworth, May 2001	Fanita Creek, Forrester Creek, San Diego River, Sycamore Canyon Creek
SD River pollution and testimonies (video)	sent in by 2 concerned citizens	San Diego River
SDRWQCB 1998 Sampling	Analysis Truesdail Laboratories, Inc	Agua Hedionda Creek, Aliso Creek, Buena Vista Creek, Encinitas Creek, Escondido Creek, Loma Alta Creek, Murrieta Creek, Rainbow Creek, Rattlesnake Creek, San Diego River, San Luis Rey River, San Marcos Creek, Sandia Creek, Santa Margarita River, Sweetwater River, Temecula Creek
SDRWQCB: 1999 Biological Assessment Annual Report	California Department of Fish and Game, Office of Spill Prevention and Response	Agua Hedionda Creek, Aliso Creek, Buena Vista Creek, Carroll Canyon Creek, Encinitas Creek, Escondido Creek, Loma Alta Creek, Los Penaquitos Creek, Murrieta Creek, Rattlesnake Creek, San Diego River, San Juan Creek, San Luis Rey River, San Marcos River, Santa Margarita River, Sweetwater River, Tecolote Creek
Semi-Annual Waste Discharge Compliance Report	City of Coronado, January 2000	Pacific Ocean Shoreline (North Beach & Central Beach)
South East Regional Reclamation Authority (SERRA) monitoring	NPDES NO. 0107417, Reports on file at SWRCB R9	Prima Deshecha, Segunda Deshecha
State Mussel Watch 95-98	Del Raasmussen State Mussel Watch Program, SWRCB	Oceanside Jetty
State Mussel Watch 97-98	Del Raasmussen State Mussel Watch Program, SWRCB	San Diego Bay Switzer Creek
Surfrider Report	Surfrider Foundation	Coastline
Tijuana Estuary summary sheet (e-file)	Tijuana Estuary Monitoring	Tijuana Estuary
Toxics Substance Monitoring Program - 1997	Del Raasmussen (SWRCB), Field and lab work by D of F&G	Otay River, Rose Creek, Sweetwater River, San Diego River, Santa Margarita River, Tijuana River
Toxics Substance Monitoring Program - 1998	Del Raasmussen (SWRCB), Field and lab work by D of F&G	Alvarado Creek, Deluz Creek, Felicita Creek, Sandia Creek, Sweetwater/Salt Marsh
Toxics Substance Monitoring Program - 1999	Del Raasmussen (SWRCB), Field and lab work by D of F&G	Agua Hedionda Creek, Aliso Creek, Buena Vista Lagoon, Escondido Creek, Loma Alta Creek, Murrieta Creek, Rainbow Creek, San Diego River, San Marcos Creek, Santa Margarita River

Table 2 - List of Data Reviewed

Name of Data Set	Reference	Waterbodies Covered
Toxics Substance Monitoring Program - 2000	Del Raasmussen (SWRCB), Field and lab work by D of F&G	7th Street, Chollas Creek, Famosa Slough, Paradise Creek Marsh, San Dieguito Lagoon, San Juan Creek, Sweetwater/Salt Marsh, Tecolote Estuary
transmittal letter w/ 7/97 - 1/01 monitoring data	Peter Baranov, Sweetwater Authority, April 2001	Loveland Reservoir, Sweetwater Reservoir
Union Tribune, 14 March 2000, A-1 & A-7	Terry Rodgers, Staff Writer	Alvarado Creek to SD River
USDA Forest Service Sampling Report	USDA Forest Service: Cleveland National Forest, Palomar Ranger District, 1998	Arroyo Trabuco Creek, Pine Valley Creek, San Juan Creek
USGS Data Files	US Dept. of Interior - Geological Survey	Sweetwater Reservoir, Tijuana River
Vista Irrigation District reports (4)	NPDES Reports on file at SWCB R9	Los Penaquitos Creek
Water Quality Monitoring Data files submitted by City of San Diego (e-files)	City of San Diego Water Quality Laboratories, 1995 - 2001	Barret Lake, Cloverdale Creek, Cottonwood Creek, Del Dios Creek, El Capitan Reservoir, Felicita Creek, Green Valley Creek, Kit Carson Creek, Kitchen Creek, La Posta Creek, Lake Hodges, Long Canyon Creek, Lower Otay Reservoir, Miramar Reservoir, Morena Reservoir, Murray Reservoir, Noble Canyon Creek, Padre Barona Creek, Pine Valley Creek, San Vicente Reservoir, Sutherland Reservoir, Sycamore Canyon Creek
Water Quality Studies & Prop. Watershed Monitoring Program for Portions of San Mateo & Santa Margarita River Watersheds, July 2000	LawCrandall, Division of Law Eng. and Env. Services Inc., March 2001	Santa Margarita River

Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies

	Basin Number	Waterbody	Pollutant / Stressor	Extent of Impairment	TMDL Priority	TMDL Schedule	Rationale	Total Samples	Monitoring Dates	Information Source(s)
1	901.13	**Aliso Creek**	Enterococci	Entire reach and most of the HSA, including Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek and Wood Canyon Creek	Medium	5/05 - 3/08	All 10 stations exceeded Basin Plan objective. Along Aliso Creek, at least 33% of the samples exceeded the objective. In the tributaries, at least 22% exceeded the objective.	9 samples at each of the 10 stations (Aliso Creek and tributaries combined)	6/99 - 8/99	205(j) Planning Study
			Escheria coli	Entire reach and most of the HSA, including Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek and Wood Canyon Creek	Medium	5/05 - 3/08	All 10 stations exceeded Basin Plan objective. Along Aliso Creek, at least 22% of the samples exceeded the objective. In the tributaries, at least 22% exceeded the objective.	9 samples at each of the 10 stations (Aliso Creek and tributaries combined)	6/99 - 8/99	205(j) Planning Study
			Fecal coliform	Entire reach (previous listing was for the lower 1 mile of the creek)	Medium	5/05 - 3/08	Four stations along the creek had geometric means at least 5 times greater than the Basin Plan objective	5	Oct-98	205(j) Planning Study
			Phosphorus	Entire reach	Medium	5/05 - 3/08	97% of samples violated Basin Plan Objective	40	7/97 - 6/00	NPDES Monitoring
			Toxicity	Entire Reach	Medium	5/05 - 3/08	55% of samples violated Basin Plan Objective	20	9/98, 11/98, 1/99	205(j) Planning Study
2	901.14	**Dana Point Harbor**	Bacterial Indicators*	0.4 miles at Baby Beach	Medium	5/05 - 3/08	54 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of Orange, Environmental Health Care Agency
			Copper (dissolved)	Entire Harbor	Low	1/06 - 11/08	42% of samples violated Ocean Plan Objective	42	10/97-5/00	NPDES Monitoring
3	901.27[A]	**Pacific Ocean Shoreline**	Bacterial Indicators*	0.4 miles (South Capistrano State Beach at Beach Rd)	Low	7/04 - 11/07	41 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of Orange, Environmental Health Care Agency
4	901.31	**Prima Deshecha Creek**	Phosphorus	1/2 mile upstream of station - mouth of creek	Low	7/09 - 5/12	85% of samples violated Basin Plan Objective	54	7/97 - 6/00	NPDES Monitoring
			Turbidity	1/2 mile upstream of station - mouth of creek	Low	7/09 - 5/12	72% of samples violated Basin Plan Objective	54	7/97 - 6/00	NPDES Monitoring
5	901.31	**Segunda Deshecha Creek**	Phosphorus	1/2 mile upstream of station - mouth of creek	Low	7/09 - 5/12	81% of samples violated Basin Plan Objective	43	8/97 - 6/00	NPDES Monitoring
			Turbidity	1/2 mile upstream of station - mouth of creek	Low	7/09 - 5/12	49% of samples violated Basin Plan Objective	43	8/97 - 6/00	NPDES Monitoring

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Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies Cont.

Basin Number		Waterbody	Pollutant / Stressor	Extent of Impairment	TMDL Priority	TMDL Schedule	Rationale	Total Samples	Monitoring Dates	Information Source(s)
6	901.51 [B]	Pacific Ocean Shoreline	Bacterial Indicators*	0.4 miles (San Onofre State Beach at San Mateo Creek outlet)	Low	7/04 - 11/07	15 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health
7	902.22	Sandia Creek	Total Dissolved Solids	Lower 1.5 miles	Low	7/09 - 5/12	100% of samples violated Basin Plan Objective	11	quarterly sampling 97-2000	Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo and Santa Margarita River Watershed
8	902.22	Santa Margarita River (upper)	Phosphorus	17.5 miles	Low	7/09 - 5/12	3 studies reviewed. Exceedances: Study 1= 4/7 (57%) & 5/7 (71%), Study 2= 1/1 & 1/1, Study 3= 1/8 (13%). In total, 12 of 24 (50%) samples exceeded Basin Plan Objective	32	quarterly sampling 97-00	Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo and Santa Margarita River Watershed. SDRWQCB Monitoring Data. RCWD Annual Receiving Water Monitoring Report (2000)
9	902.52	Murrieta Creek	Phosphorus	1.8 mi.	Low	7/09 - 5/12	71% of samples violated Basin Plan Objective	8	quarterly sampling 97-2000	Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo & Santa Margarita River Watershed. SDRWQCB Monitoring Data.
10	903.11	San Luis Rey River	Chloride	Lower 13 miles	Low	7/09 - 5/12	3 stations, 74% of samples > 250 mg/L	31	10/97 - 11/00	City of Oceanside Water Utilities Lab
			Total Dissolved Solids	Lower 17 miles	Low	7/09 - 5/12	5 stations, 100% of samples > 500 mg/L	33	10/97 - 11/00	City of Oceanside Water Utilities Lab
11	904.31	Agua Hedionda Creek	Diazinon	Lower 2 miles	Medium	7/05 - 5/08	67% of samples > 0.09ug/L (EPA Criterion Continuous Concentration)	6	11/98 - 3/00	NPDES Monitoring
			Total Dissolved Solids	Lower 8 miles	Low	7/07 - 5/10	78% of samples violated Basin Plan Objective	9	6/98 - 3/00	NPDES Monitoring

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Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies Cont.

	Basin Number	Waterbody	Pollutant / Stressor	Extent of Impairment	TMDL Priority	TMDL Schedule	Rationale	Total Samples	Monitoring Dates	Information Source(s)
12	905.21	Green Valley Creek	Sulfate	1 mile	Low	7/07 - 5/10	55% of samples violated Basin Plan Objective	20	4/99 - 5/01	City of San Diego Water Quality Lab
13	905.21	Lake Hodges	Color	Entire Reservoir	Low	7/07 - 5/10	100% of samples violated Basin Plan Objective	15	12/97 - 12/00	City of San Diego Water Quality Lab
			Nitrogen	Entire Reservoir	Low	7/07 - 5/10	Majority of samples exceed Basin Plan Objective, Excessive algal growth evident	205	1996 - 2001	City of San Diego Water Quality Lab, Narrative Decriptions by San Diego Water Department
			Phosphorus	Entire Reservoir	Low	7/07 - 5/10	Majority of samples exceed Basin Plan Objective, Excessive algal growth evident	205	1996 - 2001	City of San Diego Water Quality Lab, Narrative Decriptions by San Diego Water Department
			Total Dissolved Solids	Entire Reservoir	Low	7/07 - 5/10	100% of samples violated Basin Plan Objective	11	9/98 - 12/00	City of San Diego Water Quality Lab
14	905.23	Felicita Creek	Total Dissolved Solids	Lower 2 miles	Low	7/07 - 5/10	100% of samples violated Basin Plan Objective	21	4/99 - 5/01	City of San Diego Water Quality Lab
15	905.23	Kit Carson Creek	Total Dissolved Solids	1 mile	Low	7/07 - 5/10	94% of samples violated Basin Plan Objective	18	4/99 - 5/01	City of San Diego Water Quality Lab
16	905.31	Cloverdale Creek	Phosphorus	1mile	Low	7/07 - 5/10	All values > Basin Plan Objective of 0.1 mg/L. Range=0.146-0.178 mg/L	8	4/99 - 5/00	City of San Diego Water Quality Lab
			Total Dissolved Solids	1 mile	Low	7/07 - 5/10	All values > Basin Plan Objective of 500 mg/L. Range=1390-1620 mg/L	8	4/99 - 5/00	City of San Diego Water Quality Lab
17	905.53	Sutherland Reservoir	Color	Entire Reservoir	Low	7/07 - 5/10	87% of samples exceed Basin Plan Objective, Excessive algal growth and odor also present	15	1996-2000	City of San Diego Water Quality Lab, Narrative Decriptions by San Diego Water Department
18	906.10	Pacific Ocean Shoreline	Bacterial Indicators*	0.4 miles (Torrey Pines State Beach at Los Penasquitos Lagoon Outlet)	Medium	5/05 - 3/08	32 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health

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Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies Cont.

Basin Number	Waterbody	Pollutant / Stressor	Extent of Impairment	TMDL Priority	TMDL Schedule	Rationale	Total Samples	Monitoring Dates	Information Source(s)
19 907.11 [C]	Pacific Ocean Shoreline	Bacterial Indicators*	0.4 miles (Ocean Beach at Bermuda Ave.)	Low	7/05 - 10/06	13 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health
20 907.12	Forrester Creek	Fecal coliform	Lower 1 mile	Medium	5/06 - 3/09	69% of samples violated Basin Plan Objective during both wet and dry weather	9	4/00 - 12/00	Padre Dam Municipal Water District Receiving Water Sampling and Analysis
		pH	Upper 3 miles	Low	7/07 - 5/10	Avg value = 9.5, 77% of the values above pH 8.5	52	7/97 - 1/01	NPDES Monitoring and City Spill Reports
		Total Dissolved Solids	Lower 1 mile	Low	7/07 - 5/10	18 of 18 samples > Secondary Maximum Contaminant Level for Drinking Water	18	10/97 - 12/00	Padre Dam Municipal Water District Receiving Water Sampling and Analysis
21 907.12	San Diego River (Lower)	Fecal coliform	Lower 6 miles	Medium	5/06 - 3/09	69% of samples violated Basin Plan Objective during both wet and dry weather	13	4/00 - 12/00	Padre Dam Municipal Water District Receiving Water Sampling and Analysis
		Oxygen (dissolved)	Lower 20 miles	Low	1/07 - 11/09	Sampling twice per month, at several stations, consistently below Basin Plan Objectives	95	9/97 - 5/01	Padre Dam Municipal Water District Receiving Water Sampling and Analysis
		Phosphorus	Lower 20 miles	Low	1/07 - 11/09	Sampling twice per month, at several stations, consistently below Basin Plan Objectives	122	9/97 - 5/01	Padre Dam Municipal Water District Receiving Water Sampling and Analysis
		Total Dissolved Solids	Lower 15 miles	Low	1/07 - 11/09	Sampling twice per month, at several stations, consistently below Basin Plan Objectives	153	9/97 - 12/00	Padre Dam Municipal Water District Receiving Water Sampling and Analysis

Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies Cont.

	Basin Number	Waterbody	Pollutant / Stressor	Extent of Impairment	TMDL Priority	TMDL Schedule	Rationale	Total Samples	Monitoring Dates	Information Source(s)
22	908.00, 909.00 and 910.00	San Diego Bay (908.10[D])	Bacterial Indicators*	0.4 miles (San Diego Bay Shoreline at Kellog Street Beach)	Low	7/04 - 2/06	13 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health
				0.4 miles (San Diego Bay Shoreline at Shelter Island Shoreline Park)	Low	7/04 - 2/06	24 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health
		San Diego Bay, (908.22) Near Switzer Creek	Degraded Benthic Community	Outlet of creek bound by piers to the north and south, extending out to edge of piers	High	6/02 - 4/05	Relative Benthic Index = 0.02 (Below 0.3 is considered impaired). Chemical Concentrations > 4 X ERM & > 5.9 X PEL.	1 Core, sampled 3 times compared against 75 cores from all of SD Bay	12/3/96 (data available in 1998)	Bay Protection Toxic Clean-up Program and 1998 Addendum
			Sediment Toxicity	Outlet of creek bound by piers to the north and south, extending out to edge of piers	High	6/02 - 4/05	Less than 48% survival of amphipods in laboratory toxicity tests	1 sample, 5 replicates	12/3/96 (data available in 1998)	Bay Protection Toxic Clean-up Program and 1998 Addendum
		San Diego Bay, Coronado HA (910.10[D])	Bacterial Indicators*	0.4 miles (San Diego Bay Shoreline at Tidelands Park)	Low	7/04 - 2/06	17 days of Beach Closures and/or General Advisories	unknown	1/00 - 12/00	County of San Diego, Department of Environmental Health
23	910.00	Pacific Ocean Shoreline	Bacterial Indicators*	Coronado Beach at North Beach, Sunset Park, Loma Avenue and Pine Street	NA	NA	***Suggested for de-listing***: Monitoring and reporting data show <10 days of exceedances of water quality objectives for bacteria	unknown	1/00 - 12/00	City of Coronado
24	911.11	Tijuana Estuary	Oxygen (dissolved)	Entire Estuary	Low	3/11 - 1/14	1/2 hr. interval monitoring consistently below minimum Basin Plan Objective	Data collected every 30 minutes for all of 1997-98	1997 - 1998	Tijuana Estuary Monitoring
25	911.40	Pine Valley Creek (Upper)	Enterococci	Lower 2 miles	Medium	5/06 - 3/09	55% of samples violated Basin Plan Objective	11	1/98 - 9/98	USDA Forest Service

*** Bacterial Indicators implies that impairment was found from total coliform, fecal coliform, enterococci or any combination of the three.**

A = This is not a new listing, but a change in extent to a 1998 listing. This specific location exists within the hydrologic boundaries of the 1998 listing: Lower San Juan HSA (901.27), Pacific Ocean Shoreline.

B = This is not a new listing, but a change in extent to a 1998 listing. This specific location exists within the hydrologic boundaries of the 1998 listing: San Clemente HA (901.30), San Mateo Canyon HA (901.40) & San Onofre HA (901.50), Pacific Ocean Shoreline.

C = This is not a new listing, but a change in extent to a 1998 listing. This specific location exists within the hydrologic boundaries of the 1998 listing: San Diego HU (907.00).

D = This is not a new listing, but a change in extent to a 1998 listing. This specific location exists within the hydrologic boundaries of the 1998 listing: Pueblo San Diego HU (908.00) and Sweetwater HU (909.00), San Diego Bay Shoreline.

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Table 3 – Recommended Additions / Modifications to Region 9 303(d) List of Impaired Waterbodies Cont.

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

Hydrologic Descriptor	Waterbody	Segment / Area [B]	Pollutant / Stressor	Extent of Impairment [C]	Year Listed
[1] San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12) [D]	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	Bacterial Indicators[E]	2.4 miles	1998
		at Heisler Park - North			
		at Main Laguna Beach			
		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			
[2] Aliso HSA (901.13)	Aliso Creek		Bacterial Indicators[E]	lower 1 mile	1998
		See Footnote F	Enterococci, *E. coli*, Fecal Coliform, Phosphorus, Toxicity	See Footnote F	2002
[3] Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place / Blue Lagoon Place	Bacterial Indicators[E]	0.7 miles	1998
		at Aliso Beach			
[4] Aliso HSA (901.13)	Aliso Creek	at creek mouth	Bacterial Indicators[E]	0.3 acres	1998
[5] Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	Bacterial Indicators[E]	1.88 miles	1998
		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			
[6] Dana Point HSA (901.14)	Dana Point Harbor	Entire Harbor	Dissolved Copper	Entire Harbor	2002
		at Baby Beach	Bacterial Indicators[E]	0.4 miles	2002
[7] Mission Viejo HA (901.20)	San Juan Creek	at creek mouth	Bacterial Indicators[E]	2 acres	1998
[8] Lower San Juan HSA (901.27)	San Juan Creek		Bacterial Indicators[E]	1 mile	1998
[9] Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	at North Beach Creek	Bacterial Indicators[E]	1.5 miles	1998
		at San Juan Creek (large outlet)			
		at Capistrano Beach			
		South Capistrano Beach at Beach Road			2002

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	Year Listed
10	San Clemente HA (901.30), San Mateo Canyon HA (901.40) & San Onofre HA (901.50)[G]	Pacific Ocean Shoreline	at Poche Beach (large outlet)	Bacterial Indicators[E]	3.4 miles	1998
			Ole Hanson Beach Club Beach at Pico Drain			
			San Clemente City Beach at El Portal St. Stairs			
			San Clemente City Beach at Mariposa St.			
			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 Ln.)			
			San Clemente State Beach at Riviera Beach			
			San Clemente State Beach at Cypress Shores			
			San Onofre State Beach at San Mateo Creek outlet			2002
11	Prima Deshecha HSA (901.31)	Prima Deshecha Creek	lower portion	Phosphorus, Turbidity	lower 1 mile	2002
12	Segunda Deshecha HSA (901.32)	Segunda Deshecha Creek	lower portion	Phosphorus, Turbidity	lower 1 mile	2002
13	Lower Ysidora HSA (902.11)	Santa Margarita Lagoon		Eutrophic	1 acres	1998
14	De Luz HA (902.20)	Rainbow Creek		Nitrogen, Phosphorus	5 miles	1998
15	Gavilan HSA (902.22)	Santa Margarita River, Upper	upper portion	Phosphorus	17.5 miles	2002
16	Gavilan HSA (902.22)	Sandia Creek	lower 1.5 miles	Total Dissolved Solids	lower 1.5 mile	2002
17	Wolf HSA (902.52)	Murrieta Creek		Phosphorus	1.8 miles	2002
18	San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	Bacterial Indicators[E]	0.4 miles	1998
19	Mission HSA (903.11)	Lake Guajome		Eutrophic	25 acres	1998
20	Mission HSA (903.11)	San Luis Rey River	lower portion	Chloride	lower 13 miles	2002
				Total Dissolved Solids	lower 17 miles	2002

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

	Hydrologic Descriptor	Waterbody	Segment / Area [B]	Pollutant / Stressor	Extent of Impairment [C]	Year Listed
21	Loma Alta HA (904.10)	Pacific Ocean Shoreline	at Loma Alta Creek Mouth	Bacterial Indicators[E]	1 mile	1998
22	Loma Alta HA (904.10)	Loma Alta Slough		Bacterial Indicators[E]	8 acres	1998
				Eutrophic		
23	Buena Vista Creek HA (904.20)	Pacific Ocean Shoreline	at Buena Vista Creek	Bacterial Indicators[E]	0.65 miles	1998
			Carlsbad City Beach at Carlsbad Village Drive			
			Carlsbad State Beach at Pine Avenue			
24	El Salto HSA (904.21)	Buena Vista Lagoon		Bacterial Indicators[E]	350 acres	1998
				Sedimentation / Siltation	350 acres	1998
				Nutrients	150 acres	1998
25	Los Monos HSA (904.31)	Agua Hedionda Lagoon		Bacterial Indicators[E]	5 acres	1998
				Sedimentation / Siltation		
26	Los Monos HSA (904.31)	Agua Hedionda Creek	lower portion	Diazinon	lower 2 miles	2002
				Total Dissolved Solids	lower 8 miles	2002
27	San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	Bacterial Indicators[E]	0.4 miles	1998
28	Escondido Creek HA (904.60)	Pacific Ocean Shoreline	at San Elijo Lagoon	Bacterial Indicators[E]	0.8 miles	1998
			at Solana Beach			
29	San Elijo HSA (904.61)	San Elijo Lagoon		Bacterial Indicators[E]	150 acres	1998
				Eutrophic	330 acres	
				Sedimentation / Siltation	150 acres	
30	San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	Bacterial Indicators[E]	0.8 miles	1998
			Torrey Pines State Beach at Del Mar (Anderson Canyon)			
31	Del Dios HSA (905.21)	Green Valley Creek		Sulfate	1 mile	2002
32	Del Dios HSA (905.21)	Hodges Reservoir	Entire Reservoir	Color	Entire Reservoir	2002
				Nitrogen		
				Phosphorus		
				Total Dissolved Solids		
33	Felicita HSA (905.23)	Felicita Creek		Total Dissolved Solids	lower 2 miles	2002
34	Felicita HSA (905.23)	Kit Carson Creek		Total Dissolved Solids	1 mile	2002
35	Highland HSA (905.31)	Cloverdale Creek		Phosphorus	1 mile	2002
				Total Dissolved Solids		
36	Sutherland HSA (905.53)	Sutherland Reservoir	Entire Reservoir	Color	Entire Reservoir	2002

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	Year Listed
37 Miramar Reservoir HA (906.10)	Los Penasquitos Lagoon	Entire Lagoon	Sedimentation / Siltation	385 acres	1998
38 Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Los Penasquitos Lagoon outlet	Bacterial Indicators[E]	0.4 miles	2002
39 Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo	Bacterial Indicators[E]	3.1 miles	1998
		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 St.			
		Windansea Beach at Vista de la Playa			
		Windansea Beach at Bonair St.			
		Windansea Beach at Playa del Norte			
		Windansea Beach at Palomar Ave.			
		at Tourmaline Surf Park			
		Pacific Beach at Grand Ave.			
40 Miramar HA (906.40)	Famosa Slough & Channel		Eutrophic	28 acres	1998
41 Miramar HA (906.40)	Mission Bay Shoreline	along the entire bay	Bacterial Indicators[E]	1540 acres	1998
		Rose and Tecolote Creek Mouths[H]	Eutrophic	0.5 acre	1998
		Rose and Tecolote Creek Mouths[H]	Lead	0.5 acre	1998
42 Tecolote HA (906.50)	Tecolote Creek		Bacterial Indicators[E]	6 miles	1998
			Cadmium		
			Copper		
			Lead		
			Toxicity		
			Zinc		
43 San Diego HU (907.11)	Pacific Ocean Shoreline	at San Diego River Mouth (aka Dog Beach)	Bacterial Indicators[E]	0.9 miles	1998
		Ocean Beach at Bermuda Ave.			2002
44 Santee HSA (907.12)	Forrester Creek		Fecal Coliform	lower 1 mile	2002
			pH	upper 3 miles	2002
			Total Dissolved Solids	lower 1 mile	2002
45 Mission San Diego HSA (907.11) & Santee HSA (907.12)	San Diego River, Lower		Fecal Coliform	lower 6 miles	2002
			Oxygen (dissolved)	lower 20 miles	2002
			Phosphorus		
			Total Dissolved Solids		

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

	Hydrologic Descriptor	Waterbody	Segment / Area [B]	Pollutant / Stressor	Extent of Impairment [C]	Year Listed
46	Chollas HSA (908.22)	Chollas Creek		Bacterial Indicators[E]	1 mile	1998
				Cadmium		
				Copper		
				Lead		
				Toxicity		
				Zinc		
47	Pueblo San Diego HU 908.00, Sweetwater HU 909.00 and Coronado HU (910.00)	San Diego Bay Shoreline Point Loma HA (908.10)	near Sub Base	Degraded Benthic Comm.	16 acres	1998
				Sediment Toxicity		
			in Shelter Island Yacht Basin	Copper (dissolved)	50 acres	1998
			at Kellogg Street	Bacterial Indicators[E]	0.4 miles	2002
			at Shelter Island Shoreline Park		0.4 miles	2002
		San Diego Bay Shoreline Lindbergh HSA (908.21)	vicinity of B Street and Broadway Piers [J]	Degraded Benthic Comm.	10 acres	1998
				Sediment Toxicity		
			near Grape St.	Degraded Benthic Comm.	7 acres	1998
				Sediment Toxicity		
			at G Street	Bacterial Indicators[E]	0.4 miles	1998
			at B Street Pier		0.4 miles	1998
		San Diego Bay Shoreline Chollas HSA (908.22)	near Coronado Bridge	Degraded Benthic Comm.	30 acres	1998
				Sediment Toxicity		
			near Chollas Creek	Degraded Benthic Comm.	14 acres	1998
				Sediment Toxicity		
			near Switzer Creek	Degraded Benthic Comm.	See Footnote K	2002
				Sediment Toxicity		
		San Diego Bay Shoreline El Toyan HSA (908.31)	at 32nd St. Naval Station	Degraded Benthic Comm.	76 acres	1998
				Sediment Toxicity		
		San Diego Bay Shoreline Paradise HSA (908.32)	at 7th St. Channel	Degraded Benthic Comm.	9 acres	1998
				Sediment Toxicity		
			at 24th St. Marine Terminal	Degraded Benthic Comm.	10 acres	1998
				Sediment Toxicity		
		San Diego Bay Shoreline Telegraph HSA (909.11)	at Chula Vista Marina	Bacterial Indicators[E]	0.4 miles	1998
		San Diego Bay Shoreline Coronado HA (910.10)	at Tidelands Park	Bacterial Indicators[E]	0.4 miles	2002

Table 4 - Combined 1998[A] and Draft 2002 Section 303(d) Update

	Hydrologic Descriptor	Waterbody	Segment / Area[B]	Pollutant / Stressor	Extent of Impairment[C]	Year Listed
48	Tijuana HU (911.00)	Pacific Ocean Shoreline	from the border, extending north along the shore	Bacterial Indicators[E]	3.2 miles	1998
49	Tijuana HU (911.00)	Pine Valley Creek, Upper	lower portion	Enterococci	lower 2 miles	2002
50	San Ysidora HSA (911.11)	Tijuana River		Bacterial Indicators[E]	7 miles	1998
				Dissolved Oxygen, low		
				Eutrophic		
				Pesticides		
				Solids		
				Synthetic Organics		
				Trace Elements		
				Trash		
51	San Ysidora HSA (911.11)	Tijuana River Estuary		Bacterial Indicators[E]	150 acres	1998
				Eutrophic	1 acre	1998
				Lead		
				Nickel		
				Pesticides		
				Thallium		
				Trash		
				Oxygen (dissolved)	Entire Estuary	2002

[A] The 1998 List has been corrected as described in the text, pgs 17-18.

[B] The 1998 list, as adopted by the Regional Board, contained specific locations of impairment. These specific locations were omitted from the list as adopted by the USEPA. In 2002, it is recommended that these specific locations be included to better illustrate the location of impairment.

[C] In 1998, unless more information was available, the extent of impairment was assumed to be 0.1 miles for each shoreline impairment due to bacteria. The extents of impairment have been increased to 0.4 miles. Extents of impairment that were greater than 0.4 miles in 1998 were not changed. Rationale is described in Appendix B, pgs B69-B74.

[D] This location was previously listed as "Pacific Ocean, Laguna Beach HSA"

[E] In 1998, Bacterial Indicators implies that impairment was due to either total coliform, fecal coliform, or both. In 2002, impairment may have also been caused by enterococci.

[F] The entire reach (7.2 miles) is listed for enterococci, *E. coli*, fecal coliform and toxicity. Additionally, Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek and Wood Canyon Creek are also listed for enterococci and *E. coli*. The lower 4 miles of Aliso Creek is listed for phosphorus.

[G] This location was previously listed as "Pacific Ocean, San Clemente HA."

[H] These locations and extents of impairment are approximated from interpretation of the 1996 Section 303(d) Report.

[J] This location was previously known as "San Diego Bay, at Downtown Piers."

[K] Area at the end of Switzer Creek, bound by piers on the north and south side of the outlet, extending to the edge of the piers.

Table 5 - Constituents \ Waterbodies of Potential Concern

Hydrologic Unit #	Waterbody Name	Constituents of Potential Concern
901	Aliso Creek	chlordane dieldrin heptachlorepoxide PCB
	Pacific Ocean Shoreline at Emerald Bay	bacterial indicators
	Laguna Lakes	bacterial indicators
	Oso Creek	chloride phosphorus sulfate total dissolved solids turbidity
	Prima Deshecha Channel	cadmium nickel
	San Juan Creek	erosion incised channel PCB sedimentation / siltation
	San Mateo Creek	black bullhead bluegill bullfrogs channel catfish exotic vegetation (Arundo donax) green sunfish largemouth bass mosquitofish non-native crayfish saltcedar total dissolved solids
902	Deluz Creek	sulfate total dissolved solids
	Fallbrook Creek	iron manganese phosphorus
	Murrieta Creek	iron manganese total dissolved solids
	Oceanside Harbor	copper (dissolved)
	Rainbow Creek	sediment toxicity sulfate total dissolved solids trash
	Sandia Creek	lead sulfate
	Entire Santa Margarita River & Tributaries	sedimentation / siltation
	Santa Margarita River (Upper)	iron manganese sulfate total dissolved solids

Table 5 - Constituents \ Waterbodies of Potential Concern

Hydrologic Unit #	Waterbody Name	Constituents of Potential Concern
902	**Santa Margarita River (Lower)**	iron manganese sulfate total dissolved solids
903	**San Luis Rey River**	calcium eutrophication magnesium phosphorus
904	**Agua Hedionda Creek**	benthic community degradation eutrophication incised channel
	Agua Hedionda Lagoon	*Caulerpa taxifolia* Cu Se
	Buena Vista Creek	benthic community degradation eutrophication
	Cottonwood Creek	diazinon eutrophication
	Encinitas Creek	diazinon eutrophication malathion
	Escondido Creek	benthic community degradation diazinon eutrophication sulfate total dissolved solids
	Loma Alta Creek	benthic community degradation eutrophication
	Reidy Creek	nitrogen phosphorus
	San Marcos Lake	dissolved oxygen
905	**Cloverdale Creek**	eutrophication sedimentation / siltation
	Green Valley Creek	benthic community degradation eutrophication phosphorus sedimentation / siltation trash
	Lake Hodges	MTBE
	Los Penasquitos Creek	sedimentation / siltation
	Sorrento (Carroll Canyon) Valley Creek	eutrophication
906	**Miramar Reservoir**	bromodichloromethane chlorodibromomethane chloroform total dissolved solids

Table 5 - Constituents \ Waterbodies of Potential Concern

Hydrologic Unit #	Waterbody Name	Constituents of Potential Concern
906	Famosa Slough	dieldrin total chlordane total PCB total DDT
	Rose Creek	sedimentation / siltation
	Tecolote Creek	sedimentation / siltation
	Hatfield Creek	eutrophication incised channel
	Santa Maria Creek	bacterial indicators exotic vegetation (*Tamarisk sp.*)
	Santa Ysabel Creek	exotic vegetation (*Arundo sp.* & *Tamarisk sp.*)
907	Alvarado Creek	benthic community degradation eutrophication sedimentation / siltation trash
	Boulder Creek	exotic vegetation (*Tamarisk sp.*) hydromodification (scour from reservoir release)
	Chocolate Creek	eutrophication sedimentation / siltation
	Forrester Creek	eutrophication trash
	King Creek	eutrophication
	Murray Reservoir	bromodichloromethane chloride chloroform dibromochloromethane phosphorus sodium sulfate
	Padre Barona Creek	eutrophication incised channel
	San Diego River	benthic community degradation benzene chlordane eutrophication exotic vegetation (Water Hyacinth, *Arundo sp.*, *Tamarisk sp*.) methyl tertiary-butyl ether (MTBE) trash
	Sycamore Canyon Creek	eutrophication exotic vegetation *(Arundo donax)* phosphorus trash
908	Chollas Creek	total chlordane total PCB trash turbidity

Table 5 - Constituents \ Waterbodies of Potential Concern

Hydrologic Unit #	Waterbody Name	Constituents of Potential Concern
908	**Delzura Creek**	erosion eutrophication incised channel sedimentation / siltation
	Proctor Valley Creek	trash
	San Diego Bay at Shelter Island Yacht Harbor	arsenic cadmium
	San Diego Bay at Harbor Island (East Basin) at Laurel St.	arsenic cadmium copper (dissolved)
	San Diego Bay at America's Cup Harbor at Harbor Island (West Basin) at Marriott Marina	copper (dissolved)
	San Diego Bay at B Street Pier at Mouth of Switzer Creek	chlordane lindane PAH
910	**Lower Otay Reservoir**	color odor
	San Diego Bay at North Island Aircraft Platform	arsenic cadmium copper (dissolved)
	at South Bay Power Plant	chlorine thermal warming turbidity
911	**Cottonwood Creek**	exotic vegetation (*Tamarisk sp.*) hydromodification (scour from reservoir release)
	Tijuana River Estuary	turbidity
	Scove Creek	bacterial indicators incised channel nutrients
901 - 911	**Beach & Bay Shorelines displaying a Permanent Health Risk sign**	unknown constituents that may effect human health

Appendix A

Public Participation and Solicitation

ITEM 1 – March 2001 Public Solicitation Notice

California Regional Water Quality Control Board

San Diego Region

Internet Address: http://www.swrcb.ca.gov
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1331
Phone (619) 467-2952 • FAX (619) 571-6972

DATE: March 7, 2001

TO: Interested Parties

RE: *PUBLIC SOLICITATION OF WATER QUALITY INFORMATION*

On behalf of the State Water Resources Control Board (SWRCB), the California Regional Water Quality Control Board, San Diego Region (Regional Board) is soliciting information and data regarding water quality conditions of surface waters in the San Diego Region. This information will be used in various assessments of the State's surface waters. One of these assessments results in development of a list of impaired water bodies, commonly referred to as the Clean Water Act Section 303(d) List of Impaired Water Bodies. Under this assessment, water bodies within the State for which technology based effluent limitations are not stringent enough to ensure attainment of applicable water quality objectives and standards (i.e., "impaired water bodies") are identified as required by Section 303(d) of the federal Clean Water Act (33 USC 1250, et seq, at 1313(d)). The current list of Section 303(d) impaired waters developed in 1998 may be reviewed on the SWRCB's website (www.swrcb.ca.gov/tmdl/303d_lists.html).

The SWRCB will use the information and data we are soliciting to provide the United States Environmental Protection Agency (USEPA) with a revised list of waters considered by the State to be impaired. It is anticipated that the SWRCB's submittal will be made to USEPA by April 2002, as required by federal regulations. It will be based on information and data available to the SWRCB and the Regional Water Quality Control Boards. This information and data will also contribute to the preparation of the State's biennial Report on Water Quality for 2002 which is required to be submitted to USEPA for transmittal to Congress under Section 305 of the federal Clean Water Act (33 USC 1315).

All Interested Persons May Submit Information/Data

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information regarding the quality of the Region's waters may provide information/data.

Specifics For Information/Data Submittal

We are seeking to obtain all readily available water quality data and assessment information **generated since July 1997**. For purposes of this solicitation, "information" is any documentation describing the current or anticipated water quality condition of a surface water body. "Data" is considered to be a subset of information that consists of reports of

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measurements of specific environmental characteristics. The information and data may pertain to physical, chemical, and/or biological conditions of the Region's waters or watersheds.

Please include the following with any **information** you provide:

- Name of the organization, entity, or person providing the information.
- Mailing address, phone number, and email address for a contact person that can answer questions about the information provided.
- Two hard copies and an electronic copy of all information provided. Please specify the software used to format the information and provide definitions for any codes or abbreviations used. For reports, Microsoft Word is the preferred software.
- Bibliographic citations for all information provided.
- If computer model outputs are included, please provide bibliographic citations and specify any calibration and quality assurance information available.
- A description and/or your interpretation of the information submitted.

Please include the following with any **data** you provide:

- Data in electronic form, spreadsheet, database or ASCII format. Please specify the format and define any codes or abbreviations used.
- Description of and reference for your quality assurance procedures.
- Metadata for field data (i.e. when measurements were taken, locations, number of samples, detection limits, etc.)
- If possible, **two** hard copies of data so we can verify accuracy when transferring the data to our database.
- A description and/or your interpretation of the data submitted.
- In addition, for data from citizen volunteer water quality monitoring efforts:
  - Name of your group;
  - Indication of any training in water quality assessment completed by members of your group.

Deadline and Address for Information/Data Submittal

We would like to receive information and data as soon as possible and **no later than 5:00 p.m. May 15, 2001.** Data and/or information received after May 15, 2001 will not be considered in developing the April 2002 submittal to USEPA required by Clean Water Act Section 303(d). Please send all information and data to:

California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Boulevard, Suite A

California Regional Water Quality Control Board
San Diego Region

Internet Address: http://www.swrcb.ca.gov
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1331
Phone (619) 467-2952 • FAX (619) 571-6972

San Diego, CA 92124-1324
Attention: Keri Cole

or electronically to 303dlist@rb9.swrcb.ca.gov (if files are <0.5 MB).

Informational Workshop

An informational workshop will be conducted on April 4, 2001 at 10:00 a.m., at Metropolitan Wastewater Department Auditorium located at 9192 Topaz Way, San Diego, CA 92124. The purpose of this workshop is (1) to provide an overview of the section 303(d) list update process and (2) to answer questions the public may have regarding submittal of information/data and the procedures for updating the list. In preparation for the workshop, interested parties are encouraged to send in their questions to 303dlist@rb9.swrcb.ca.gov prior to the workshop so that they can be addressed during the presentation.

Formal Public Hearing

The Regional Board will provide recommendations to the SWRCB in Fall 2001 on the condition of waters within the San Diego Region. The SWRCB will consider all Regional Boards' recommendations regarding the conditions of each Region's waters when formulating its Section 303(d) submittal. The State's revisions to the list of impaired waters will be considered by the SWRCB in a formal public process to be conducted next winter. Opportunities for review of the SWRCB's proposed submittal to USEPA and public comment on this submittal will be announced at a later date.

Options for Obtaining Future Section 303(d) List Information

The Regional Board would like to keep you fully informed on the development of the revised Section 303(d) list. However, future mailings of communications, notices, and announcements pertaining to the development of the revised Section 303(d) list will only be made to persons who specifically request this information. There are three options available for you to routinely receive future mailings and notices, or access information, on the development of the revised Section 303(d) list. **You must select one of the following options in accordance with the instructions below if you want to receive future notices and other information pertaining to the development of the revised Section 303(d) list:**

1. ***E-mail Delivery of Section 303(d) List Information***
   If you select this option the Regional Board will routinely send communications, notices, and announcements directly to your e-mail account. Our goal in offering this service is to provide this information to you quickly and to reduce our mailing costs. If you prefer to receive this information via e-mail, rather than regular mail, please do the following:

   Visit our website at www.swrcb.ca.gov/rwqcb9, choose "Electronic Mailing Lists" from the home page and follow the instructions to subscribe. Be sure to select the "Section 303(d)

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Phone (619) 467-2952 • FAX (619) 571-6972

List" from the drop down menu. You will receive an e-mail confirming your subscription. Please note that you must reply to the e-mail to activate your subscription. You will receive all future information regarding the development of the revised Section 303(d) list via e-mail delivery once your subscription is activated. Step by step instructions for subscribing to the electronic mail list are also attached for your convenience.

2. ***Regular Mail Delivery of Section 303(d) List Information***
   If you select this option, the Regional Board will routinely send communications, notices, and announcements via regular mail. If you wish to receive Section 303(d) list information by regular mail, complete and return the attached Section 303(d) Mail List Response Form to this office. It is important that you submit this form to us so that we can add your name to our Section 303(d) regular mail list.

3. ***Internet Access to Section 303 (d) List Information***
   Communications, notices, and announcements pertaining to the development of the revised Section 303(d) list will be available for online viewing on our website at www.swrcb.ca.gov/rwqcb9. If you select this option the Regional Board will not routinely send Section 303(d) list information to you via regular mail or e-mail. Under this option it will be your responsibility to regularly access the Regional Board's website to stay informed.

Questions on Submittal and Process

Questions regarding the revised Section 303(d) List process, or questions on information or data you wish to submit, may be forwarded to the following Regional Board e-mail address: 303dlist@rb9.swrcb.ca.gov. Alternatively you may contact Keri Cole at (858) 467-2798. Thank you in advance for your assistance during this very important process.

Sincerely,

JOHN H. ROBERTUS
Executive Officer

JHR/DSJ/KC
S:WQS\303dlist\303d solicitationrev DB 1 Review.doc

California Regional Water Quality Control Board
San Diego Region

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION (9)

ELECTRONIC MAILING LIST

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION (9)

SECTION 303(d) MAIL LIST RESPONSE FORM

Please complete this form if you wish to receive Section 303(d) List communications, notices and announcements via regular mail.

Please return the completed form to:

Denise Rhaney
Office Technician
California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Boulevard, Suite A
San Diego, California 92124-1324

Please check the following box.

☐ Yes! I want to routinely receive Section 303(d) List communications, notices and announcements via regular mail.

Name: _____

Organization: _____

Mailing Address: _____

Phone Number: _____

Signature: _____

ITEM 2 - Public Notice to San Diego Union Tribune, Riverside Press Enterprise and the Orange County Register

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The California Regional Water Quality Control Board, San Diego Region (Regional Board) is soliciting the public on behalf of the State Water Resources Control Board (SWRCB) for information and data regarding the water quality conditions of surface waters in this Region. This information will be used in assessments of the State's waters including the development of a submittal to USEPA required by the federal Clean Water Act (Section 303(d)). This submittal, to be developed by the SWRCB, will provide USEPA with a revised list of waters considered by the State to be impaired. Information/data will also contribute to the preparation of the 2002 federal Clean Water Act Section 305(b) Report on Water Quality.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information/data regarding the quality of the Region's waters may provide information/data. All readily available data and assessment information **generated since July 1997** may be submitted. **The Regional Board must receive all information/data by 5:00 p.m. on May 15, 2001.** Submittals received after this date will **not** be considered for the April 2002 submittal to USEPA.

For purposes of this solicitation, "information" is any documentation describing the current or anticipated water quality condition of a surface water body. "Data" is considered to be a subset of information, consisting of measurements of specific environmental characteristics. This information/data may pertain to physical, chemical, and/or biological conditions of the Region's waters or watersheds. Please refer to the Regional Board's website www.swrcb.ca.gov/rwqcb9/ for the specific information required with your submittal of information/data. Please contact the Regional Board at 303dlist@rb9.swrcb.ca.gov or (858) 476-2798 for questions regarding your submittal.

Please send information/data to:

California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Boulevard, Suite A
San Diego, CA 92124-1324
Attn: Keri Cole

or electronically to 303dlist@rb9.swrcb.ca.gov

INFORMATIONAL WORKSHOP

An informational workshop will be conducted on April 4, 2001 at 10:00am, at Metropolitan Wastewater Department Auditorium located at 9192 Topaz Way, San Diego, CA 92124. The purpose of this workshop is (1) to provide an overview of the section 303(d) list update process and (2) to answer questions the public may have regarding submittal of information/data and the procedures for to updating the list.

FORMAL PUBLIC HEARING

The Regional Boards will provide recommendations to the SWRCB in Fall 2001 on the condition of Regional waters. The SWRCB will consider all Regional Boards' recommendations regarding the conditions of the Region's waters when formulating its section 303(d) submittal. The State's revisions to the list of impaired waters will be considered by the SWRCB in a formal public process to be conducted next winter. Opportunities for review of the SWRCB's proposed submittal to USEPA and public comment on this submittal will be announced at a later date.

ITEM 3 - March 2001 Web Page Posting

SECTION 303(d) IMPAIRED WATERBODIES LIST
2002 UPDATE

Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, *et seq.*, at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). States are required to compile this information in a list and submit the list to USEPA for review and approval. This list is known as the section 303(d) list of impaired waters. As part of this listing process, States are required to prioritize waters/watersheds for future development of total maximum daily load (TMDL). The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (Regional Boards) have ongoing efforts to monitor and assess water quality, to prepare the section 303(d) list, and to subsequently develop TMDLs. The State's most recent section 303(d) list was approved in 1998 and contains 509 water bodies, many listed as being impaired for multiple pollutants.

SOLICITATION OF INFORMATION

On behalf of the SWRCB, the San Diego Regional Board is currently soliciting data and information regarding water quality conditions of surface waters in this Region. This information will be used in assessing the State's waters during the development of the SWRCB's submittal to USEPA for updating the section 303(d) list, as well as for the preparation of the state's biennial Report on Water Quality for submittal to the U.S. EPA and Congress in 2002.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information regarding the quality of the Region's waters may provide information and data. Solicitation letters have been sent out to interested parties and newspaper notices posted requesting information. We are seeking to obtain all readily available data and assessment information **generated since July 1997.**

For purposes of this solicitation, "information" is any documentation describing the current or anticipated water quality condition of a surface water body. "Data" is considered to be a subset of information that consists of reports of measurements of specific environmental characteristics. The information and data may pertain to physical, chemical, and/or biological conditions of the Region's waters or watersheds.

Please include the following with any **information** you provide:

- Name of the entity or person providing the information.
- Mailing address, phone numbers, and email addresses for a contact person that can answer questions about any of the information provided.
- Two hard copies and an electronic copy of all information provided. Please specify the software used to format the information and provide definitions for any codes or abbreviations used. For reports, Microsoft Word is the preferred software.
- Bibliographic citations for all information provided.
- If computer model outputs are included, please provide bibliographic citations and specify any calibration and quality assurance information available.
- A description and/or your interpretation of the information submitted.

Please include the following with any **data** you provide:

- Data in electronic form, spreadsheet, database or ASCII format. Please specify the format and define any codes or abbreviations used.
- Description of and reference for your quality assurance procedures.

- Metadata for field data (i.e. when measurements were taken, locations, number of samples, detection limits, etc.)
- If possible, **two** hard copies of data so we can verify accuracy when transferring the data to our database.
- A description and/or your interpretation of the data submitted.
- In addition, for data from citizen volunteer water quality monitoring efforts:
  - Name of your group;
  - Indication of any training in water quality assessment completed by members of your group;
  - Quality assurance methods or procedures used.

DEADLINE FOR SUBMITTAL

The Regional Board must receive all data and information you wish to provide no later than 5:00 p.m. May 15, 2001. Data and/or information received after May 15, 2001 will not be considered in developing the April 2002 submittal to USEPA required by Clean Water Act section 303(d).

Please send all information and data to:

California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Boulevard, Suite A
San Diego, CA 92124-1324
Attn: Keri Cole

or electronically to 303dlist@rb9.swrcb.ca.gov. (for files <0.5 MB).

PUBLIC WORKSHOP

An informational workshop will be conducted on **April 4, 2001** at 10:00 a.m. at the following location:

Metropolitan Wastewater Department
Auditorium
9192 Topaz Way
San Diego, CA 92124.

The purpose of this workshop is to:

(1) to provide an overview of the section 303(d) list update process; and
(2) to answer questions the public may have regarding submittal of information/data and the procedures for to updating the list.

PUBLIC HEARING

The Regional Boards will provide recommendations to the SWRCB in Fall 2001 on the condition of Regional waters. The SWRCB will consider all Regional Boards' recommendations regarding the conditions of the Region's waters when formulating its section 303(d) submittal. The State's revisions to the list of impaired waters will be considered by the SWRCB in a formal public process to be conducted next winter. Opportunities for review of the SWRCB's proposed submittal to USEPA and comment on this submittal will be announced at a later date.

LINKS
The following links contain more information on the section 303(d) listing:

http://www.epa.gov/owow/monitoring/calm.html
USEPA has a web page which provides information on current activities associated with the section 303(d) listing and section 305(b) assessment processes. The Consolidated Assessment and Listing Methodology (CALM) initiative is currently being developed and addresses identification of impaired waters under section 303(d) and preparation of water quality assessment reports under section 305(b) of the Clean Water Act.

http://www.epa.gov/region09/water/tmdl/index.html
Region IX of the USEPA covers Arizona, California, Hawaii, Nevada, the Pacific Islands subject to U.S. law, and approximately 140 Tribal Nations. EPA Region IX's web page on includes California's 1998 Section 303(d) list, USEPA's letter to SWRCB containing public comment responsiveness summary and USEPA's letter to the SWRCB of the final the final decision (May 12, 1999).

ITEM 4 – October, 2001 Public Notice of Regional Board Recommendations to the 2002 Section 303(d) List of Impaired Waters Posted on the Web and Notice of Public Workshop

California Regional Water Quality Control Board
San Diego Region

Internet Address: http://www.swrcb.ca.gov/rwqcb9/
9174 Sky Park Court, Suite 100, San Diego, California 92123
Phone (858) 467-2952 • FAX (858) 571-6972

DATE: October 23, 2001

TO: Interested Parties

SUBJECT: Notice of Availability of the Draft Clean Water Act Section 303(d) List of Impaired Waters, 2002 Update and Notice of Public Workshop on Nov. 29, 2001

Availability of draft Section 303(d) List
On behalf of the State Water Resources Control Board (State Board), the California Regional Water Quality Control Board, San Diego Region (Regional Board) announces the posting of draft recommendations of changes and updates to the Clean Water Act Section 303(d) list of Impaired Waters on its website: (http://www.swrcb.ca.gov/rwqcb9/). Hardcopy versions of the list are also available at the office of the Regional Board.

Background
Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based limits (i.e. "impaired" water bodies). States are required to compile this information and submit it to USEPA for review and approval. This list is commonly known as the Section 303(d) list of impaired waters. Once listed, the Regional Board is mandated to prioritize each waterbody / watershed for subsequent development of total maximum daily loads (TMDLs). The purpose of a TMDL is to ensure that beneficial uses are restored and water quality standards are achieved. The State Board and Regional Boards have ongoing and planned efforts to monitor and assess water quality, to prepare the Section 303(d) list and to develop the required TMDLs. The State's most recent Section 303(d) list was approved in 1998 and contains 509 waterbodies, many listed as being impaired for multiple pollutants. The Regional Board placed 36 water bodies on the 1998 list, with a total of 69 water body / pollutant combinations.

Role of Regional Board in Public Process
On behalf of the State Board, the Regional Board solicited data and information regarding water quality conditions of surface waters. The solicitation period closed on May 15, 2001 and resulted in 56 unique sets of data and information submitted to the Regional Board for review and analysis. The Regional Board has finished analysis and critical review of all submitted data and information and created a draft list of additions and modifications to the existing Section 303(d) list of impaired waterbodies. The draft update recommends the addition of 24 new waterbodies to the Section 303(d) list. Also recommended is the addition of 4 new pollutants to previously listed waterbodies and changes in the extent of impairment for 18 previously listed waterbodies.

No de-listings are recommended. Previously listed waterbodies were only re-evaluated if new data / information was available.

The revised draft Clean Water Act Section 303(d) List of Impaired Waters, 2002 update will be presented at the October 24th, 2001 Regional Board Meeting as a status report / informational item that will require no formal Board action. The draft list will be submitted to the State Board on October 31, 2001.

Public Workshop

A public workshop is tentatively scheduled for November 29, 2001 at 0900 at the office of the Regional Board (9174 Sky Park Court, Suite 100). The workshop will provide information on the process involved in creation of the Section 303(d) list, the waterbodies and pollutants listed and give the public a chance to comment on the draft list. All public comments must be written and comply with the attached form.

On a regional level, public comments will be accepted and considered. If significant changes result from public comments and from the public workshop, the draft list will be revised, the changes sent to the State Board and a second presentation will be made at an upcoming Regional Board Meeting. Changes and updates can continue to be made and forwarded to the State Board through the State Board's formal review period.

Role of the State Board

This coming winter, the State Board will be addressing public comments and conducting a public workshop(s). In early spring, the State Board will conduct a formal hearing(s) to consider adopting the single statewide Clean Water Act Section 303(d) list of impaired waters. The adopted list will be submitted to USEPA in the form of the State's biennial report on water quality.

Any questions or concerns can be directed to Mr. Jimmy Smith of the Regional Board at (858) 467-2732 or by email at 303dlist@rb9.swrcb.ca.gov. The Regional Board looks forward to your participation in this vital process.

Respectfully,

JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

ITEM 5 – November, 2001 Public Notice of Workshop Date Change

California Regional Water Quality Control Board
San Diego Region

Internet Address: http://www.swrcb.ca.gov/rwqcb9/
9174 Sky Park Court, Suite 100, San Diego, California 92123
Phone (858) 467-2952 • FAX (858) 571-6972

November 5, 2001

TO: Interested Parties

SUBJECT: ** *PUBLIC WORKSHOP RESCHEDULED* **
Draft Clean Water Act Section 303(d) List of Impaired Water, 2002 Update

Public Workshop Rescheduled
The public workshop tentatively scheduled for November 29, 2001 has been rescheduled for **Wednesday, December 5, 2001.** The public workshop will begin at 0900 at the office of the California Regional Water Quality Control Board, San Diego Region (Regional Board, 9174 Sky Park Court, Suite 100). The workshop will provide information on the process involved in creation of the Section 303(d) list, the waterbodies and pollutants listed and give the public a chance to comment. All public comments must be written and comply with the attached form.

Local Informal Public Process
Two public review and comment processes will be conducted to receive input on the draft list. An informal process will be conducted locally, and a formal public process will be conducted in Sacramento.

The informal local public process began on October 24 with the release and posting of the draft list. Also on October 24 the draft list was presented to Regional Board members as an informational item only. The draft list was not approved by the Regional Board or it's members. The draft list was forwarded to the State Board on October 31, 2001. On December 5, 2001 the Regional Board will conduct an informal local public workshop on the draft list.

On a regional level, public comments will be accepted and considered. If significant changes result from public comments and from the public workshop, the draft list will be revised, the changes sent to the State Board and a second presentation will be made at an upcoming Regional Board Meeting. Changes and updates can continue to be made and forwarded to the State Water Resources Control Board (State Board) through the State Board's formal review period.

Formal Public Process
This coming winter, the State Board will be addressing public comments and conducting a public workshop(s). In early spring, the State Board will conduct a formal hearing(s) to consider adopting the single statewide Clean Water Act Section 303(d) list of impaired waters. The adopted list will be submitted to USEPA in the form of the State's biennial report on water quality.

Availability of draft Section 303(d) List
On behalf of the (State Board), the (Regional Board) has posted the draft Clean Water Act Section 303(d) list of Impaired Waters on its website: (http://www.swrcb.ca.gov/rwqcb9/). Hardcopy versions of the list are also available at the office of the Regional Board.

Any questions or concerns can be directed to Mr. Jimmy Smith of the Regional Board at (858) 467-2732 or by email at 303dlist@rb9.swrcb.ca.gov. The Regional Board looks forward to your participation in this vital process.

Respectfully,

JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

ITEM 6 – Form for Public Comments, Questions and Concerns

Clean Water Act Section 303(d) List of Impaired Waters, 2002 Update Public Comments, Questions and Concerns

The update of the Clean Water Act Section 303(d) List of Impaired Waterbodies is being developed by the State Water Resources Control Board (State Board) as a single, statewide list for submittal to the United States Environmental Protection Agency (USEPA). An informal public workshop will be conducted by the California Regional Water Quality Control Board, San Diego Region (Regional Board) on **December 5, 2001** at the office of the Regional Board (9174 Sky Park Court, Suite 100, San Diego, 92123). Informal public comments can be submitted using this form. Comments received before November 28, 2001 will be given priority ranking when answering questions at the workshop.

State Board will be formulating a single, statewide list of impaired waters. State Board will be conducting the formal public review and comment period, providing written responses to all comments, conducting public workshop(s), conducting the formal public hearing and adopting the formal statewide list.

Regional Board has solicited information, reviewed all readily available data and produced a draft list of additions and changes to the Section 303(d) list of impaired waters. This list and supporting documents can be viewed at the Regional Board website (www.swrcb.ca.gov/rwqcb9/Programs/TMDL/303d/303d.html) or at the office. Public comments can be addressed to the Regional Board, but it will be the State Board that formally responds. Every effort will be made to address all comments at the Public Workshop. All public comments should adhere to the form below.

Name: _____ **Phone #**_____

Address: _____

E-mail: _____

Topic of Concern: _____ **Staff Report pg #**_____

Questions / Concerns *Only written* comments will be addressed at the workshop. All comments must be specific to the overall process of Section 303(d) list creation, the Regional Board role, the State Board role, a listed waterbody or pollutant or to a waterbody or pollutant that is not listed. _____

_____

_____

_____

_____

_____

ITEM 7 – Notice to Stakeholders of Clean Water Act Section 303(d)

California Regional Water Quality Control Board
San Diego Region

Internet Address: http://www.swrcb.ca.gov/rwqcb9/
9174 Sky Park Court, Suite 100, San Diego, California 92123
Phone (858) 467-2952 • FAX (858) 571-6972

Date: November 27, 2001

SUBJECT: Notice to Stakeholders of Clean Water Act Section 303(d)

This letter seeks to bring attention to the recently released draft Clean Water Act Section 303(d) List of Impaired Waters, 2002 Update and to the potential consequences of a waterbody being on this list. On October 24, 2001 the *California Regional Water Quality Control Board, San Diego Region (Regional Board) released its draft Section* 303(d) list of impaired waters for public review and comment. The current list (updated in 1998) and the 2002 update can both be found on the Regional Board's website (www.swrcb.ca.gov/rwqcb9/) or at the office of the Regional Board (9174 Sky Park Court, Suite 100, San Diego, CA 92123).

The placement of a waterbody on the Section 303(d) list is a requirement of the Clean Water Act and signifies that the waterbody is not meeting water quality objectives for one or more pollutants and that one or more beneficial uses are being impaired. This means that some portions of these waterbodies are polluted to the extent that they are no longer considered suitable for uses such as fishing, swimming and aquatic habitat.

Once listed, a waterbody must be prioritized for development of a Total Maximum Daily Load (TMDL). The TMDL provides a means to clean the waters and restore the beneficial uses of the impaired waterbody. This process involves identifying all sources that contribute the pollutant(s) to the waterbody and allocating a maximum daily permissible amount that may be discharged from each source. As a result of this allocation, the implementation of a TMDL may have a significant impact on current and future activities and planning within the watershed.

The development of the Section 303(d) list is a public process. An informal public workshop is scheduled for December 5, 2001 at 0900 at the office of the Regional Board and will present the draft list and give the public a chance to ask questions and submit comments. Any changes made to the draft Section 303(d) list will be forwarded to the State Water Resources Control Board (State Board). It is the State Board that will hold all formal public workshops as it compiles a single statewide list. State Board will provide written responses to all public comments and conduct the formal hearing(s) where it will consider adopting the single, statewide list. The adopted list will be forwarded to the United States Environmental Protection Agency (USEPA) in the form of the State's biennial report on water quality. The USEPA will in turn submit this information to Congress pursuant to Section 305 of the Clean Water Act.

Please review this list as it pertains to waterbodies in your region and consider attending the workshop. More information can also be obtained at 303dlist@rb9.swrcb.ca.gov or from Mr. Jimmy Smith of my staff at (858) 467-2732.

Thank you for your attention to this vital process.

Respectfully,

JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

ITEM 8 – Public Participation Timeline

Mar 7, 01	Solicitation of Data Opens Letter was sent, seeking information and data to support updating the 303(d) list, to Regional Water Quality Control Board, San Diego Region (Regional Board) agenda mailing list and placed in newspapers in each of the three counties in the San Diego Region.
Apr 4, 01	Public Workshop Regional Board provided an informational overview of the Section 303(d) listing process, followed by an open discussion and questions and answers with workshop attendees.
Apr 25, 01	Meeting with environmental community (Baykeeper) Discussion on how citizen monitoring could be incorporated into the listing process, waterbodies of particular concern to Baykeeper, existing data, shellfish consumption warnings for the San Diego River and QA/QC laboratory qualifications.
May 3, 01	Public Workshop Regional Board provided an informational overview of the Section 303(d) listing process, followed by an open discussion and questions and answers with workshop attendees.
15 May 01	Solicitation of Data Closed
Oct 22, 01	Regional Board post it's recommendation for additions and changes to the 303(d) list of impaired waterbodies on it's website. Regional Board mails notice of web posting and forth coming public workshop to agenda mailing list.
Oct 24, 01	Staff presents recommendation of additions and changes to the Section 303(d) list of impaired waterbodies to the Regional Board as an informational item.
Oct 31, 01	Regional Board submits recommended additions and changes to the Section 303(d) list of impaired waters to the State Water Resources Control Board (State Board).
Dec 5, 01	Public Workshop (approximately 30 days after list is available to public) Staff presents Regional Board recommendations to update the Section 303(d) list and provides a forum to address public comments, questions and concerns. A brief history of the legislation, previous lists, data analysis, TMDL priority and schedule and subsequent process for list completion is presented.
Mar 8, 02	Regional Board submits revised Section 303(d) list and updated supporting documentation.

Dec 01 to Feb 02 (tentative)	State Board conducts formal public review, comment period and public workshops. Regional Board staff and the public may continue to suggest updates and comments throughout the State Boards formal public review and comment period.
Feb 02 to Mar 02 (tentative)	State Board revises statewide recommendations
Mar 02 (tentative)	State Board conducts a public hearing(s) and considers adoption of statewide recommendations of updates to Section 303(d) list of impaired waterbodies.
Apr 02 (tentative)	State Board submits adopted statewide Clean Water Act Section 303(d) list of impaired waters, 2002 update, to the United States Environmental Protection Agency (USEPA).

Appendix B

Fact Sheets in Support of Draft Section 303(d) list of Impaired Waters

2002 Update

Beneficial Use Definitions and Acronyms

Under the Clean Water Act, Section 303 requires that the State adopt designated beneficial uses for surface waters. Beneficial uses are defined in the Basin Plan as the uses of water necessary for the survival or well being of humans, plants and wildlife. Beneficial uses include those uses specifically designated in the Basin Plan, and include both "existing" and "potential" beneficial uses.

The numeric water quality objectives that are applicable in a water body with an "existing beneficial use" are the same water quality objectives that are applicable in a water body with the same, but "potential" beneficial use. Legally, there is no distinction between a REC1 beneficial use designation and a potential REC1 beneficial use designation; the waterbodies so designated must be equally protected.

Abbreviation	Beneficial Use Designation
AGR	Agricultural Supply
AQUA	Aquaculture
BIOL	Preservation of Biological Habitats of Special Significance
COLD	Cold Freshwater Habitat
COMM	Commercial and Sport Fishing
EST	Estuarine Habitat
FRSH	Freshwater Replenishment
GWR	Ground Water Recharge
IND	Industrial Service Supply
MAR	Marine Habitat
MIGR	Migration of Aquatic Organisms
MUN	Municipal an Domestic Supply
NAV	Navigation
POW	Hydropower Generation
PROC	Industrial Process Supply
RARE	Rare, Threatened or Endangered Species
REC-1	Contact Water Recreation
REC-2	Non-Contact Water Recreation
SAL	Inland Saline Water Habitat
SHELL	Shellfish Harvesting
SPWN	Spawning, Reproduction, and/or Early Development
WARM	Warm Freshwater Habitat
WILD	Wildlife Habitat

Please see the Water Quality Control Plan for the San Diego Basin (9) (1994, California Regional Water Quality Control Board, San Diego Region) for the definition of each beneficial use designation.

ALISO CREEK
Hydrologic Subarea 901.13

NEW 303(d) LISTINGS
Enterococci, *Escherichia coli*, Fecal Coliform, Phosphorus and Toxicity.

PREVIOUS 303(d) LISTINGS
Coliform (lower 1 mile of creek)

WATERSHED CHARACTERISTICS
The following description of the Aliso Creek Watershed is taken from the Aliso Creek Water Quality Planning Study, Quarterly Progress Report[1]. The Aliso Creek watershed encompasses a drainage area of 34.6 square miles in southern Orange County including the communities of Portola Hills and Leisure World, and the cities of Aliso Viejo, Lake Forest, Laguna Hills, Laguna Niguel, Laguna Woods and portions of Mission Viejo and Laguna Beach. The watershed drains for a distance of 16.5 miles in a northeast to southwest direction from the Santa Ana mountains of the Cleveland National Forest to the Pacific Ocean south of Laguna Beach. The upper half of the watershed, north of Interstate 5, is relatively narrow (1-2 miles), while the lower half broadens to a maximum of 5 miles in Laguna Niguel. The major tributaries of Aliso Creek are Sulphur Creek, Wood Canyon, Aliso Hills Channel, Dairy Fork, and English Canyon.

Aliso Creek is classified as inland surface water with the following beneficial uses: AGR, REC1 (designated potential), REC2, WARM and WILD[2].

WATER QUALITY OBJECTIVES NOT ATTAINED
The bacterial objectives used for evaluation of Aliso Creek water quality pertain to freshwater areas considered moderately or lightly used. This particular decision, namely the extent to which the area is used, is based on best professional judgement. If both steady state (30-day period) and single sample objectives are available, only the particular objective used for data assessment is described.

Enterococci The Basin Plan[2] REC1 single sample maximum allowable density is 108 colonies/100 mL, for a moderately or lightly used area.

***Escherichia coli* (*E. coli*)** The Basin Plan[2] REC1 single sample maximum allowable density is 406 colonies/100 mL, for a moderately or lightly used area.

Fecal coliform The Basin Plan[2] REC1 objective states that for not less than 5 samples, in any 30-day period, the log mean shall not exceed 200 colonies/100 mL. Additionally, no more than 10% of the total samples during any 30-day period shall exceed 400 colonies/100 mL.

Phosphorus The Basin Plan[2] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[2] biostimulatory substance objective for phosphorus (P) is 0.1 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

Toxicity The Basin Plan[2] 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."

EVIDENCE OF IMPAIRMENT

Enterococci Data collected in June to August, 1999 for the Aliso Creek Water Quality Planning Study[3] showed enterococci concentrations in excess of the single sample maximum allowable density of 108 colony forming units (CFU)/100 mL at several locations along Aliso Creek. From up to downstream, the following locations had these percentages of exceedances out of 9 total samples: at Cooks Corner (44%), downstream of English Canyon Creek (33%), downstream of Dairy Fork Creek (78%), downstream of Sulphur Creek (44%) and at Pacific Coast Highway (33%). It should be noted that these samples were taken in dry weather.

The tributaries to Aliso Creek also showed impairment. From June to August, 1999 the following tributaries had these percentages of exceedances out of 9 total samples: English Canyon Creek (56%), Dairy Fork Creek (78%), Aliso Hills Channel (100%), Sulphur Creek (33%) and Wood Canyon Creek (22%). It should be noted that these samples were taken in dry weather. These values show clear evidence of impairment of the REC1 beneficial use.

Escherichia coli Data collected in June to August, 1999 for the Aliso Creek Water Quality Planning Study[3] showed *E. coli* concentrations in excess of the single sample maximum allowable density of 406 colonies/100 mL at several locations along Aliso Creek. From up to downstream, the following locations had these percentages of exceedances out of 9 total samples: at Cooks Corner (22%), downstream of English Canyon Creek (56%), downstream of Dairy Fork Creek (89%) and downstream of Sulphur Creek (33%). It should be noted that these samples were taken in dry weather.

The tributaries to Aliso Creek also showed impairment due to *E. coli*. From June to August, 1999 the following tributaries had these percentages of exceedances out of 9 total samples: English Canyon Creek (44%), Dairy Fork Creek (78%), Aliso Hills Channel (67%), Sulphur Creek (22%) and Wood Canyon Creek (33%). It should be noted that these samples were taken in dry weather. These values show clear evidence of impairment of the REC1 beneficial use.

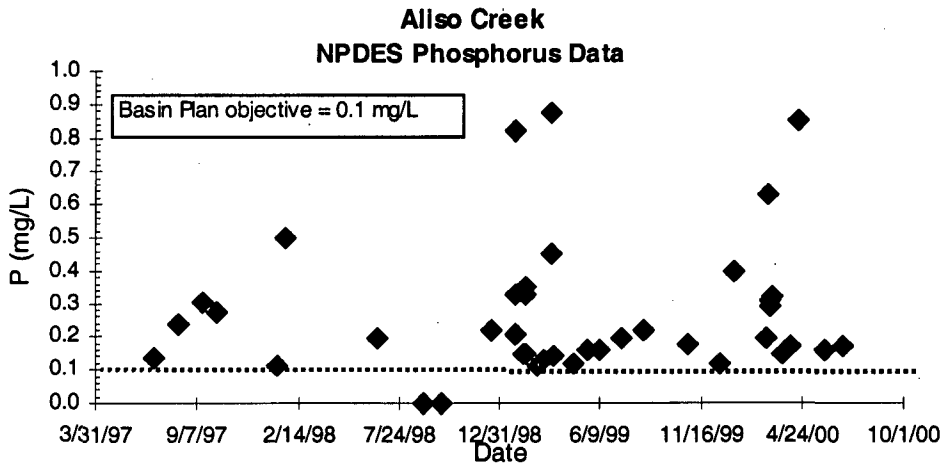
Fecal coliform Data collected in October, 1998 for the Aliso Creek Water Quality Planning Study[3] show 4 locations along the creek to have log mean concentrations of fecal coliform well above the Basin Plan 30-day log mean objective of 200 colonies/100 mL. From up to downstream, the following locations had these log means: downstream of English Canyon Creek (1074 Most Probable Number (MPN)/100 mL), downstream of Dairy Fork Creek (4308 MPN/100 mL), downstream of Sulphur Creek (1410 MPN/100 mL) and at Pacific Coast Highway (3178 MPN/100 mL). Each of these log mean values were calculated using 5 samples in a 30-day period.

From October to December 1998, there were several exceedances of the Basin Plan objective of 400 MPN/100 mL (not to be exceeded by more than 10% of the total samples during any 30-day period). A breakdown of 30-day sampling periods at each location is shown in the table below, clearly indicating impairment of the REC1 beneficial use.

	No. of Exceedances (REC1, Fecal Coliform) October '98 (5 total samples)	November '98 (3 total samples)	December '98 (4 total samples)
at Cooks Corner	2 (40%)	2 (66%)	0
d/s English Canyon Creek	4 (80%)	2 (66%)	1 (25%)
d/s Dairy Fork Creek	5 (100%)	2 (66%)	1 (25%)
d/s Sulphur Creek	4 (80%)	1 (33%)	1 (25%)
at Pacific Coast Highway	5 100%)	1 (33%)	0

Phosphorus Data collected between July, 1997 and June, 2000 contained in the County of Orange NPDES Annual Progress Report[4] shows the Phosphorus objective to be exceeded more than 10% of the time during a one-year period. These data were converted from PO_4 to their equivalent phosphorus value. From July 1997 to June 1998, 5 of 5 samples (100%) exceeded the objective, with a mean of 0.23 mg/L and a median of 0.24 mg/L. From September 1998 to August 1999, 20 of 22 samples (91%) exceeded the objective, with a mean of 0.26 mg/L and a median of 0.18 mg/L. From October 1999 to June 2000, 13 of 13 samples (100%) exceeded the objective, with a mean of 0.304 mg/L and a median of 0.20 mg/L. See figure below for phosphorus concentrations plotted against time of year.

Samples collected at two locations of Aliso Creek on June 10, 1998 show both locations to have phosphorus concentrations (converted from phosphate) in excess of the Basin Plan objective for phosphorus. This data is from the California Regional Water Quality Control Board, San Diego Region (Regional Board) In-house monitoring[5]. At Country Club Road, the phosphorus concentration was 0.93 mg/L. At Pacific Park Drive and Oso Parkway, the concentration was 0.81 mg/L.



These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that may impair the REC1, REC2, WARM and WILD

beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[2].

Toxicity Water collected in September 1998, November 1998 and January 1999 for the Aliso Creek Water Quality Planning Study[3] showed toxicity to juvenile fathead minnows and *Ceriodaphnia dubia* for the latter two sampling dates. It should be noted that the latter two dates represent storm events, while the first sampling took place during low flow conditions. In 11 of 20 toxicity tests, survival rates for both species were less than 70%, with 10 of those 11 having survival rates less than 50%. The average survival rate for juvenile fathead minnows was 79%, with a median of 85%. The average survival rate for *Ceriodaphnia dubia* was 22%, with a median of 0%. This toxicity data is direct evidence of the impairment to the WARM and WILD beneficial uses of this waterbody.

EXTENT OF IMPAIRMENT

Enterococci Sampling occurred along the entire reach of Aliso Creek and in several tributaries. Since all locations contained elevated enterococci levels, the majority of the hydrologic sub area (HSA # 901.13) is impaired, specifically including the tributaries of Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek and Wood Canyon Creek.

E. coli Sampling occurred along the entire reach of Aliso Creek and in several tributaries. Since all locations contained elevated enterococci levels, the majority of the hydrologic sub area (HSA # 901.13) is impaired, specifically including the tributaries of Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek and Wood Canyon Creek.

Fecal coliform Current listing describes the extent of impairment as the lower 1 mile of Aliso Creek. Since recent sampling occurred along the entire reach of Aliso Creek, the entire reach (7.2 miles) is listed as impaired due to fecal coliform.

Phosphorus Sampling occurred at site ACJO1 (near the mouth of the creek) for the County of Orange NPDES Annual Progress Report[4], and further upstream at Country Club Rd and at Pacific Park Dr. / Oso Parkway for the Regional Board In-house monitoring[5]. The furthest upstream station is approximately in the middle of the creek. Therefore, Aliso Creek is listed as impaired for phosphate from ½ mile upstream of Pacific Park Dr. / Oso Parkway all the way down to the mouth of the creek. This covers the lower 4 miles of the creek.

Toxicity Five stations, from the headwaters to the mouth, were sampled. All 5 stations showed toxicity for one or both of the storm event samplings. Therefore, the entire reach (7.2 miles) is listed as impaired due to toxicity.

POTENTIAL SOURCES

Enterococci	Urban runoff, other point sources and non-point sources
E. coli	Urban runoff, other point sources and non-point sources
Fecal coliform	Urban runoff, other point sources and non-point sources
Phosphorus	Urban runoff, other point sources and non-point sources

Toxicity The Aliso Creek Water Quality Planning Study[3] indicates organophosphate pesticides are a significant component of the aquatic toxicity in storm samples. Organophosphate pesticides are found in urban and agricultural run-off.

TMDL PRIORITY

Enterococci	Medium
E. coli	Medium
Fecal coliform	Medium
Phosphorus	Medium
Toxicity	Medium

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Aliso Creek Water Quality Planning Study, Quarterly Progress Report, January 1, 1999 – March 31, 1999. Agreement No. 7-042-250-0, Aliso Creek 205(j) Water Quality Planning Study.

[2] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[3] Aliso Creek Water Quality Planning Study, Draft Final Report, Aliso Creek 205(j) Water Quality Planning Study. June, 2000. Agreement No. 7-042-250-0.

[4] NPDES Annual Progress Report, County of Orange. November, 2000. Orange County Board of Supervisors. Regional Water Quality Control Board, San Diego Region: Order No. 96-03.

[5] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region

DANA POINT HARBOR
Hydrologic Subarea 901.14

NEW 303(d) LISTINGS
Copper (dissolved) and Bacterial Indicators (please see Fact Sheet entitled "PACIFIC OCEAN SHORELINE FOR THE SAN DIEGO REGION" on pages B-69 to B-74 for rationale pertaining to the Bacterial Indicators listing recommendation)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Dana Point Harbor is a 215-acre waterbody in the San Juan Hydrologic Unit. It is classified coastal water with the following beneficial uses: IND, NAV, REC1, REC2, COMM, WILD, RARE, MAR, MIGR, SPWN AND SHELL[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Copper (dissolved)
The Criteria Maximum Concentration (CMC) 1-Hour Average for dissolved copper is 4.8 µg/L. The CMC is the California Toxics Rule[2] water quality criteria to protect against acute effects in aquatic life and is the highest short-term average concentration of a priority toxic pollutant not to be exceeded more than once every three years on the average.

The Criteria Continuous Concentration (CCC) 4-Day Average for dissolved copper is 3.1 µg/L. The CCC is the California Toxics Rule[2] water quality criteria to protect against chronic effects in aquatic life and is the highest 4-day average concentration not to be exceeded more than once every three years on the average.

NOAA has published Sediment Quality Guidelines[3] as informal, non-regulatory guidelines for use in interpreting chemical data from analyses of sediments. The ERL (Effects Range Low) for total copper is 34 ppm, dry weight. It is the lowest 10th percentile and is the concentration below which adverse effects rarely occur. The ERM (Effects Range Median) for total copper is 270 ppm, dry weight. It is the 50th percentile and is the concentration above which effects frequently occur.

EVIDENCE OF IMPAIRMENT
Elevated Dissolved Copper
Data from the County of Orange's Annual NPDES Progress Report[4] indicate elevated dissolved copper concentrations in Dana Point Harbor. Five stations were sampled within the harbor and just outside the mouth. Data goes as far back as 1991, but samples were not analyzed for dissolved copper until the year 2000. The permit requires only that two storm events be sampled per year. While there is some dry weather data, it was only analyzed for total copper. Only dissolved copper could be compared against the water quality objectives mentioned above. The Metals Translator[5] was not used to convert total copper concentrations to dissolved copper concentrations due to the uncertainty in the conversion during high flow events. Therefore, all dissolved copper values come from storm events.

Dissolved copper data for three separate storm events has been reviewed (Table 1). Only the first storm event had concentrations above the applicable criteria. This occurred from 17 to 21 April 2000, when all 15 samples (3 at each of 5 sites) had

concentrations above the CMC. Pooling all 15 samples produced a mean of 28.5 µg/L and a median of 27.0 µg/L. This median concentration was over 460% above the CMC. During the other two storm events, dissolved copper was only detected twice (detection limit of 2.0 µg/L). These storms occurred from 24 to 28 January 2001 and from 26 February to 2 March 2001. The two detected values were 3.2 and 2.0 µg/L and did not exceed the CMC. In total, 15 of 45 (33%) samples (3 of 9 at each station) exceeded the CMC (Table 1). Only 1 of 3 (33%) storms had elevated dissolved copper concentrations, but these values were well above the applicable criteria.

Table 1

Station	DAPTEB (ug/L)	DAPTWB (ug/L)	DAPTLR (ug/L)	DAPTLB (ug/L)	DAPTHE (ug/L)
17-Oct-97	7.6 DT	9.3 DT	- -	5.2 DT	2 DT**
28-Oct-98	57.0 DT	68.0 DT	63.0 DT	77.0 DT	- -
23-Jun-99	96.0 DT	81.0 DT	117.0 DT	81.0 DT	- -
17-Apr-00	29.0 ST	30.0 ST	38.0 ST	33.0 ST	33.0 ST
19-Apr-00	29.0 ST	26.0 ST	22.0 ST	24.0 ST	22.0 ST
21-Apr-00	39.0 ST	37.0 ST	32.0 ST	35.0 ST	31.0 ST
24-Jan-01	3.5 ST	1.0 ST*	1.0 ST*	1.0 ST*	1.0 ST*
26-Jan-01	1.0 ST*	3.1 ST	1.0 ST*	2.4 ST	7.3 ST
28-Jan-01	8.7 ST	11.0 ST	17.0 ST	8.8 ST	1.0 ST*
26-Feb-01	8.1 ST	22.0 ST	1.0 ST*	1.0 ST*	1.0 ST*
28-Feb-01	1.0 ST*	1.0 ST*	1.0 ST*	1.0 ST*	1.0 ST*
2-Mar-01	1.0 ST*	1.0 ST*	1.0 ST*	1.0 ST*	1.0 ST*
17-Apr-00	27.0 SF	28.0 SF	26.0 SF	30.0 SF	21.0 SF
19-Apr-00	27.0 SF	25.0 SF	21.0 SF	22.0 SF	20.0 SF
21-Apr-00	39.0 SF	37.0 SF	35.0 SF	40.0 SF	30.0 SF
24-Jan-01	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*
26-Jan-01	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*	2.0 SF
28-Jan-01	3.2 SF	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*
26-Feb-01	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*
28-Feb-01	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*
2-Mar-01	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*	1.0 SF*

* = Value reported as "<2.0" ** = Value reported as "<4.0"
DT = Dry, Total (total recoverable)
SF = Storm, Filtered (dissolved) ST = Storm, Total (total recoverable)

Summary Statistics

SF (storm, filtered)					
Avg =	11.2	10.7	9.8	10.9	8.7
Median =	1.0	1.0	1.0	1.0	1.0
Std Dev =	15.2	14.8	13.6	15.5	11.6

Lab QA / QC Concerns

The County of Orange's contracted lab used EPA Method 200.8, an ICP/MS method commonly used for the detection of dissolved copper in drinking water. This method directs the analyst to correct for problems known to occur due to salt matrix interference. Phone conversations with lab managers at the contracted laboratory verified that salt matrices are not removed prior to testing. Therefore, it is likely that the data reported in Table 1 are incorrect.

EPA Region 9 has started an intercalibration study with several laboratories, including the County of Orange's contracted lab. The goal was to evaluate accuracy and recovery of metals within seawater and estuarine samples. The standard reference materials, which contain known concentrations of metals, come from the National Research Council of Canada (NRCC). The NRCC and County of Orange's results for the same concentration of copper are presented in Table 2. Comparison of the results show the

County of Orange's contracted lab to report much higher concentrations than the NRCC and provides evidence of the over estimation of dissolved copper when salt matrices are not removed. To date, limited data from this intercalibration study were reported and can be compared. While this preliminary quality assurance check suggests the contracted lab cannot produce a reliable dissolved copper result in seawater, the evidence presented is not so compelling that the data is considered invalid. Strong and conclusive evidence must be presented before a data set is disregarded. However, the data from the contracted lab must be viewed with caution.

Table 2: Split Sample Copper Concentrations

Sample ID	NRCC* Cu (mg/L)	Orange Co. Result Cu (mg/L)
35 ppt salinity	0.517	<2.0
15 ppt salinity	1.55	5.0
7 ppt salinity	0.71	9.6
<2 ppt salinity	1.81	5.3

*NRCC = National Research Council Canada standard reference material

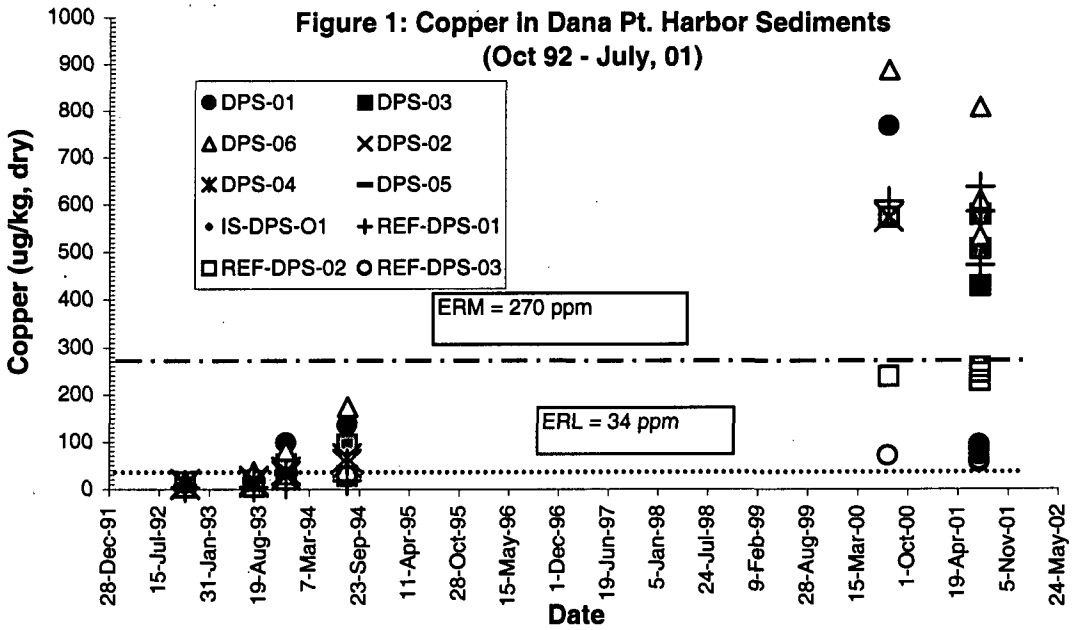
Sediment Copper Concentrations

Sediment copper concentration data is available and helps in understanding the copper situation in Dana Point Harbor[6]. Sediment copper concentrations are not the basis for this listing decision, but add to the weight of evidence and confirm that copper is present in the harbor at levels sufficient to accumulate in sediment. Sediment copper is measured as total copper and has been collected by the Dana Point Shipyard. The laboratory contracted by Orange Co. was not one of the laboratories that analyzed these sediment samples for copper. Sample locations exist adjacent to the shipyard and at three reference sites within the harbor. Data is available for October 1992 to August 1994, July of 2000 and July of 2001 (Table 3). The earlier dates have much lower concentrations that occasionally exceed the ERM, but never exceed the more stringent ERL criteria (Figure 1). The samples taken during 2000 and 2001 indicate that 25 of 25 samples (100%) exceeded the ERL and 14 of 25 (56%) exceeded the ERM (Figure 2). For all samples and dates, 37 of 62 (60%) samples exceeded the ERL and 18 of 62 (29%) exceeded the ERM.

Table 3: Sediment Copper Concentrations in Dana Point Harbor

	Station									
Sampling Date	DPS-01 Copper (mg/kg) dry	DPS-02 Copper (mg/kg) dry	DPS-03 Copper (mg/kg) dry	DPS-04 Copper (mg/kg) dry	DPS-05 Copper (mg/kg) dry	DPS-06 Copper (mg/kg) dry	REF-DPS-01 Copper (mg/kg) dry	REF-DPS-02 Copper (mg/kg) dry	REF-DPS-03 Copper (mg/kg) dry	IS-DPS-01 Copper (mg/kg) dry
26-Oct-92	13.8	12	16	10.1	5.6	18.1	3.8	5.6	-	10.4
27-Jul-93	23	19	19	15	19	37	5.1	6.6	-	12
3-Dec-93	99	39	54	30	35	82	12	22	-	33
4-Aug-94	138	67	96	55	41	175	18	29	30	49
12-Jul-00	768	573	573	-	-	888	606.5	238.7	71.3	-
11-Jul-01	72	-	579	-	-	533	585	229	57	-
11-Jul-01	95	-	429	-	-	609	472	258	62	-
11-Jul-01	86	-	507	-	-	808	637	246	84	-

(-) = not sampled



Best Professional Judgement

Knowledge of the inherent nature of anti-fouling copper paints used on boat hulls is also considered evidence. By their very design, these paints leach copper into the surrounding water as a means of controlling bio-fouling organisms. In an area of high boat densities, such as Dana Point Harbor, it is likely that the aquatic environment contains high dissolved copper concentrations. Perhaps for more than any other listing, this type of anecdotal evidence must be considered and weigh strongly in favor of 303(d) listing.

Summary of Evidence of Impairment

Copper is a commonly used pesticide in anti-fouling paints used on ocean vessels. There is only limited direct evidence of elevated dissolved copper concentrations in Dana Point Harbor. One storm event resulted in all the direct evidence of exceedances and there is limited evidence that the data may not be valid due to analytical errors at the contracted laboratory. However, during the one storm event, 100% of the samples exceeded the CMC by a large margin. Considering all three-storm events, one-third of the samples exceeded the CMC. In addition, total copper concentrations are now above the ERM at over half the stations sampled and exceed the ERL at all the stations. Finally, the intrinsic nature of a marina filled with boats that are coated with copper based anti fouling paints provides additional evidence that Dana Point Harbor has a dissolved copper problem. All of these lines of evidence constitute the weight of evidence that leads to the conclusion that the aquatic life beneficial uses of Dana Point Harbor are likely to be impaired due to elevated copper concentrations in the water column.

All of the above violations are expected to impair the WILD, RARE, MAR, MIGR, SPWN and SHELL beneficial uses.

EXTENT OF IMPAIRMENT

Copper (dissolved) The 5 water column sampling stations are distributed through out the entire harbor, including the mouth. The sediment sampling stations are also distributed through out the harbor. Finally, ships coated with copper-based anti-fouling paints are docked through out the harbor. Therefore, the entire harbor is listed as impaired for dissolved copper.

POTENTIAL SOURCES

Copper (dissolved) The California Regional Water Quality Control Board, San Diego Region's Draft Copper TMDL (Total Maximum Daily Load)[7] has identified recreational boats as the major source of copper contamination to marina waters in San Diego Bay. This ongoing TMDL addresses elevated concentrations of dissolved copper in the Shelter Island Yacht Basin portion of San Diego Bay. Urban runoff is also considered a potential source.

TMDL PRIORITY

Copper (dissolved) Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

[2] California Toxics Rule (Federal Register, 40 CFR, Part 131, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California), May, 2000. Environmental Protection Agency.

[3] National Oceanic and Atmospheric Administration, 2000. Sediment Quality Guidelines. Office of Response and Restoration. http://response.restoration.noaa.gov/cpr/sediment/SQGs.html

[5] Environmental Protection Agency, 1993. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion. EPA 823-B-96-007.

[7] California Regional Water Quality Control Board, San Diego Region, 2001. Draft Staff Report for Copper TMDL in Shelter Island Yacht Basin. December 2001.

Data Sources

[4] NPDES Annual Progress Report, County of Orange. November, 2000. Orange County Board of Supervisors. California Regional Water Quality Control Board, San Diego Region: Order No. 96-03.

[6] Burns and McDonnell Engineers, 2001. Annual Sediment Sampling Report for Dana Point Shipyard. Project Number 23879. San Diego, CA. In compliance with California Regional Water Quality Control Board, San Diego Region Order No. 2000-212.

PRIMA DESHECHA CREEK
Hydrologic Subarea 901.31

NEW 303(d) LISTINGS
Phosphorus and Turbidity

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Prima Deshecha Creek is an approximately 6.20 mile waterway in the San Juan Watershed of Region 9. It drains directly into the Pacific Ocean. It is classified as inland surface water with the following beneficial uses: AGR, REC1 (designated potential), REC2, WARM and WILD[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus (P) is 0.1 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

Turbidity The Basin Plan[1] objective is 20 NTU (Nephelometric Turbidity Units). This objective is not to be exceeded more than 10% of the time during any one-year period.

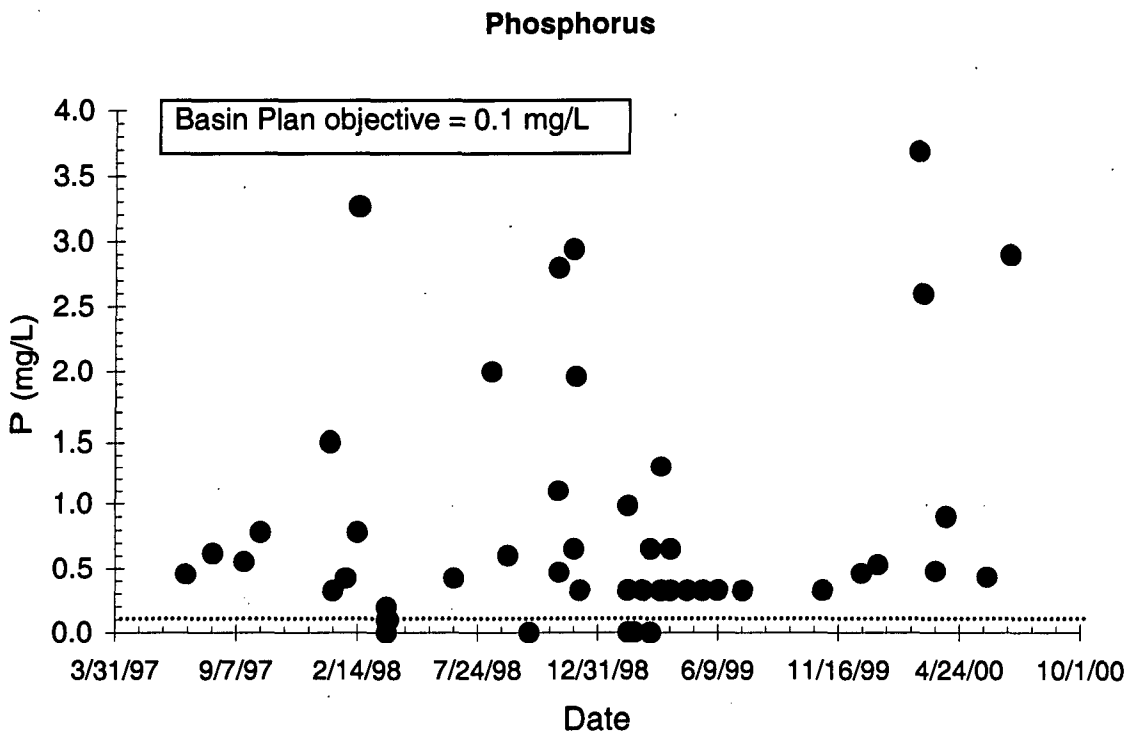
EVIDENCE OF IMPAIRMENT
Phosphorus Data, collected between July 1997 and June 2000 contained in the County of Orange NPDES Annual Progress Report[2], shows exceedance of the Basin Plan objective of 0.1 mg/L for more than 10% of the time during a one-year period. From July 1997 to June 1998, 13 of 16 samples (81%) exceeded the objective, with a mean of 1.01 mg/L and a median of 0.51 mg/L. From August 1998 to July 1999, 24 of 29 samples (83%) exceeded the objective, with a mean of 0.69 mg/L and a median of 0.33 mg/L. From October 1999 to June 2000, 9 of 9 samples (100%) exceeded the objective, with a mean of 1.37 mg/L and a median of 0.53 mg/L. It should be noted that the majority of the sampling occurred during the months of January, February, March and November. This time is generally considered to be the rainy season in San Diego. See figure below that graphs phosphorus concentration against time of year.

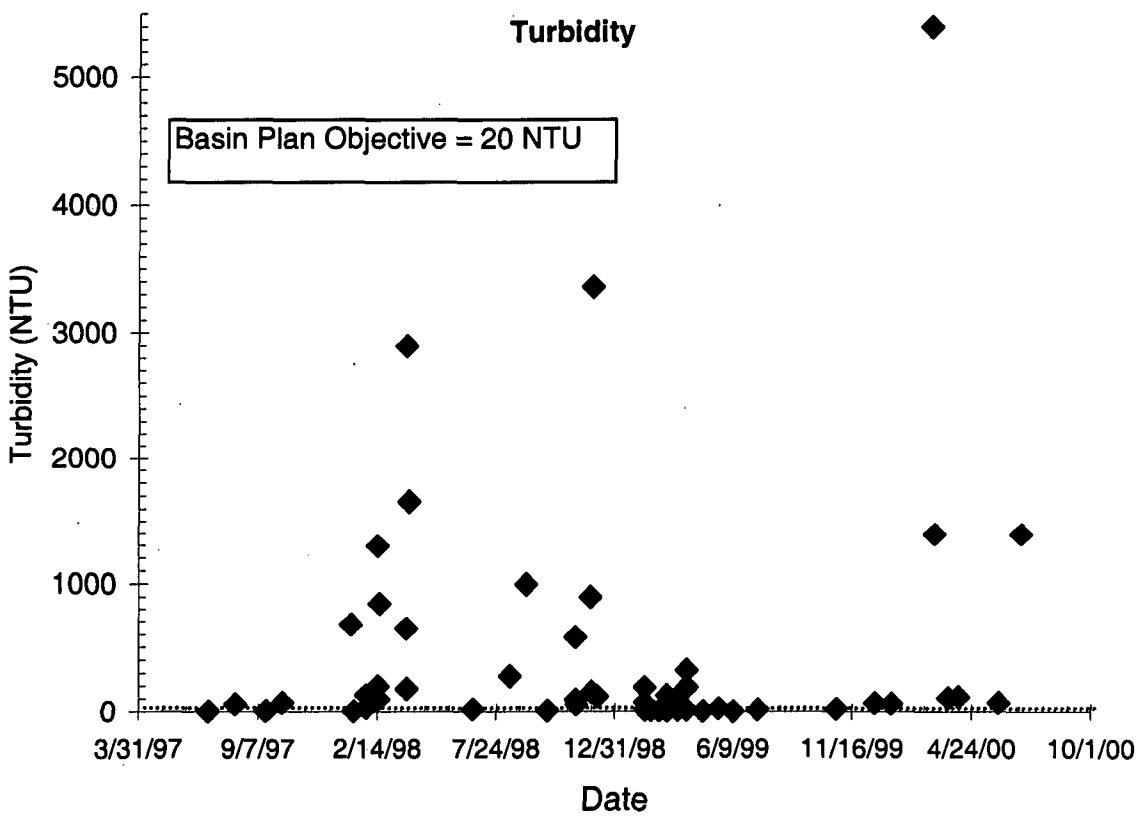
These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that may impair the REC1, REC2, WARM and WILD beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

Turbidity Data collected between July 1997 and June 2000 contained in the County of Orange NPDES Annual Progress Report[2] shows exceedance of the Basin Plan objective of 20 NTU more than 10% of the time during a one-year period. From July 1997 to June 1998, 14 of 16 samples (88%) exceeded the objective, with a mean of 553.3 NTU and a median of 155.0 NTU. From August 1998 to July 1999, 18 of 29 samples (62%) exceeded the objective, with a mean of 268.3 NTU and median of 58.0 NTU. From October 1999 to June 2000, 9 of 9 samples (100%) exceeded the objective, with a mean of 962.4 NTU and a median of 110.0 NTU. It should be noted that the majority of the sampling occurred during the months of January, February, March and

November. This time is generally considered to be the rainy season in San Diego. See figure below that graphs turbidity against time of year.

Prima Deshecha Creek - NPDES Data





High turbidity can decrease the penetration of light into the water column and adversely affect photosynthesis which aquatic organisms depend upon for survival. High concentrations of particulate matter that produce turbidity can be directly lethal to aquatic life. This may impair the WARM and WILD beneficial uses of this water body.

EXTENT OF IMPAIRMENT

Phosphorus Sampling occurred at site PDCM01, which is near the mouth of the creek. The specific standards exceeded are most likely due to cumulative effects throughout the waterbody, but the data is for only one site. The extent of impairment is from 1/2 mile upstream of the station, down to the mouth of the Creek. This covers approximately the lower 1-mile of the creek.

Turbidity Sampling occurred at site PDCM01, which is near the mouth of the creek. The specific standards exceeded are most likely due to cumulative effects throughout the waterbody, but the data is for only one site. The extent of impairment is from 1/2 mile upstream of the station, down to the mouth of the Creek. This covers approximately the lower 1-mile of the creek.

POTENTIAL SOURCES

Phosphorus Urban runoff, other point sources and non-point sources

Turbidity Most of Prima Deshecha Creek runs through highly urbanized areas that have seen tremendous growth in recent years. Channalization of the stream has probably increased water velocity that could be causing the undercutting of banks and increasing turbidity. Recent and past construction activities may also have contributed.

TMDL PRIORITY

Phosphorus Low

Turbidity Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] NPDES Annual Progress Report, County of Orange. November, 2000. Orange County Board of Supervisors. California Regional Water Quality Control Board, San Diego Region: Order No. 96-03.

SEGUNDA DESHECHA CREEK
Hydrologic Subarea 901.32

NEW 303(d) LISTINGS
Phosphorus and Turbidity

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Segunda Deshecha Creek is an approximately 5.6 mile waterway in the San Juan Watershed of Region 9. It drains directly into the Pacific Ocean. It is classified as inland surface water with the following beneficial uses: AGR, REC1 (designated potential), REC2, WARM and WILD[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus (P) is 0.1 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

Turbidity The Basin Plan[1] objective is 20 NTU (Nephelometric Turbidity Units). This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Phosphorus Data collected between August 1997 and June 2000 contained in the County of Orange NPDES Annual Progress Report[2] shows exceedance of the Basin Plan objective of 0.1 mg/L for more than 10% of the time during a one-year period. From August 1997 to August 1998, 13 of 16 samples (81%) exceeded the objective, with a mean of 0.73 mg/L and a median of 0.33 mg/L. From September 1998 to July 1999, 15 of 20 samples (75%) exceeded the objective, with a mean of 0.25 mg/L and a median of 0.21 mg/L. From October 1999 to June 2000, 6 of 7 samples exceeded the objective, with a mean of 0.37 mg/L and median of 0.35 mg/L. It should be noted that the majority of the sampling occurred during the months of January, February, March and April. This time is generally considered to be the rainy season in San Diego. See figure below that graphs phosphorus concentration against time of year.

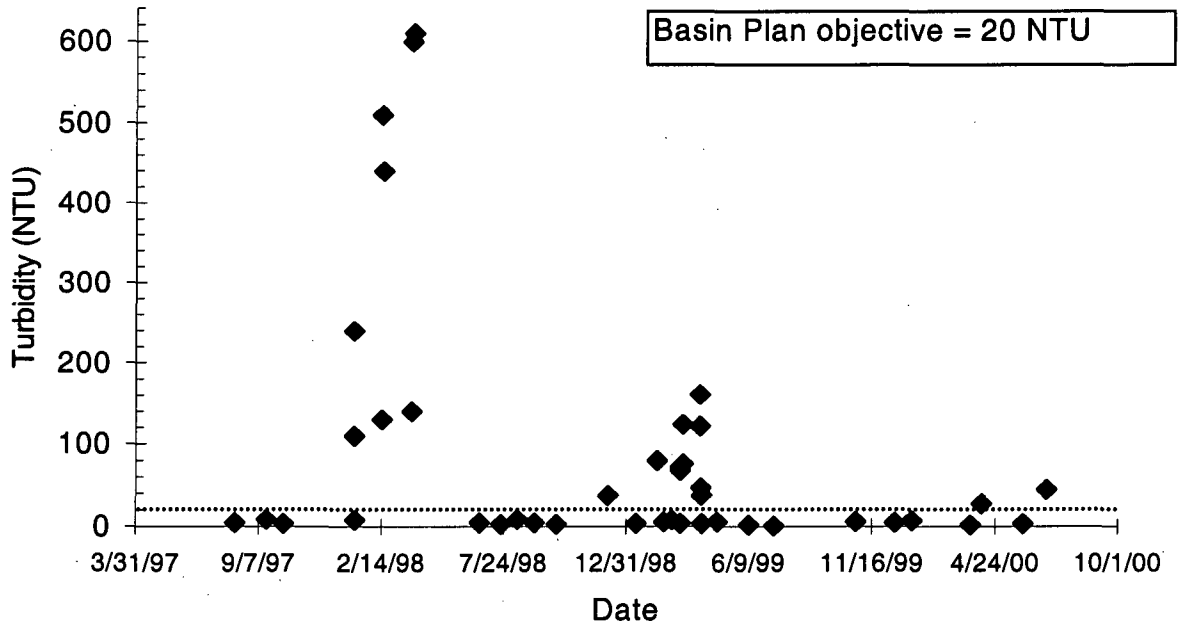
These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that would impair the REC1, REC2, WARM and WILD beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

Turbidity Data collected between August 1997 and June 2000 contained in the County of Orange NPDES Annual Progress Report[2] shows exceedance of Basin Plan objective of 20 NTU for more than 10% of the time during a one-year period. From August 1997 to August 1998, 9 of 16 samples (56%) exceeded the objective, with a mean of 295.2 NTU and a median of 120.0 NTU. From September 1998 to July 1999, 10 of 20 samples (50%) exceeded the objective, with a mean of 43.4 NTU and a median of 23.0 NTU. From October 1999 to June 2000, 2 of 7 samples exceeded the objective, with a mean of 14.0 NTU and median of 6.2 NTU. It should be noted that the majority of

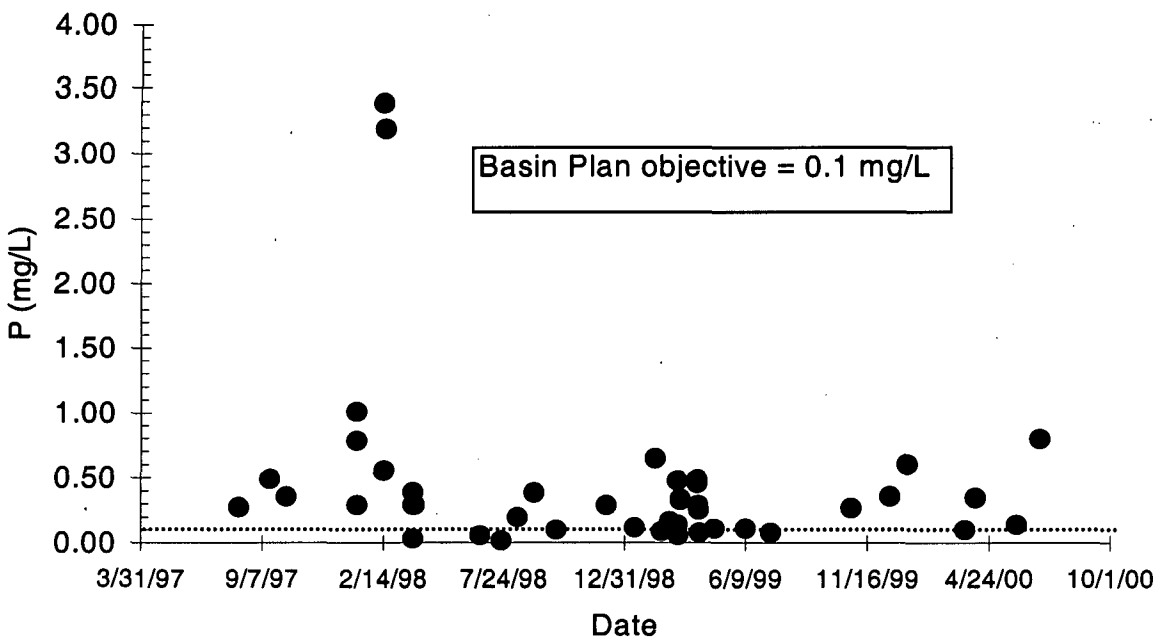
the sampling occurred during the months of January, February, March and April. This time is generally considered to be the rainy season in San Diego. See the figure above that graphs turbidity against time of year.

Segunda Deshecha Creek - NPDES Data

Turbidity



Phosphorus



High turbidity can decrease the penetration of light into the water column and adversely affect photosynthesis which aquatic organisms depend upon for survival. High concentrations of particulate matter that produce turbidity can be directly lethal to aquatic life. This would impair the WARM and WILD beneficial uses of this water body.

EXTENT OF IMPAIRMENT

Phosphorus Sampling occurred at site SDCM01, which is near the mouth of the creek. The specific standards exceeded are most likely due to cumulative effects throughout the waterbody, but the data is for only one site. Therefore, the extent of impairment is from 1/2 mile upstream of the station, down to the mouth of the Creek. This covers approximately the lower 1-mile of the creek.

Turbidity Sampling occurred at site SDCM01, which is near the mouth of the creek. The specific standards exceeded are most likely due to cumulative effects throughout the waterbody, but the data is for only one site. Therefore, the extent of impairment is from 1/2 mile upstream of the station, down to the mouth of the Creek. This covers approximately the lower 1-mile of the creek.

POTENTIAL SOURCES

Phosphorus Urban runoff, other point sources and non-point sources

Turbidity Most of Segunda Deshecha Creek runs through highly urbanized areas that have seen tremendous growth in recent years. Channalization of the stream has probably increased water velocity that could be causing the undercutting of banks and increasing turbidity. Recent and past construction activities may also have contributed.

TMDL PRIORITY

Phosphorus Low

Turbidity Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] NPDES Annual Progress Report, County of Orange. November, 2000. Orange County Board of Supervisors. California Regional Water Quality Control Board, San Diego Region: Order No. 96-03.

SANDIA CREEK
Hydrologic Subarea 902.22

NEW 303(d) LISTINGS
Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Santa Margarita Hydrologic Unit is a rectangular area of approximately 750 square miles. It includes portions of US Marine Corps' Camp Pendleton, as well as the civilian populations of Murrieta, Temecula, and part of Fallbrook. The Santa Margarita Hydrologic Unit is comprised of the following nine hydrologic areas: the Ysidora, Deluz, Murrieta, Auld, Pechanga, Wilson, Cave Rocks, Aguanga and Oak Grove Hydrologic Areas. Annual precipitation ranges from less that 12 inches near the coast to more than 45 inches inland near Palomar Mountain. The major surface water storage areas are Vail Lake and O'Neil Lake.[1]

Santa Margarita Hydrologic Unit is drained largely by the Santa Margarita River, Murrieta Creek and the Temecula Creek. The Santa Margarita flows approximately 27 miles from the confluence of Temecula Creek and Murrieta Creek toward the Pacific Ocean to the Santa Margarita Lagoon, which lies within the Camp Pendleton Naval Reservation of the US Marine Corps. The slough at the mouth of the river is normally closed off from the ocean by a sandbar. The Santa Margarita River provides groundwater recharge to Camp Pendleton's only domestic water supply. [1,2]

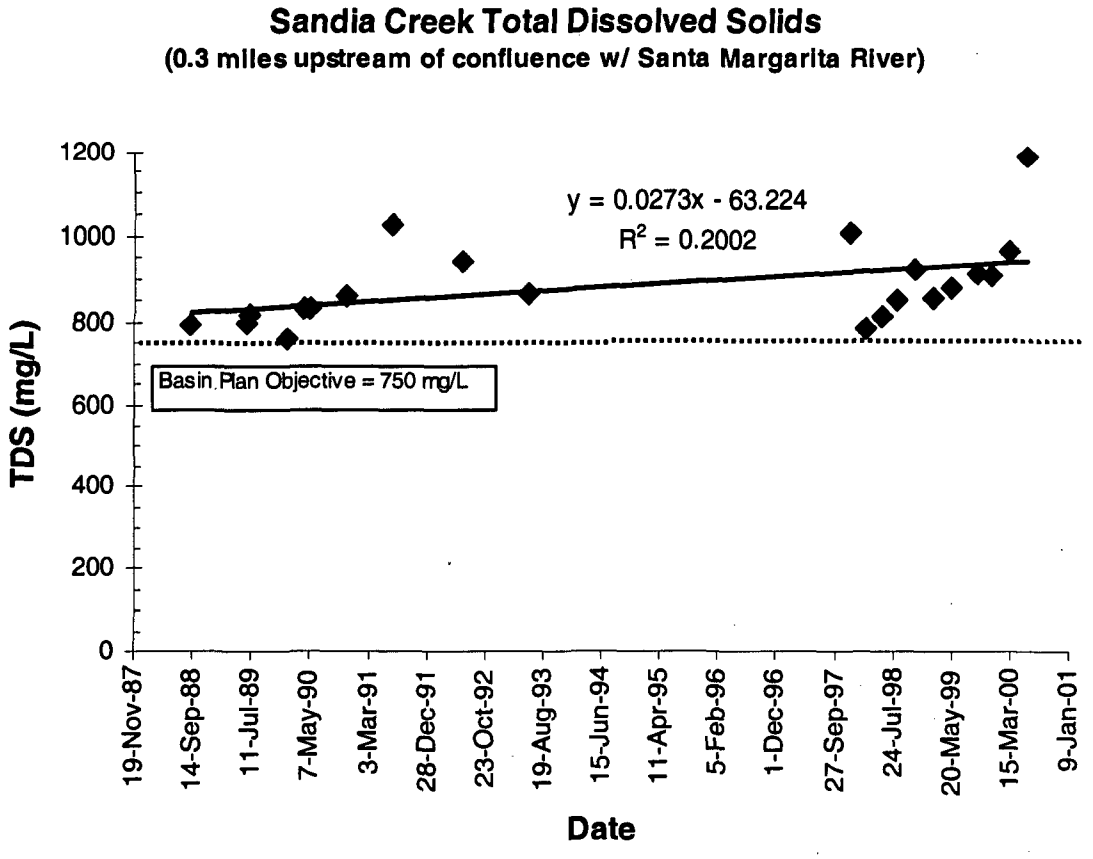
Sandia Creek is located near Fallbrook and flows from the north into Santa Margarita River just downstream from the Rainbow Creek confluence with the Santa Margarita. Beneficial Uses include: MUN, AGR, IND, REC1, REC2, WARM, COLD and WILD.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
TDS The Basin Plan[1] objective for TDS is 750 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
TDS Quarterly sampling collected, compiled and analyzed by Camp Pendleton[2] from 1997 to 2000 at 0.3 miles upstream of the confluence with the Santa Margarita River, show exceedance of the Basin Plan objective more than 10% of the time during a one-year period. From December 1997 to November 1998, 5 of 5 samples (100%) exceeded the objective, with a mean of 877.0 mg/L and a median of 850.0 mg/L. From February 1999 to December 1999, 4 of 4 samples (100%) exceeded the objective, with a mean of 888.5 mg/L and median of 893.5 mg/L. In March and June of 2000, 2 of 2 samples (100%) exceeded the objective, with a mean and median of 1078.0 mg/L. Graphical presentation of the data from 1987 to 2000[2] display increasing concentrations of TDS, indicating a decrease in water quality (see figure below).

Sampling of TDS, by the Regional Board[3] in June of 1998, also show Sandia Creek to have concentrations above the Basin Plan objective. The concentration in Sandia Creek at Sandia Creek Rd was 817 mg/L.

TDS may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.). Geologic conditions help to define the natural levels of many of these constituents. Imported water is known to have high levels of TDS. Most of the problem can be traced to human impacts, and therefore, can be mitigated. High TDS concentrations may be expected to impair the MUN beneficial use[1]. High concentrations of TDS are also expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1].



EXTENT OF IMPAIRMENT

TDS Sampling occurred at two stations. One near the confluence with the Santa Margarita River and another approximately 1 mile upstream. The extent of impairment is the lower 1.5 miles of the stream.

POTENTIAL SOURCES

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Imported water, evaporation and natural salt sources also contribute. Other sources include urban runoff, agriculture runoff, other point sources and non-point sources.

TMDL PRIORITY

TDS Low (There are current and extensive efforts underway to address water quality issues in the Santa Margarita Watershed.[4] Various stakeholders have recognized and identified some existing and potential water quality issues and are attempting to gain a better understanding, conduct more monitoring, target pollutant sources and develop comprehensive management strategies. TMDLs would provide the legal framework necessary to address some of these problems and could assist in this coordinated effort and be a major component of this work.)

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo & Santa Margarita River Watershed. Marine Corps Base, Camp Pendleton, CA. Contract No. N68711-95-D-7573, D.O. 0021.

[3] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region.

[4] DRAFT Framework Monitoring Plan for the Santa Margarita Watershed California. US Bureau of Reclamation. CDM Federal Corp., Boyle Engr. Corp. RECON. Feb 2001.

SANTA MARGARITA RIVER, Upper
Hydrologic Subarea 902.22

NEW 303(d) LISTINGS
Phosphorus

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Santa Margarita Hydrologic Unit is a rectangular area of approximately 750 square miles. It includes portions of US Marine Corps' Camp Pendleton, as well as the civilian populations of Murrieta, Temecula, and part of Fallbrook. The Santa Margarita Hydrologic Unit is comprised of the following nine hydrologic areas: the Ysidora, Deluz, Murrieta, Auld, Pechanga, Wilson, Cave Rocks, Aguanga and Oak Grove Hydrologic Areas. Annual precipitation ranges from less that 12 inches near the coast to more than 45 inches inland near Palomar Mountain. The major surface water storage areas are Vail Lake and O'Neil Lake.[1]

Santa Margarita Hydrologic Unit is drained largely by the Santa Margarita River, Murrieta Creek and the Temecula Creek. Murrieta Creek flows southeasterly from the northern slope of the Santa Rosa Plateau to the confluence with the Temecula Creek to form the Santa Margarita River The Santa Margarita then flows approximately 27 miles to the Pacific Ocean. The coastal Santa Margarita Lagoon is at the mouth and lies within the Camp Pendleton Naval Reservation of the US Marine Corps. The slough at the mouth of the river is normally closed off from the ocean by a sandbar.[1] The Santa Margarita River provides groundwater recharge to Camp Pendleton's only domestic water supply. [1,2]

The Santa Margarita is divided into lower and upper reaches as defined by the confluence of the DeLuz Creek.

Designated beneficial uses for the Santa Margarita River include MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD, and RARE.[1]

WATER QUALITY OBJECTIVE NOT ATTAINED
Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus is 0.1 mg/L for flowing surface waters. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Phosphorus Quarterly sampling collected, compiled and analyzed by Camp Pendleton[2] from 1997 to 2000 shows two sites along the river to have elevated concentrations of phosphorus that exceeded the Basin Plan objective more than 10% of the time during a one-year period. Near Temecula, from December 1997 to November 1998, 4 of 5 samples (80%) exceeded the objective, with a mean of 0.24 mg/L and a median of 0.25 mg/L. In February and May of 1999, 1 of 2 samples (50%) exceeded the objective, with a mean and median of 0.17 mg/L. Near Fallbrook, from December 1997 to November 1998, 4 of 5 (80%) samples exceeded the objective, with a mean of 0.25

mg/L and a median of 0.26 mg/L. In February and May of 1999, 1 of 2 samples (50%) exceeded the objective, with a mean and median of 0.12 mg/L.

Sampling of phosphate (as phosphorus) by the Regional Board[3] in June of 1998 also showed the Upper Santa Margarita River to have concentrations above the Basin Plan objective. The concentration at Willow Glen Road was 0.62 mg/L. The concentration at Deluz / Pico Road was 0.35 mg/L.

Sampling by the Rancho California Water District[4] from March to December 2000 showed two locations to exceed the Basin Plan objective for more than 10% of the time during the year. At Santa Margarita River at Willow Glen Road, 1 of 8 samples (13%) exceeded the objective, with a mean of 0.029 mg/L and a median of 0.0 mg/L. At De Luz Rd, 1 of 6 samples (17%) exceeded the objective, with a mean of 0.043 mg/L and a median of 0.025 mg/L. All non-detects were considered to be 0.0 mg/L for statistical purposes.

These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that may impair the MUN, REC1, REC2, WARM, COLD WILD and RARE beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

EXTENT OF IMPAIRMENT

Phosphorus Phosphorus concentrations exceeded the Basin Plan objective at all 4 stations sampled along the upper reach of the Santa Margarita River. Therefore, the entire upper reach (17.5 miles) is listed.

POTENTIAL SOURCES

Phosphorus Urban runoff, agriculture runoff, other point sources and non-point sources.

TMDL PRIORITY

Phosphorus Low (There are current and extensive efforts underway to address water quality issues in the Santa Margarita Watershed.[5] Various stakeholders have recognized and identified some existing and potential water quality issues and are attempting to gain a better understanding, conduct more monitoring, target pollutant sources and develop comprehensive management strategies. TMDLs would provide the legal framework necessary to address some of these problems and could assist in this coordinated effort and be a major component of this work.)

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo & Santa Margarita River Watershed. Marine Corps Base, Camp Pendleton, CA. Contract No. N68711-95-D-7573, D.O. 0021.

[3] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region.

[4] Annual Receving Water Monitoring Data. CA Department of Water Resources. G. Gilbreath. 1998-2000.

[5] DRAFT Framework Monitoring Plan for the Santa Margarita Watershed California. US Bureau of Reclamation. CDM Federal Corp., Boyle Engr. Corp. RECON. Feb 2001.

MURRIETA CREEK
Hydrologic Subarea 902.52

NEW 303(d) LISTINGS
Phosphorus

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Santa Margarita Hydrologic Unit is a rectangular area of approximately 750 square miles. It includes portions of US Marine Corps' Camp Pendleton, as well as the civilian populations of Murrieta, Temecula, and part of Fallbrook. The Santa Margarita Hydrologic Unit is comprised of the following nine hydrologic areas: the Ysidora, Deluz, Murrieta, Auld, Pechanga, Wilson, Cave Rocks, Aguanga and Oak Grove Hydrologic Areas. Annual precipitation ranges from less that 12 inches near the coast to more than 45 inches inland near Palomar Mountain. The major surface water storage areas are Vail Lake and O'Neil Lake.[1]

The Santa Margarita Hydrologic Unit is drained largely by the Santa Margarita River, Murrieta Creek and the Temecula Creek. Murrieta Creek flows southeasterly from the northern slope of the Santa Rosa Plateau to the confluence with the Temecula Creek to form the Santa Margarita River. The Santa Margarita then flows approximately 27 miles toward the Pacific Ocean to the coastal Santa Margarita Lagoon which lies at the mouth and within the Camp Pendleton Naval Reservation of the US Marine Corps. The slough at the mouth of the river is normally closed off from the ocean by a sandbar.[1]

The Santa Margarita River provides groundwater recharge to Camp Pendleton's only domestic water supply. [1,2]

Beneficial Uses of Murrieta Creek include: MUN, AGR, IND, PROC, GWR, REC1 (designated potential), REC2, WARM and WILD.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus is 0.1 mg/L for flowing surface waters. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Phosphorus Quarterly sampling collected, compiled and analyzed by Camp Pendleton[2] from 1997 to 2000 at 0.4 miles upstream of the confluence with Temecula Creek, show exceedance of the Basin Plan objective for more than 10% of the time during a one-year period. From December 1997 to November 1998, 4 of 5 samples (80%) exceeded the objective, with a mean of 0.28 mg/L and a median of 0.27 mg/L. In February and May of 1999, 2 of 2 samples (100%) exceeded the objective, with a mean and median of 0.21 mg/L.

Sampling of phosphate (as phosphorus) by the Regional Board[3] in June of 1998 showed one of two sites to have a concentration above the Basin Plan[1] objective of 0.1 mg/L.

The concentration in Murrieta Creek at Calle Del Oso Oro Rd was 0.28 mg/L and the concentration in Murrieta Creek behind the cement factory at Front Street was 0.06 mg/L.

These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that may impair the REC1, REC2, WARM, COLD and WILD beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

EXTENT OF IMPAIRMENT

Phosphorus The station sampled by Camp Pendleton[2] was located 0.4 miles upstream of the confluence with Temecula Creek. The station sampled by the Regional Board[3] that showed an elevated concentration was located at Calle Del Oso Oro Road and is near the beginning of the stream. Therefore, the entire reach (1.8 miles) should be listed.

POTENTIAL SOURCES

Phosphorus Urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Phosphorus Low (There are current and extensive efforts underway to address water quality issues in the Santa Margarita Watershed.[4] Various stakeholders have recognized and identified some existing and potential water quality issues and are attempting to gain a better understanding, conduct more monitoring, target pollutant sources and develop comprehensive management strategies. TMDLs would provide the legal framework necessary to address some of these problems and could assist in this coordinated effort and be a major component of this work.) Currently, there is ongoing development of a TMDL addressing the elevated levels of nitrogen and phosphorus in Rainbow Creek.[5]

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Final Report of Water Quality Studies & Proposed Watershed Monitoring Program for Portions of San Mateo & Santa Margarita River Watershed. Marine Corps Base, Camp Pendleton, CA. Contract No. N68711-95-D-7573, D.O. 0021.

[3] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region.

[4] DRAFT Framework Monitoring Plan for the Santa Margarita Watershed California. US Bureau of Reclamation. CDM Federal Corp., Boyle Engr. Corp. RECON. Feb 2001.

[5] SDRWQCB, 2001. Draft Staff Report for Nutrient Total Maximum Daily Load for Rainbow Creek. October 19, 2001.

SAN LUIS REY RIVER
Hydrologic Subarea 903.11 & 903.12

NEW 303(d) LISTINGS
Chloride and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
The San Luis Rey River is located in the San Luis Rey Watershed in the north end of San Diego County, California. The San Luis Rey River originates from Lake Henshaw. In the lower segment, it runs parallel to Highway 76 all the way to the City of Oceanside, where it enters the Pacific Ocean adjacent to Oceanside Harbor.

The San Luis Rey River is classified an inland surface water. It is designated with the following beneficial uses: AGR, IND, REC1, REC2, WARM, WILD and RARE[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Chloride The Basin Plan[1] objective is 250 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

TDS The Basin Plan[1] objective is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Chloride Data collected in October 1997 to November 2000 by the City of Oceanside Water Utilities Laboratory[2] showed 3 locations along the San Luis Rey River to exceed 250 mg/L more than 10% of the time during a one-year period. Three locations in the City of Oceanside were sampled quarterly for chloride. At Bonsall Bridge, 1 of 3 samples (33%) exceeded the objective from October 1997 to June 1998, with a mean of 281.0 mg/L and a median of 216.0 mg/L. From September 1998 to September 1999, 3 of 3 samples (100%) exceeded the objective, with a mean of 321.0 mg/L and a median of 297.0 mg/L. From December 1999 to November 2000, 4 of 5 samples (80%) exceeded the objective, with a mean of 314.0 mg/L and a median of 330.0 mg/L. At Douglas Bridge, 2 of 4 samples (50%) exceeded the objective from October 1997 to September 1998, with a mean of 272.5 mg/L and a median of 266.0 mg/L. From March 1999 to September 1999, 2 of 2 samples (100%) exceeded the objective with a mean and median of 310.5 mg/L. From April 2000 to November 2000, 3 of 4 samples (75%) exceeded the objective, with a mean of 312.5 mg/L and a median of 325.0 mg/L. At Benet Road 2 of 4 samples (50%) exceeded the objective from October 1997 to September 1998, with a mean of 401.5 mg/L and a median of 287.5 mg/L. In March and December of 1999, 2 of 2 samples (100%) exceeded the objective, with a mean and median of 444.5 mg/L. From April 2000 to November 2000, 4 of 4 samples exceeded the objective, with a mean of 410.0 mg/L and a median of 380.0 mg/L. See graph below for chloride concentrations plotted against time.

Elevated concentrations in waters used for industrial process and supply can significantly increase the corrosion rate of steel and aluminum. The observed concentrations may be impairing the IND beneficial use.

High chloride concentrations can be toxic to plant life. A safe concentration of chloride of irrigation waters is considered to be in the range of 100 – 140 mg/L. Irrigation with water containing 140 – 350 mg/L of chloride may cause slight to moderate plant injury.[1] The measured concentrations can be expected to impair the AGR beneficial use. Damage to native flora could also impair the WARM, WILD and RARE beneficial uses.

TDS Data collected in October 1997 to November 2000 by the City of Oceanside Water Utilities Laboratory[2] showed 3 locations along the San Luis Rey River to exceed 500 mg/L more than 10% of the time during a one-year period. Three locations in the City of Oceanside were sampled quarterly. At Bonsall Bridge, 3 of 3 samples (100%) exceeded the objective from October 1997 to June 1998, with a mean of 1577 mg/L and a median of 1700 mg/L. From September 1998 to September 1999, 3 of 3 samples (100%) exceeded the objective, with a mean of 1512.7 mg/L and a median of 1400 mg/L. From December 1999 to November 2000, 5 of 5 samples (100%) exceeded the objective, with a mean of 1694 mg/L and a median of 1680 mg/L. At Douglas Bridge, 4 of 4 samples (100%) exceeded the objective from October 1997 to September 1998, with a mean of 1328 mg/L and a median of 1330 mg/L. From March 1999 to September 1999, 2 of 2 samples (100%) exceeded the objective with a mean and median of 1466 mg/L. From April 2000 to November 2000, 4 of 4 samples (100%) exceeded the objective, with a mean of 1613 mg/L and a median of 1620 mg/L. At Benet Road 4 of 4 samples (100%) exceeded the objective from October 1997 to September 1998, with a mean of 1572 mg/L and a median of 1269 mg/L. From March 1999 to December 1999, 2 of 2 samples (100%) exceeded the objective, with a mean and median of 1695 mg/L. From April 2000 to November 2000, 4 of 4 samples exceeded the objective, with a mean of 1835 mg/L and a median of 1850 mg/L. See graph below for TDS concentrations plotted against time.

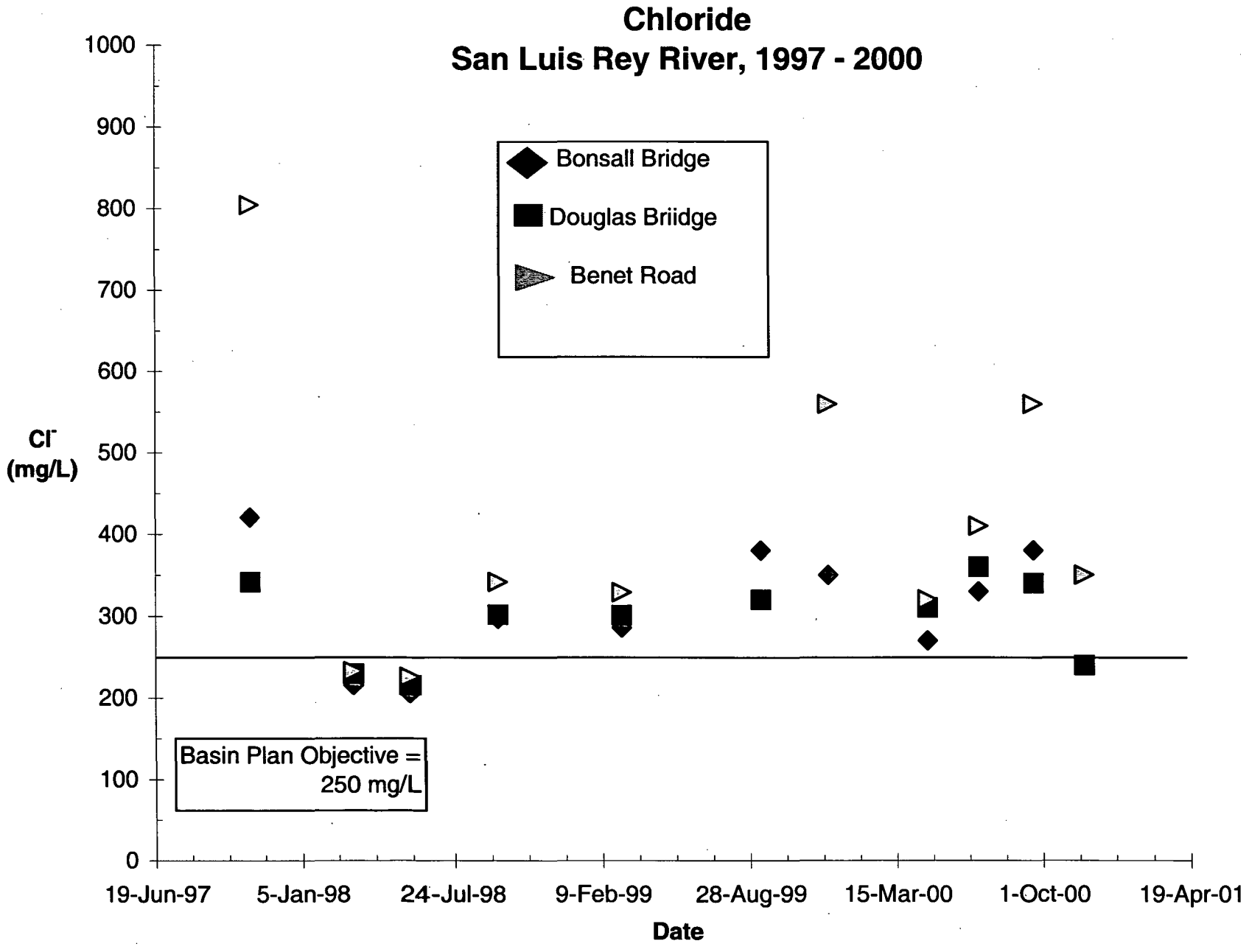
Sampling by the Regional Water Quality Control Board, San Diego Region in May and June of 1998[3] also contain evidence of elevated concentrations of TDS. One sample at Foussat Rd had a concentration of 850 mg/L and one sample at Old Highway 395 had a concentration of 970 mg/L.

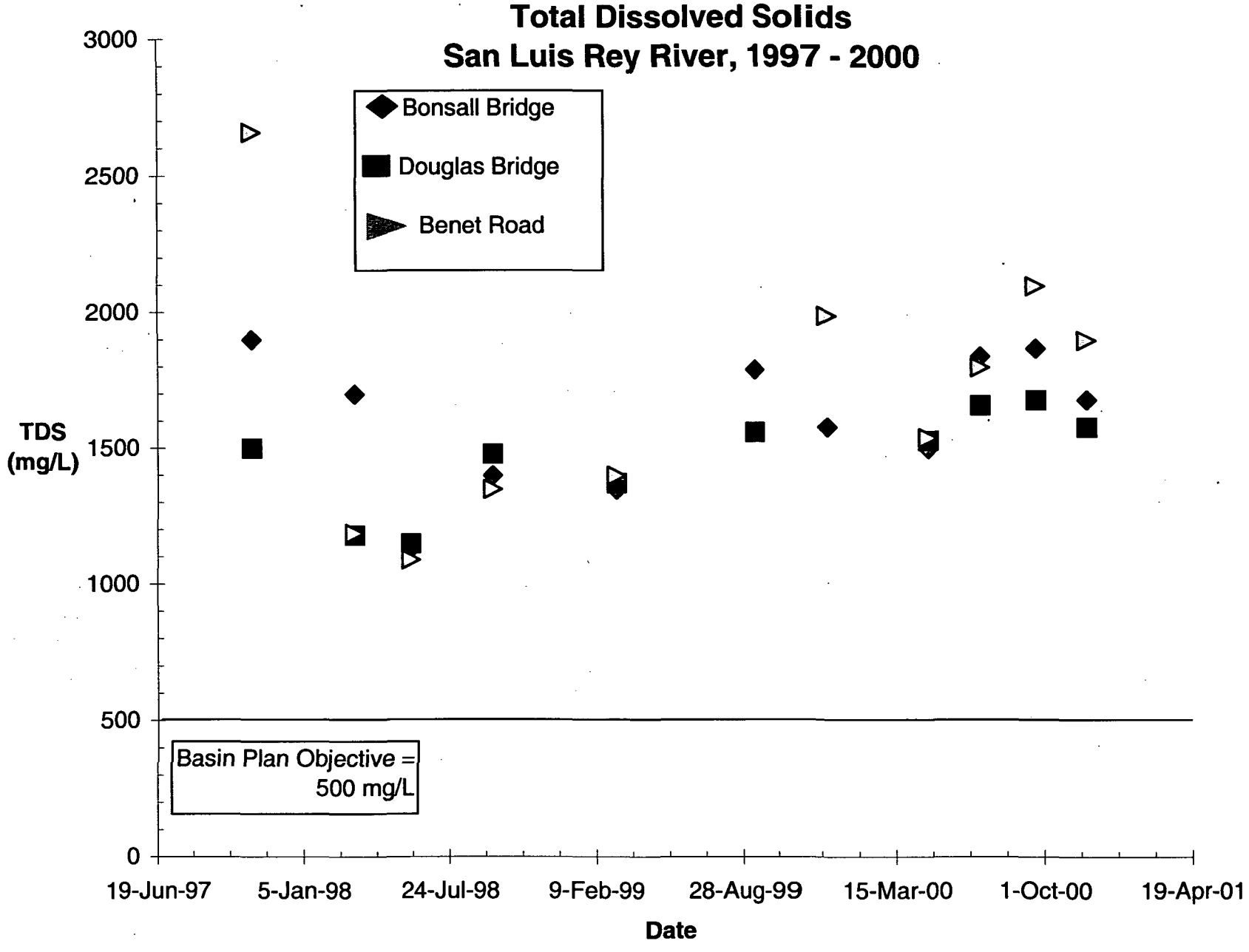
Total Dissolved Solids may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High concentrations of TDS are expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1].

EXTENT OF IMPAIRMENT

Chloride Sampling occurred at 3 locations on the San Luis Rey River: at Bonsall Bridge, at Douglas Bridge and at Benet Road. All 3 locations are in or near the City of Oceanside, in the lower section of the river. From Bonsall Bridge, the furthest upstream location, to the mouth is listed as impaired. This is approximately the lower 13 miles.

TDS Sampling occurred at 3 locations on the San Luis Rey River: at Bonsall Bridge, at Douglas Bridge and at Benet Road. All 3 locations are in or near the City of Oceanside, in the lower section of the river. Sampling also occurred at Foussat Rd and at Old Highway 395, the furthest upstream location. From Old Highway 395 to the mouth is listed as impaired. This is approximately the lower 17 miles.


Chloride
San Luis Rey River, 1997 - 2000
Bonsall Bridge
Douglas Briidge
Benet Road
Cl- (mg/L)
1000
900
800
700
600
500
400
300
200
100
0
Basin Plan Objective = 250 mg/L
19-Jun-97
5-Jan-98
24-Jul-98
9-Feb-99
28-Aug-99
15-Mar-00
1-Oct-00
19-Apr-01
Date


Total Dissolved Solids
San Luis Rey River, 1997 - 2000
Bonsall Bridge
Douglas Bridge
Benet Road
TDS (mg/L)
3000
2500
2000
1500
1000
500
0
Basin Plan Objective = 500 mg/L
19-Jun-97
5-Jan-98
24-Jul-98
9-Feb-99
28-Aug-99
15-Mar-00
1-Oct-00
19-Apr-01
Date

POTENTIAL SOURCES

Chloride Urban runoff, other point sources, non-point sources and natural sources.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Chloride Low

TDS Low

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Quarterly Monitoring Reports for the City of Oceanside. 1997- 2000. City of Oceanside, CA.

[3] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region.

AGUA HEDIONDA CREEK
Hydrologic Subarea 904.31

NEW 303(d) LISTINGS
Diazinon and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Agua Hedionda Creek is a coastal stream located in the Agua Hedionda watershed, in Northern San Diego County. It is 10.40 miles long. It is designated for the following beneficial uses: MUN, AGR, IND, REC1, REC2, WARM and WILD.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
Diazinon Water Quality Criteria compiled by the California Department of Fish and Game[2] for diazinon are described below.

Pesticide	Water Quality Criteria (µg/L)			Detection Limit (µg/L)
	CA Fish and Game	US EPA	CA Fish and Game	
Diazinon	0.05[A]	0.09[B]	0.08[C]	0.05

[A]Criterion Continuous Concentration, [B]Draft Criterion Maximum Concentration (CMC), [C]Criterion Maximum Concentration (CMC)

TDS The Basin Plan objective for TDS is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Diazinon Sampling by the City of San Diego[2] at station AH-1 from November 1998 to March 2000 showed 4 out of 6 (67%) samples to exceed all of the diazinon water quality criteria. The average concentration was 0.217 µg/L and the median concentration was 0.225 µg/L. All non-detects were treated as 0.0 mg/L for statistical purposes. All sampling occurred in the months of November, January, March and February (i.e. the rainy season).

It is expected that the WARM and WILD beneficial use would be impaired if diazinon is creating an unhealthy environment for aquatic organisms.

TDS City of San Diego[2] sampling from November 1998 to March 2000 showed exceedance of the Basin Plan objective for more than 10% of the time during a one-year period. At station AH1 from June 1998 to March 1999, 4 of 4 samples (100%) exceeded the objective, with a mean of 1268.0 mg/L and a median of 1251.5 mg/L. From January 2000 to March 2000, 1 of 3 samples (33%) exceeded the objective, with a mean of 684.3 mg/L and a median of 362.0 mg/L. One other station also demonstrated a TDS concentration to exceed the objective in June of 1998. The concentration at AHC-SA was 1372 mg/L. All non-detects were treated as 0.0 mg/L for statistical purposes.

Regional Board[3] TDS sampling in June of 1998 also show Agua Hedionda Creek to have concentrations above the Basin Plan objective. The concentration at Sycamore

Avenue was 1372 mg/L, at El Camino Real the concentration was 1716 mg/L and 1624 mg/L.

TDS may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High TDS concentrations may be expected to impair the MUN beneficial use[1]. High concentrations of TDS are also expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1].

EXTENT OF IMPAIRMENT

Diazinon Station AH-1 is located immediately downstream of the confluence of Agua Hedionda Creek and Calavera Creek, 1.3 miles upstream of Aqua Hedionda Lagoon. Since sampling occurred only at this 1 station, the extent of impairment is approximately ½ mile upstream of AH-1 down to the lagoon. This covers approximately the lower 2 miles of the creek.

TDS TDS sampling occurred at station AH-1 and at one other location along the creek. The most upstream location was at Sycamore Avenue (AHC-SA), approximately 7.5 miles upstream of the lagoon. Therefore, the lower 8 miles of the stream is listed as impaired due to elevated concentrations of TDS.

POTENTIAL SOURCES

Diazinon Urban runoff and agricultural runoff.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Diazinon Medium (Currently, there is ongoing development of a TMDL addressing the elevated levels of diazinon in Chollas Creek.[4])

TDS Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego, 2000. 1999-2000 City of San Diego and Co-Permittee NPDES Stormwater Monitoring Program Report, URS Greiner Woodward Clyde.

[3] SDRWQCB In-House Monitoring. 1998. California Regional Water Quality Control Board, San Diego Region.

[4] SDRWQCB, 2001. Draft Staff Report for Diazinon Total Maximum Daily Load for Chollas Creek. December, 2001

GREEN VALLEY CREEK
Hydrologic Subarea 905.21

NEW 303(d) LISTINGS
Sulfate

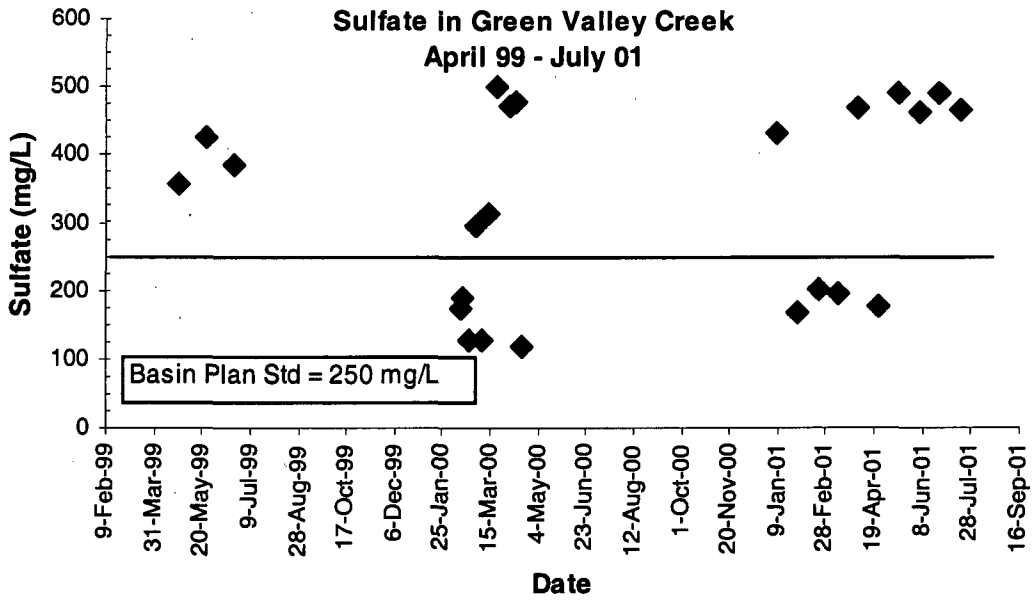
PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The lagoon forms the northerly boundary of the City of Del Mar. The lagoon is normally closed off from the ocean by a sandbar. Green Valley Creek eventually flows into Lake Hodges. Beneficial uses include: MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD, WILD and RARE[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Sulfate The Basin Plan[1] objective for sulfate in surface waters of hydrologic unit # 905 is 250 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Sulfate Data from the City of San Diego Water Quality Lab[2] from April 1999 to July 2001 show the Basin Plan objective to be exceeded for more than 10% of the time during a one-year period. From April 1999 to April 2000, 8 of 13 samples (62%) exceeded the objective, with a mean of 305.1 mg/L and a median of 313.0 mg/L. From January 2001 to July 2001, 6 of 10 samples (60%) exceeded the objective, with a mean of 355.7 mg/L and a median of 447.0 mg/L. It should be noted that the majority of the sampling occurred during the months of January, February, March and April. This is generally considered to be the rainy season in San Diego.

The data indicate sulfate concentrations to be increasing over this time period, but the data represent only a short temporal span (see figure below). The Basin Plan recommended secondary drinking water standard for sulfate is 250 mg/L, with an upper limit of 500 mg/L. While no concentrations exceeded this upper limit, the increase in concentrations over the time period reviewed, indicate that this may soon happen. High concentrations of sulfate in drinking water can cause laxative effects[1] and would impair the MUN beneficial use.



EXTENT OF IMPAIRMENT

Sulfate The single monitoring station is described as "west of West Bernardo Dr."[2] The extent of impairment is ½ mile up and downstream of this location.

POTENTIAL SOURCES

Sulfate Urban runoff, other point sources, non-point sources and natural sources.

TMDL PRIORITY

Sulfate Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Green Valley Creek

LAKE HODGES
Hydrologic Subarea 905.21

NEW 303(d) LISTINGS
Color, Nitrogen, Phosphorus and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The San Dieguito River, Felicita Creek, Green Valley Creek, Kit Carson Creek and Santa Ysabel Creek are all tributaries to Lake Hodges. All waters that flow into Lake Hodges are local surface water runoff. Beneficial uses of Lake Hodges include: MUN, AGR, IND, PROC, REC1 (fishing from shore or boat only), REC2, WARM, COLD, WILD and RARE[1].

WATER QUALITY OBJECTIVE NOT ATTAINED
Color The Basin Plan[1] objective for color is 15 color units. This objective is not to be exceeded more than 10% of the time during any one-year period.

Nitrogen, Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." Additionally, threshold phosphorus levels shall not exceed 0.025 mg/L in any standing body of water.[1] Analogous threshold values for nitrogen compounds have not been set, however; it is stated that a ratio of N:P=10:1 shall be used. In the case of a standing body of water, the threshold nitrogen level is therefore set at 0.25 mg/L. These objectives are not to be exceeded more than 10% of the time during any one-year period.

TDS The Basin Plan[1] objective for TDS in waters designated for use as municipal supply is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Color Data from the City of San Diego Water Quality Lab[2] from September 1997 to December 2000 show the Basin Plan objective to be exceeded for more than 10% of the time during a one-year period. From March 1998 to March 1999, 4 of 4 samples (100%) exceeded the objective, with a mean of 53.6 color units and a median of 37.3 color units. From June 1999 to June 2000, 5 of 5 samples (100%) exceeded the objective, with a mean of 65.8 color units and a median of 78.0 color units. In September and December of 2000, 2 of 2 samples (100%) exceeded the objective, with a mean and median of 64.0 color units.

Elevated color levels are expected to impair the MUN and REC2 beneficial uses. In addition, color can be indicative of other water quality problems, such as eutrophication. This may be the case, as described in the next section below. In this event, additional beneficial uses may be expected to be impaired.

Nitrogen Data from the City of San Diego Water Quality Lab[2] from July 1997-May 2001 show that 5 locations exceeded the Basin Plan[1] objective for more than 10% of the time during a one-year period. See the table below for the average, median and frequency of exceedances for total nitrogen (sum of ammonia, total Kjeldahl nitrogen, nitrate, nitrite, all of which were numerically adjusted to represent nitrogen) at the 5 stations.

Phosphorus Data from the City of San Diego Water Quality Lab[2] from July 1997-May 2001 show that 5 locations exceeded the Basin Plan[1] objective for more than 10% of the time during a one-year period. See the table below for the average, median and frequency of exceedances for phosphate (which was adjusted to represent phosphorus) at the 5 stations.

The first sampling location is near the boat launch ramp. The rest of the sampling points are located at various depths at Station A, which is in front of the reservoir dam and outfall structure to the flume delivering water to Badger Filtration Plant.

	Total Nitrogen (Nitrogen objective = 0.25 mg/L)			**Total Phosphorus** (Phosphorus objective = 0.025 mg/L)		
Date	**Avg (mg/L)**	**median (mg/L**	**exceedance**	**Avg (mg/L)**	**median (mg/L**	**exceedance**
HG Rec Area Delivery Point						
Mar 97 to Mar 98	2.830	3.413	4 of 5, 80%	0.085	0.103	3 of 4, 75%
Jun 98 to Jun 99	3.077	3.816	4 of 5, 80%	0.113	0.093	4 of 4, 100%
Sep 99 to Sep 00	3.812	3.842	5 of 5, 100%	0.089	0.085	5 of 5, 100%
Dec 00 to July 01	3.503	4.148	4 of 5, 80%	0.093	0.091	4 of 4, 100%
HG STATION A 12 m.						
Jan 97 to Jan 98	1.052	0.491	6 of 11, 55%	0.301	0.156	7 of 8, 88%
Feb 98 to Mar 99	1.166	0.901	10 of 13, 77%	0.436	0.460	9 of 9, 100%
HG STATION A 3 m.						
Jan 97 to Jan 98	0.221	0.033	2 of 11, 18%	0.020	0.000	1 of 8, 13%
Feb 98 to Mar 99	0.249	0.120	7 of 13, 54%	0.046	0.000	3 of 9, 33%
HG STATION A Btm -1 ft.						
Jan 97 to Jan 98	1.225	0.743	7 of 11, 64%	0.339	0.228	8 of 8, 100%
Feb 98 to Mar 99	1.935	1.245	12 of 13, 92%	0.501	0.505	9 of 9, 100%
HG STATION A Surface						
Jan 97 to Jan 98	0.594	0.013	5 of 13, 39%	0.016	0.000	1 of 9, 11%
Feb 98 to Feb 99	0.792	0.314	6 of 12, 50%	0.072	0.000	4 of 9, 44%
Mar 99 to Mar 00	1.763	1.835	5 of 5, 100%	0.035	0.000	1 of 5, 20%
Jun 00 to Jul 01	1.843	1.712	6 of 6, 100%	0.020	0.000	1 of 6, 17%

Elevated nutrient (nitrate and phosphorus) concentrations that contribute to excessive algae growth can lead to eutrophic conditions and result in decreased water clarity, offensive odors, and a decrease in dissolved oxygen (DO) that is detrimental to aquatic life. The depletion of DO concentrations and the production of un-ionized ammonia

caused by the decomposition of plant matter associated with eutrophic conditions can cause fish kills and other adverse effects on aquatic life; thus impacting habitat-related beneficial uses such as WARM, COLD, WILD and RARE. Decreased water clarity and odors potentially impact the municipal and domestic uses such as MUN, IND, PROC, and AGR. Additionally, contact and non-contact recreation beneficial (REC1, REC2) uses may be impacted by offensive odors associated with excessive algae growth, constituting a nuisance.

In addition to the data analysis described above, it is evident in correspondence between City of San Diego staff and the Regional Board[3] that eutrophic conditions are already a problem at the reservoir. San Diego staff have noted excessive algae growth and odor problems, which is most likely caused by the presence of excessive amounts of nitrogen and phosphorus.

TDS Data from the City of San Diego Water Quality Lab[2] from September 1998 to December 2000 show the Basin Plan objective to be exceeded for more than 10% of time during a one-year period. From September 98 to September 99, 5 of 5 samples (100%) exceeded the objective, with a mean of 653.6 mg/L and a median of 659.0 mg/L. From December 99 to December 00, 5 of 5 samples (100%) exceeded the objective, with a mean of 770.2 mg/L and a median of 754.0 mg/L.

Total Dissolved Solids may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High concentrations of TDS are expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1]. The average TDS concentration was in the middle of this range.

EXTENT OF IMPAIRMENT

(The 2 sampling stations are considered indicative of a standing, homogenous waterbody.)

Color	*Entire reservoir*
Nitrogen, Phosphorus	Entire reservoir
TDS	Entire reservoir

POTENTIAL SOURCES

Color Urban runoff, other point sources and non-point sources.

Nitrogen, Phosphorus Possible sources include urban runoff, local dairies, agriculture, orchards, other point sources and non-point sources.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Color Low

Nitrogen, Phosphorus Low (Currently, there is ongoing development of a TMDL addressing the elevated levels of nitrogen and phosphorus in Rainbow Creek.[4])

TDS Low

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Hodges Reservoir

[3] City of San Diego. Staff observations in memo dated 8/16/01.

[4] SDRWQCB, 2001. Draft Staff Report for Nutrient Total Maximum Daily Load for Rainbow Creek. October 19, 2001

FELICITA CREEK
Hydrologic Subarea 905.23

NEW 303(d) LISTINGS
Total Dissolved Solids (TDS)

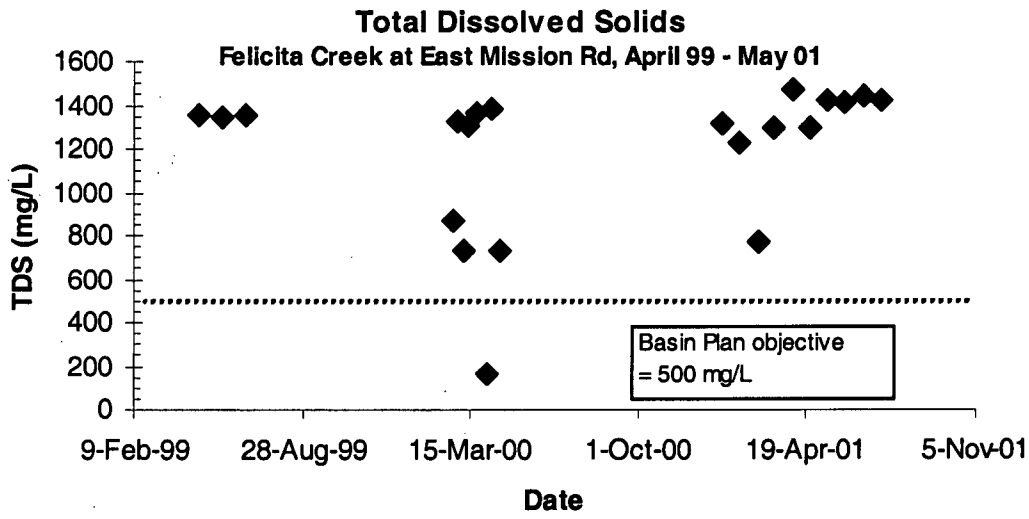
PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Felicita Creek is located in the San Dieguito River Watershed. San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The lagoon forms the northern boundary of the City of Del Mar. The lagoon is normally closed off from the ocean by a sandbar. Felicita Creek eventually flows into Lake Hodges. Beneficial uses of Felicita Creek include: MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD and WILD[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
TDS The Basin Plan objective for TDS is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
TDS Sampling by the City of San Diego[2] between April 1999 and May 2001 showed the Basin Plan objective to be exceeded for more than 10% of the time during a one year period. Near Quiet Hills Farm Road, from April to June 999, 3 of 3 samples (100%) exceeded the objective, with a mean of 1343.3 mg/L and a median of 1340.0 mg/L. Near East Mission Road, from April 1999 to April 2000, 10 of 11 samples (91%) exceeded the objective, with a mean of 1088.3 mg/L and a median of 1330.0 mg/L. From January 2001 to July 2001, 10 of 10 samples (100%) exceeded the objective, with a mean of 1308.1 mg/L and a median of 1365.0 mg/L. The data indicate TDS concentrations to be increasing over this time period, but the data represent only a short temporal span (see figure below).

TDS may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High TDS concentrations may be expected to impair the MUN beneficial use[1]. High concentrations of TDS are also expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops.[1]



EXTENT OF IMPAIRMENT

TDS Two stations were sampled. One location is described as at the road crossing and above the waterline. The road is East Mission Road; accessible off Interstate 15. The second location is off Quiet Hills Farm Rd. Since both locations showed elevated concentrations of TDS, the extent of impairment is ½ mile upstream of Quiet Hill Farm Rd to ½ mile downstream of East Mission Rd. This covers approximately the lower 2 miles of the creek.

POTENTIAL SOURCES

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

TDS Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Felicita Creek

KIT CARSON CREEK
Hydrologic Subarea 905.23

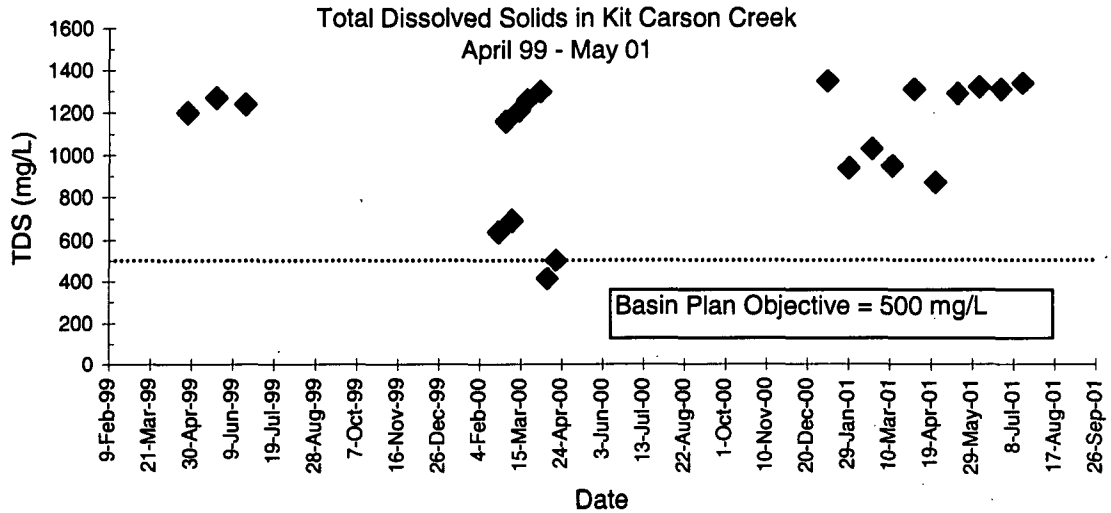
NEW 303(d) LISTINGS
Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Kit Carson Creek in located in the San Dieguito Watershed, in the urbanized area of the inland City of Escondido. The San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The lagoon forms the northern boundary of the City of Del Mar. The lagoon is normally closed off from the ocean by a sandbar. Kit Carson Creek eventually feeds into Lake Hodges. Beneficial uses include: MUN, AGR, IND, PROC, REC1, REC2, WARM, COLD and WILD[1].

WATER QUALITY OBJECTIVE NOT ATTAINED
TDS The Basin Plan[1] objective is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
TDS Data from the City of San Diego Water Quality Lab[2] from April 1999 to May 2001 show the Basin Plan objective to be exceeded for more than 10% of the time during a one-year period. From April 1999 to April 2000, 10 of 11 samples (91%) exceeded the objective, with a mean of 990.5 mg/L and a median of 1200.0 mg/L. From January 2001 to July 2001, 10 of 10 samples (100%) exceeded the objective, with a mean of 1170.9 mg/L and a median of 1300.0 mg/L. It should be noted that the majority of the sampling occurred during the months of January, February, March and April. This is generally considered to be the rainy season in San Diego. See graph below for concentrations plotted against time of year.



Total Dissolved Solids may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High concentrations of TDS are expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1]. The average TDS concentration was in the middle of this range.

EXTENT OF IMPAIRMENT

TDS The station is described as "Kit Carson at Sunset Dr."[2] The extent of impairment is estimated as ½ mi. up and downstream of this location.

POTENTIAL SOURCES

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature[3]. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

TDS Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Kit Carson Creek

[3] California Regional Water Quality Control Board, San Diego Region. Staff observations. 2001.

CLOVERDALE CREEK
Hydrologic Subarea 905.31

NEW 303(d) LISTINGS
Phosphorus and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Cloverdale Creek is located in San Pasqual Valley in the San Dieguito River Watershed. The San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The lagoon forms the northern boundary of the City of Del Mar. The lagoon is normally closed off from the ocean by a sandbar. Beneficial uses for Cloverdale Creek include: MUN, AGR, IND, PROC, REC1 (designated potential), REC2, WILD and WARM.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus is 0.1 mg/L for flowing surface waters. This objective is not to be exceeded more than 10% of the time during any one-year period.

TDS The Basin Plan[1] objective for TDS is 500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

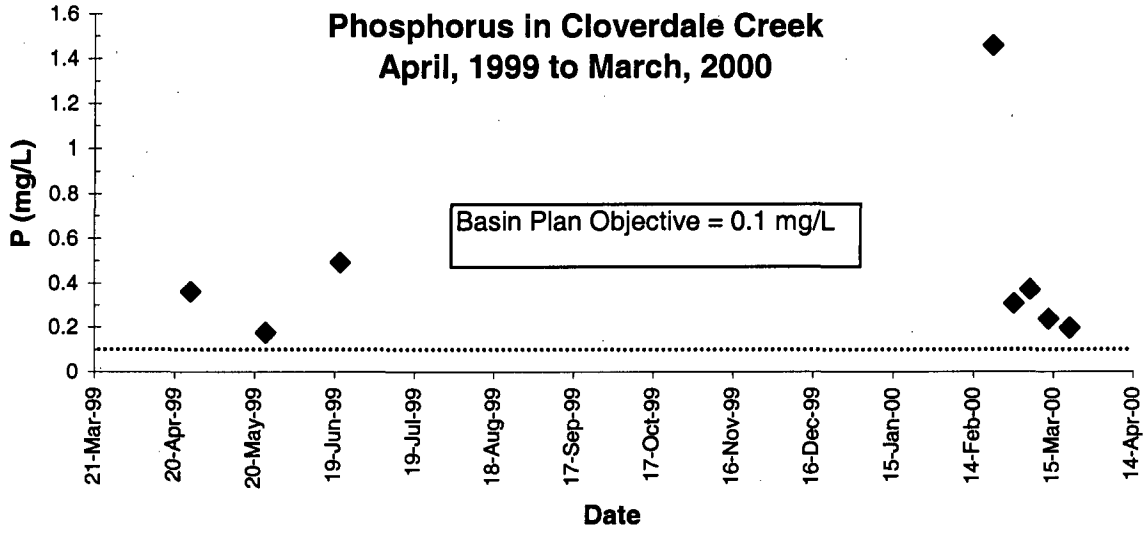
EVIDENCE OF IMPAIRMENT
Phosphorus Sampling by the City of San Diego[2] at station CDC4 between April 1999 and March 2000 showed the Basin Plan objective for phosphorus to be exceeded for more than 10% of the time during the year. Eight of 8 samples exceeded the objective, with an average concentration was 0.45 mg/L and a median concentration was 0.34 mg/L. See chart below.

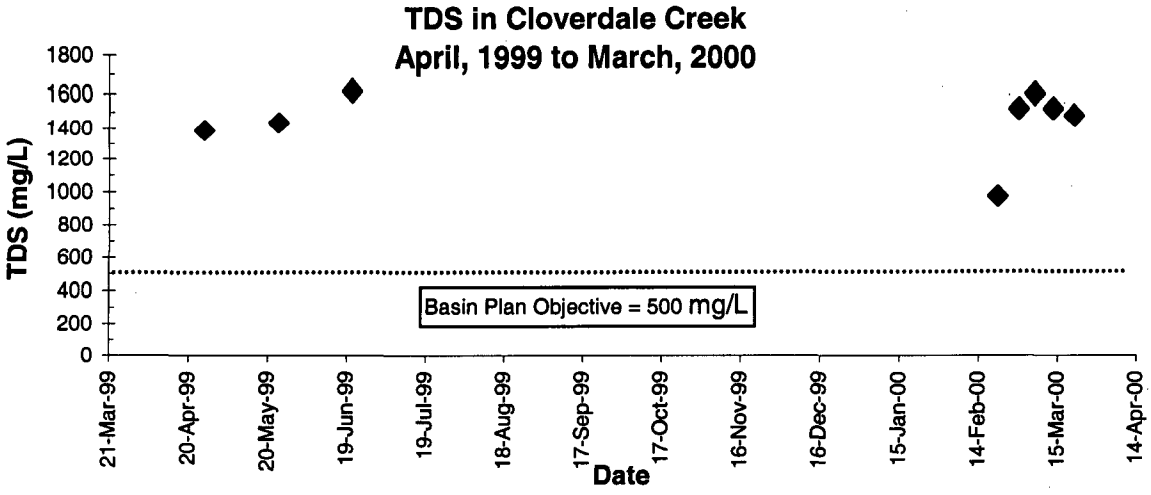
These concentrations of phosphorus over the Basin Plan objective are expected to contribute to excess algae growth that may impair the MUN, REC1, REC2, WARM, COLD, WILD and RARE beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

TDS Sampling by the City of San Diego[2] at station CDC4 between April 1999 and March 2000 showed the Basin Plan objective for TDS to be exceeded for more than 10% of the time during the year. Eight of 8 samples exceeded the objective, with an average concentration of 1443.4 mg/L and a median concentration of 1500.0 mg/L. See chart below.

TDS may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human

impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High TDS concentrations may be expected to impair the MUN beneficial use[1]. High concentrations of TDS are also expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1].





EXTENT OF IMPAIRMENT

Phosphorus The location of station CDC4 is in San Pasqual Valley. Since only one station was sampled, the extent of impairment is ½ mile up and downstream from this location.

TDS The location of station CDC4 is in San Pasqual Valley. Since only one station was sampled, the extent of impairment is ½ mile up and downstream from this location.

POTENTIAL SOURCES

Phosphorus Urban runoff, agriculture runoff, other point sources and non-point sources.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, agriculture runoff, other point sources and non-point sources.

TMDL PRIORITY

Phosphorus Low

TDS Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Cloverdale Creek

SUTHERLAND RESERVOIR
Hydrologic Subarea 905.53

NEW 303(d) LISTINGS
Color

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Sutherland Reservoir is located in the San Dieguito River Watershed. The reservoir encompasses an area of 557 acres. San Dieguito Hydrologic Unit (HU 905.00) is a rectangular-shaped area of about 350 square miles. It includes the San Dieguito River and its tributaries, including Santa Ysabel and Santa Maria Creeks. The HU contains two major reservoirs, Lake Hodges and Sutherland Reservoir. The San Dieguito Lagoon is located at the mouth of the San Dieguito River. The lagoon forms the northerly boundary of the City of Del Mar. The lagoon is normally closed off from the ocean by a sandbar. Sutherland Reservoir is fed exclusively from local surface water runoff. Beneficial uses of Sutherland Reservoir include: MUN, AGR, IND, PROC, REC1 (fishing from boat and shore only), REC2, WARM, RARE, COLD and WILD[1].

WATER QUALITY OBJECTIVE NOT ATTAINED
Color The Basin Plan[1] objective is 15 color units. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Color Data from the City of San Diego Water Quality Lab[2] from March 1997 to June 2000 show the Basin Plan objective to be exceeded for more than 10% of the time during a one-year period. From March 1998 to March 1999, 3 of 3 samples (100%) exceeded the objective, with a mean of 33.7 color units and a median of 34.0 color units. From June 1999 to June 2000, 5 of 5 samples exceeded the objective, with a mean of 25.2 color units and a median of 26.0 color units. Form September 2000 to December 2000, 3 of 3 samples exceeded the objective, with a mean of 22.3 color units and a median of 28.0 color units.

In addition, staff at the San Diego Water Department have noticed a persistent odor problem as well as excessive algae growth at the reservoir.[3] Odor, color, and excessive algae growth in the reservoir are typically due to excessive nutrients (nitrogen and phosphorous). However, actual concentrations of nitrogen and phosphorous do not currently exceed Basin Plan objectives. This may be due to the fact that the algae are using a majority of the available nutrients. Nutrient data from City of San Diego Water Quality Lab[2] from March 1997 to July 2001 showed only 1 of 17 samples (6%) to have a detectable concentration of phosphate or nitrate.

Elevated color levels are expected to impair the MUN and REC2 beneficial uses. If color is indicative of other problems (i.e. eutrophication) other beneficial uses would be expected to be impaired.

EXTENT OF IMPAIRMENT
Color As the City of San Diego selects sampling locations to be indicative of the entire reservoir, the same reasoning will apply here. Therefore, the entire reservoir (557 acres) is listed as impaired for color.

POTENTIAL SOURCES

Color Elevated color levels may be coming from excessive algae growth. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Color Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Quality Lab, 2001. Electronic data submitted to California Regional Water Quality Control Board, San Diego Region, S:\wqs\303d\City of San Diego\Sutherland Reservoir

[3] California Regional Water Quality Control Board, San Diego Region. Staff observations. 2001.

FORRESTER CREEK
Hydrologic Subarea 907.12

NEW 303(d) LISTINGS
Fecal Coliform, pH and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Forrester Creek is a 6.0-mile waterway in the San Diego River Watershed of Region 9. It originates in the City of El Cajon, flows through the City of Santee and drains into the San Diego River. Much of the upper portion is a concrete lined channel. It is classified as inland surface water with the following beneficial uses: MUN (designated potential), IND, REC1, REC2, WARM, COLD and WILD[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Fecal Coliform Although both steady state (30-day period) and single sample objectives are available, only the particular objective used for data assessment is described below.

For single samples, the Basin Plan[1] objective states that no more than 10% of the total samples during any 30-day period shall exceed 400 colonies/100 mL.

pH The Basin Plan[1] objective for pH in inland surface waters is 6.5 – 8.5.[1]

TDS The Basin Plan[1] objective for surface waters in the lower portion of hydrologic unit sub area 907.12 is 1500 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Fecal Coliform Sampling was done by the Padre Dam Municipal Wastewater District[2] intermittently from October 1997 to September 2000. Data was taken once a month for October-March and twice a month for April-October. The data shows that 14 of 38 samples (37%) in both wet and dry weather had levels of fecal coliform in excess of 400 Most Probable Number (MPN)/mL.

The Basin Plan[1] objective for fecal coliform has a temporal component stating that not more than 10% of the total samples during any 30-day period shall exceed the numeric criteria. The data provided by Padre Dam Municipal Wastewater District[2] does not contain more than 2 samples in any 30-day span, which makes it difficult to ascertain the severity of the exceedances. However, 13 of 24 months exceeded the fecal coliform objective in more than 10% of the samples. While the sample size per month is limited, the larger data set representing the longer temporal period shows the exceedance of the objective to be chronic. Therefore, it is concluded that this data set serves as evidence of impairment of the fecal coliform objective.

These concentrations of fecal coliform over the Basin Plan[1] objectives can contribute to human illness through contact with contaminated waters, and are expected to impair the REC1 beneficial use.

pH Data collected by the City of El Cajon[3] from September 1994 to January 2001 show that 28 of 34 pH samples (82%) exceeded the Basin Plan objective. The average pH value was 9.0 and the median value was 8.9.

In addition, spill reports from the City of El Cajon[4] record a spill of approximately 1000 gallons of sodium hydroxide into Forrester Creek in July 2000. Measurements of pH were high before and after this reported spill. Existing regulatory actions may not be sufficient to protect Forrester Creek from high pH.

A change of one point on the pH scale represents a ten-fold increase in acidity or alkalinity. Ammonia, which is a major component of sewage discharges, can be completely safe at pH 7.0 and extremely toxic to fish at pH 8.5 for the same total ammonia concentration. Elevated pH can increase the toxicity of ammonia and this would impair the WARM, COLD and WILD beneficial uses of the creek.

TDS The Basin Plan objective[1] for TDS of 1500 mg/L was exceeded for more than 10%of the time during a one-year period as measured by the Padre Dam Municipal Wastewater District.[2] From September 1997 to September 1998, 17 of 18 samples (94%) exceeded the objective, with a mean of 1667.3 mg/L and a median of 1738.0 mg/L (15.9% above the objective). From October 1998 to October 1999, 16 of 20 samples (80%) exceeded the objective, with a mean of 1647.6 mg/L and a median of 1706.0 mg/L (13.7% above the objective). From November 1999 to December 2000, 19 of 21 samples (95%) exceeded the objective, with a mean of 1589.7 mg/L and a median of 1656.0 mg/L (10.4% above the objective).

TDS may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.) Most of the problem can be traced to human impacts, and therefore, can be mitigated. Geologic conditions help to define the natural levels of many of these constituents. High TDS concentrations may be expected to impair the MUN beneficial use due to taste considerations.[1]

EXTENT OF IMPAIRMENT

Fecal Coliform Samples in Forrester Creek were taken at only one monitoring point, just upstream of the confluence with the San Diego River. The extent of impairment is the lower 1 mile of the creek.

pH The City of El Cajon[3] sampled six drainage areas along Forrester Creek, all in commercial and industrial zones in the City of El Cajon. The sampling areas are north of I-8 between Magnolia and Johnson, four hundred feet before the junction with Washington Channel, to the East of city shops at Vernon, north of Vernon Way between Johnson and Marshall, at the intersection of Marshall and B. Mitchell, and at the north city limit of Forrester Creek. Most of these stations are now concrete-lined channels. All of these stations display high pH. Therefore, the extent of impairment is the extent of the reach within the City of El Cajon. This upper portion of the creek is approximately 3.0 miles.

TDS Sampling by Padre Dam Municipal Wastewater District[2] occurred only at one location on Forrester Creek. This location is near the confluence with the San Diego River. Therefore, the extent of impairment is the lower 1 mile of the creek (1/2 mile up and downstream of the sampling point).

POTENTIAL SOURCES

Fecal Coliform Urban runoff, other point sources, non-point sources and sewage spills.

pH Sources may include industrial spills, urban runoff, other point sources and non-point sources. The very nature of concrete lined conveyance structures can also cause high pH levels. These structures often have very little shade cover. Increased light penetration will increase solar heating of the water and can favor photosynthesis. Both of these conditions will increase pH. Also, the chemical composition of the concrete itself may leach compounds into the water that will elevate pH directly.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Fecal Coliform	Medium
pH	Low
TDS	Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Padre Dam Municipal Wastewater District, 2000. Receiving Water Sampling and Analysis. Electronic data submission to California Water Quality Control Board, San Diego Region.

[3] City of El Cajon, 1994-2000. NPDES Field Screening Data. Regional Water Quality Control Board, San Diego Region: Order No. 90-42.

[4] City of El Cajon, 2000. Letter to Chem-tronics re: Spill Report (dated July 2, 2000). City of El Cajon, Engineering.

SAN DIEGO RIVER, Lower
Hydrologic Subareas 907.11, 907.12

NEW 303(d) LISTINGS
Dissolved Oxygen, Fecal Coliform, Phosphorus and Total Dissolved Solids (TDS)

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
The Lower San Diego River is a 20-mile urban waterway in the San Diego River Watershed of Region 9. The San Diego River originates in the East County, passing through Lakeside and Santee, and then runs parallel to Interstate 8 all the way to the Pacific Ocean coastline where it discharges near Ocean Beach. The lower portion of the river begins just north of Lake Jennings, near the town of Lakeside. It is classified inland surface water with the following beneficial uses: MUN (designated potential), AGR, IND, REC1, REC2, WARM, COLD WILD and RARE[1].

WATER QUALITY OBJECTIVES NOT ATTAINED
Dissolved Oxygen The Basin Plan[1] dissolved oxygen objective for inland surface waters designated with a COLD beneficial use is 6.0 mg/L. The entire San Diego River is designated for COLD beneficial use. The Basin Plan[1] also states that the annual mean concentration shall not be less than 7 mg/L more than 10% of the time.

Fecal Coliform Although both steady state (30-day period) and single sample objectives are available, only the particular objective used for data assessment is described.

For single samples, the Basin Plan[1] objective states that no more than 10% of the total samples during any 30-day period shall exceed 400 colonies/100 mL.

Phosphorus The Basin Plan[1] states that "Inland surface waters...shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses." The Basin Plan[1] biostimulatory substance objective for phosphorus is 0.1 mg/L. This objective is not to be exceeded more than 10% of the time during any one-year period.

TDS The Basin Plan[1] TDS objective is 1500 mg/L for areas in both hydrologic sub areas. This objective is not to be exceeded more than 10% of the time during any one-year period.

EVIDENCE OF IMPAIRMENT
Dissolved Oxygen Sampling in September 1997 and from April to December 2000 by the Padre Dam Municipal Wastewater District[2] showed dissolved oxygen concentrations to be below the Basin Plan Objective of 6.0 mg/L in 76 of 84 samples (90%). Concentrations below the objective were measured at all 5 sampling points along the river. The average measured concentration was 4.87 mg/L and the median concentration was 4.48 mg/L. In addition, during the year 2000, all 5 stations were below the annual Basin Plan Objective of 7.0 mg/L for more than 10% of the time. See the table below for frequency of samples below this annual water quality objective. It should be noted that sampling occurred approximately mid-morning which corresponds to the lower range of daily dissolved oxygen concentrations.

Date	Carlton Hills Blvd Bridge	Mast Blvd Bridge	Old Mission Dam	Mission Pond	Fashion Valley Rd
3-Jan-00	7.18	6.36	8.05	8.00	8.13
7-Feb-00	5.46	6.00	7.16	6.09	4.55
6-Mar-00	5.60	6.35	6.80	7.22	5.80
3-Apr-00	3.67	4.79	6.40	5.55	6.87
17-Apr-00	3.60	4.76	5.41	4.37	7.08
1-May-00	3.09	4.31	4.77	3.42	4.88
15-May-00	4.00	5.48	5.60	3.68	4.10
30-May-00	5.10	3.60	5.30	2.90	4.30
12-Jun-00	3.78	4.10	4.90	2.29	3.25
26-Jun-00	3.38	3.84	4.36	1.94	2.02
10-Jul-00	3.70	4.40	6.05	2.42	3.60
24-Jul-00	3.29	3.80	1.40	1.40	4.00
7-Aug-00	3.00	3.90	4.08	0.80	3.00
21-Aug-00	3.57	3.36	2.38	1.77	2.81
5-Sep-00	4.70	3.74	4.68	2.13	3.19
18-Sep-00	4.25	3.13	2.72	1.09	2.57
2-Oct-00	4.48	3.80	4.72	1.07	3.53
6-Nov-00	3.85	5.95	5.70	6.45	9.16
4-Dec-00	5.61	8.95	5.12	5.74	5.44
Avg =	4.28	4.77	5.03	3.60	4.65
Median =	3.85	4.31	5.12	2.90	4.10
Exceedance	18 of 19, 95%	18 of 19, 95%	17 of 19, 89%	18 of 19, 95%	16 of 19, 84%

All dissolved oxygen concentrations reported as mg/L

Adequate dissolved oxygen is vital for aquatic life. Low dissolved oxygen concentration can be fatal to aquatic wildlife and is expected to impair WARM, COLD, WILD and RARE beneficial uses.

Fecal Coliform Sampling was done by the Padre Dam Municipal Wastewater District[2] intermittently from November 1998 to September 2000. Data was taken once a month for October-March and twice a month for April-October. The data shows that 11 of 18 samples (61%) in both wet and dry weather had levels of fecal coliform in excess of 400 Most Probable Number (MPN)/mL.

The Basin Plan[1] objective for fecal coliform has a temporal component stating that not more than 10% of the total samples during any 30-day period shall exceed the numeric criteria. The data provided by Padre Dam Municipal Wastewater District[2] does not contain more than 2 samples in any 30-day span, which makes it difficult to ascertain the severity of the exceedances. However, 7 of 8 months exceeded the fecal coliform objective in more than 10% of the samples. While the sample size per month is limited, the larger data set representing the longer temporal period shows the exceedance of the objective to be chronic. Therefore, it is concluded that this data set serves as evidence of impairment of the fecal coliform objective.

These concentrations of fecal coliform over the Basin Plan[1] objectives can contribute to human illness through contact with polluted waters, and are expected to impair REC1 beneficial use.

Phosphorus Sampling in September 1997 and from April to December 2000 by the Padre Dam Municipal Wastewater District[2] showed phosphorus concentrations to exceed the Basin Plan Objective for more than 10% of the time during a one-year period. See the table below for the raw data, averages, medians and the frequency of exceedances.

Date	Carlton Hills Blvd Bridge	Sycamore Creek /SD River	Old Mission Dam	Mission Pond	I5 Estuary
8-Sep-97	0.238	0.417	NF	NF	NF
22-Sep-97	0.258	0.590	NF	NF	NF
13-Oct-97	0.058	0.150	0.434	NF	NF
3-Nov-97	0.098	0.186	0.196	0.228	0.104
15-Dec-97	0.095	0.163	0.192	0.176	0.186
Avg =	0.149	0.301	0.274	0.202	0.145
Median =	0.098	0.186	0.196	0.202	0.145
Exceedance	2 of 5, 40%	5 of 5, 100%	3 of 3, 100%	2 of 2, 100%	2 of 2, 100%

Date	Carlton Hills Blvd Bridge	Mast Blvd Bridge	Old Mission Dam	Mission Pond	Fashion Valley Rd
3-Jan-00	0.063	0.151	0.141	0.210	0.113
7-Feb-00	0.048	0.120	0.106	0.169	0.082
6-Mar-00	0.165	0.214	0.212	0.208	0.251
3-Apr-00	0.066	0.111	0.156	0.157	0.226
17-Apr-00	0.071	0.125	0.161	0.178	0.324
1-May-00	0.072	0.101	0.197	0.183	0.168
15-May-00	0.070	0.068	0.164	0.190	0.241
30-May-00	0.085	0.134	0.193	0.259	0.183
12-Jun-00	0.103	0.139	0.236	0.269	0.257
26-Jun-00	0.082	0.153	0.274	0.293	0.312
10-Jul-00	0.042	0.095	0.125	0.129	0.147
24-Jul-00	0.084	0.210	0.232	0.278	0.255
7-Aug-00	0.078	0.195	0.285	0.316	0.240
21-Aug-00	0.076	0.224	0.298	0.285	0.239
5-Sep-00	0.066	0.208	0.153	0.308	0.295
18-Sep-00	0.154	0.241	0.220	0.414	0.280
2-Oct-00	0.074	0.194	0.161	0.374	0.245
6-Nov-00	0.078	0.151	0.179	0.199	0.193
4-Dec-00	0.017	0.095	0.120	0.090	0.060
Avg =	0.079	0.154	0.190	0.237	0.216
Median =	0.074	0.151	0.179	0.210	0.240
Exceedance	3 of 19, 16%	16 of 19, 84%	19 of 19, 100%	18 of 19, 95%	17 of 19, 89%

All phosphorus concentrations reported as mg/L

These concentrations of phosphorus over the Basin Plan[1] objective are expected to contribute to excess algae growth that may impair the REC1, REC2, WARM, COLD and WILD beneficial uses through the creation of odors, colors, increased turbidity and low dissolved oxygen environments[1].

TDS Sampling between September 1997 and December 2000 by the Padre Dam Municipal Water District[2] shows three locations along the San Diego River to exceed the Basin Plan TDS objective for more than 10% of the time during a one-year period. See the table below for the averages, medians and frequency of exceedances for three locations along the San Diego River. All 3 locations show a seasonal and an increasing trend over the 3 years reviewed. See charts below for trends.

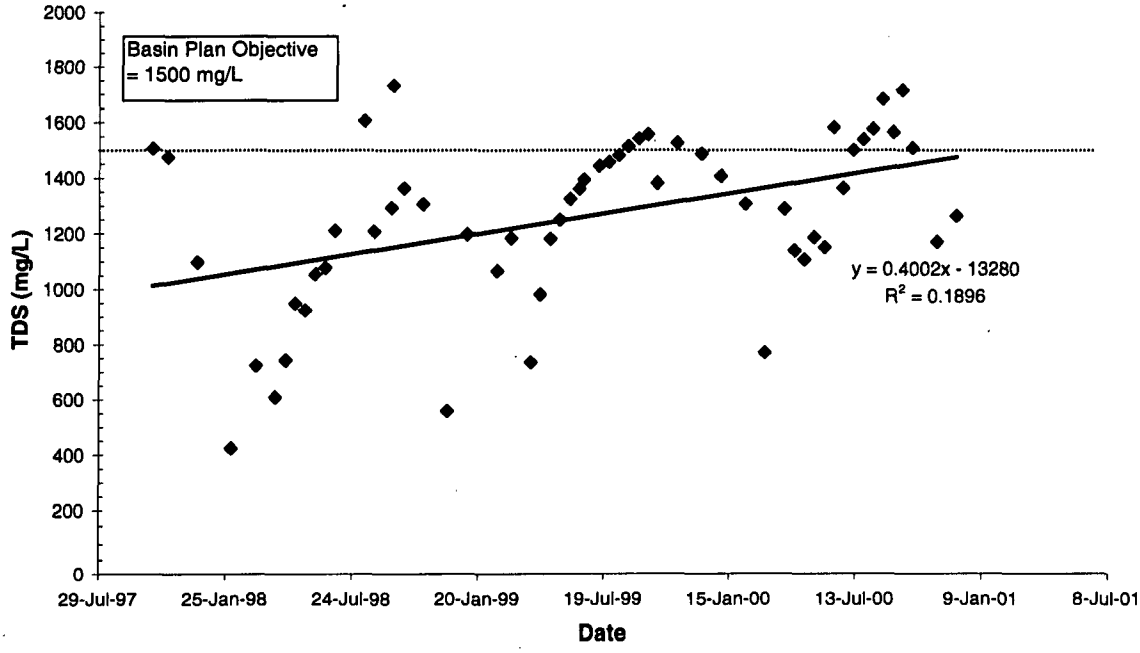
Total Dissolved Solids may consist of carbonates, bicarbonates, chlorides, sulfates, phosphates, nitrates, magnesium, sodium, iron and manganese. The most frequent constituents are usually salts (sodium, chloride, boron, etc.). Geologic conditions help to define the natural levels of many of these constituents. High concentrations of TDS are expected to impact the AGR beneficial use directly through irrigation waters or indirectly through adverse effects on soil permeability. TDS values between 450 to 2000 mg/L are expected to have a slight to moderate restriction on use of waters for irrigation of crops[1]. The average TDS concentration was toward the top of this range.

TDS in the San Diego River

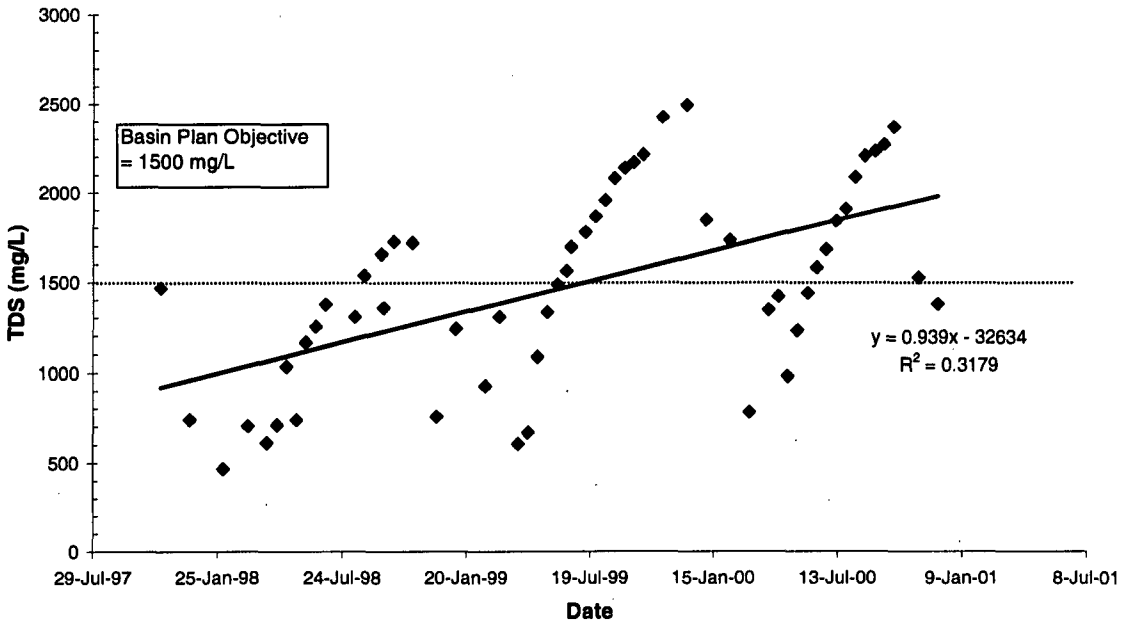
Date	Old Mission Dam (mg/L)	Mission Pond (mg/L)	Fashion Vlly RD (mg/L)
Sep 97 to Sep 98			
Avg =	1102.3	1074.9	Not
Median =	1089.0	1165.0	Sampled
Exceedances	3 of 16, 19%	2 of 15, 13%	
Oct 98 to Oct 99			
Avg =	1263.7	1515.3	1472.8
Median =	1343.5	1628.5	1550.0
Exceedances	3 of 20, 15%	11 of 20, 55%	10 of 19, 53%
Nov 99 to Dec 00			
Avg =	1372.0	1750.1	1785.0
Median =	1406.0	1731.0	1844.0
Exceedances	9 of 21, 43%	14 of 21, 67%	15 of 21, 71%

Basin Plan Objective = 1500 mg/L (not to be exceeded more than 10% of the time during a one-year period)

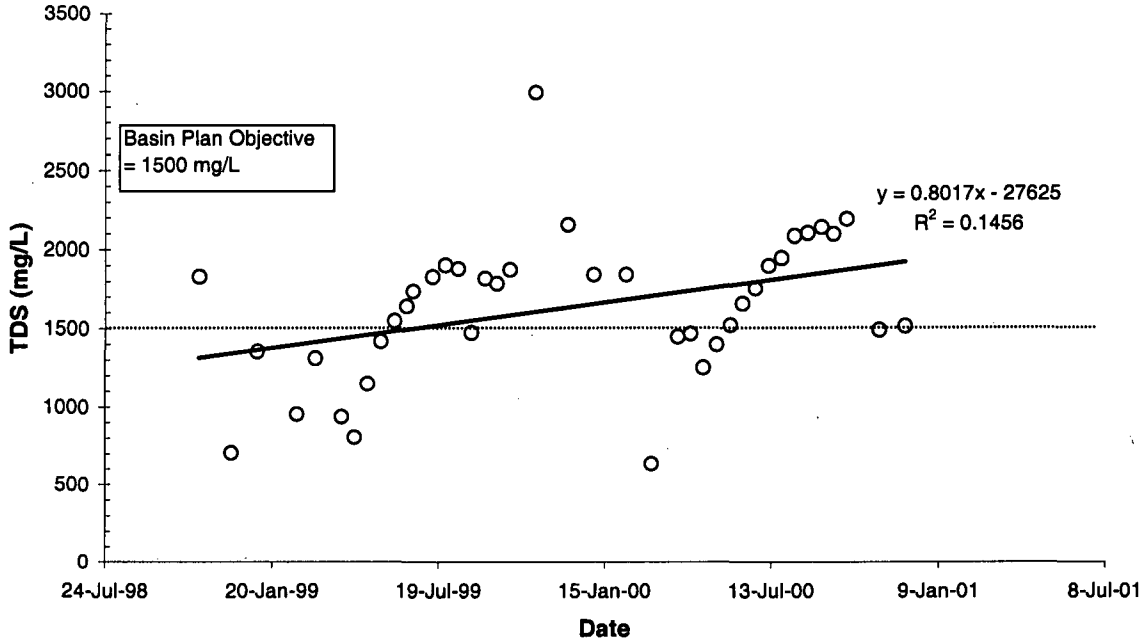
Total Dissolved Solids
San Diego River at Old Mission Dam
1997-2000



Total Dissolved Solids
San Diego River at Mission Pond
1997-2000



Total Dissolved Solids
San Diego River at Fashion Valley Rd
1987- 2000



EXTENT OF IMPAIRMENT

Dissolved Oxygen Low concentrations were observed at all stations from Carlton Hills Blvd Bridge down to Fashion Valley Road. The extent of impairment is therefore the entire lower portion of the river, which covers an area of approximately 20 miles.

Fecal Coliform High concentrations were observed at Fashion Valley Road. Downstream samples were taken at the San Diego River Estuary along Interstate 5 (I-5). The I-5 samples showed some bacterial impairment during the year 2000. The extent of impairment is therefore the lower portion of the river, downstream of the Fashion Valley Road site. This covers an area of 6.0 miles.

Phosphorus High concentrations were observed at all stations from Carlton Hills Blvd Bridge down to the Interstate 5 estuary. The extent of impairment is therefore the entire lower portion of the river, which covers an area of approximately 20 miles.

TDS High concentrations were observed from Old Mission Dam to Fashion Valley Road. The extent of impairment is therefore the lower portion of the river between these two stations. This covers approximately an area of 15 miles.

POTENTIAL SOURCES

Dissolved Oxygen Bacterial loading and subsequent decomposition of this and other organic matter. Other sources of pollutants that could lower oxygen concentrations could come from urban runoff, other point sources and non-point sources.

Fecal Coliform Urban runoff, other point sources, non-point sources and sewage spills.

Phosphorus Urban runoff, other point sources and non-point sources.

TDS The prevailing belief is that much of the TDS problem is anthropogenic in nature. Evaporation and natural salt sources also contribute. Other sources include urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Dissolved Oxygen	Low
Fecal Coliform	Medium
Phosphorus	Low
TDS	Low

Two studies are planned for the river and lead to the low priority rankings. The studies are: San Diego River Watershed Management Plan by the County of San Diego[3] and An Investigation of Nutrient Flux by the City of San Diego Metropolitan Wastewater Department.[4]

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Padre Dam Municipal Wastewater District, 2000. Receiving Water Sampling and Analysis. Electronic data submission to California Regional Water Quality Control Board, San Diego Region.

Other Information

[3] Brownyard, T. San Diego River Watershed Management Plan. County of San Diego, Department of Environmental Health.

[5] Wasserman, L. An Investigation of Nutrient Flux in the San Diego River Sediments and Potential Water Quality Impacts. Metropolitan Wastewater Department, City of San Diego.

SWITZER CREEK (Mouth of creek in San Diego Bay)
Hydrologic Subarea 908.22

NEW 303(d) LISTINGS
Benthic Community Degradation and Sediment Toxicity

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
Switzer Creek is an urban creek that drains into San Diego Bay. San Diego Bay is designated with the following beneficial uses: IND, NAV, REC1, REC2, COMM, BIOL, EST, WILD, RARE, MAR, MIGR and SHELL.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
Benthic degradation The Basin Plan[1] 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 Regional Board." This objective was violated.

Sediment toxicity The Basin Plan[1] 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 Regional Board." This objective was violated.

EVIDENCE OF IMPAIRMENT
Benthic degradation Sediment sampled in San Diego Bay by the Bay Protection Toxic Cleanup Program (BPTCP)[2] in December of 1996 at the outlet of Switzer Creek indicated the presence of elevated chemistries, toxicity, and benthic degradation. One core was sampled with 3 replicates to identify and quantify the benthic community. A Relative Benthic Index (RBI) was used to determine benthic degradation. The RBI ranges on a scale from 0 to 1. "It combines use of benthic community data (i.e. species diversity) with the presence or absence of positive and negative indicator species in order to provide a measure of the relative degree of degradation within the benthic fauna."[2] For example, *Capitella sp.* is a pollutant tolerant negative indicator species. Its presence in large numbers is indicative of a polluted benthic environment. An RBI of $\leq$ 0.3 is considered degraded, and the samples near Switzer Creek had an RBI of 0.02.

This information on benthic community health was not available in 1998. With only evidence of elevated sediment concentrations and sediment toxicity, Switzer Creek was not Section 303(d) listed. The addition of this information completes the "Triad of Evidence" (benthic community status, sediment toxicity and sediment chemistry) that was used as a criteria for the 1998 San Diego Bay listings for Sediment Toxicity and Benthic Community Degradation.

Sediment toxicity Sediments sampled by the Bay Protection Toxic Cleanup Program (BPTCP)[2] in December of 1996 were also used for toxicity testing. Amphipod solid phase survival tests were performed using *Eohaustorius estuarius* that were exposed to

sediments for 5 days. One sediment sample was divided into 5 replicates. Switzer Creek was the only station in San Diego Bay to show toxicity to *E. estuarius*, with less than a 48% survival rate. High concentrations of unionized ammonia, which naturally occurs in sediments, can be lethal to toxicity test organisms. Unionized ammonia concentrations were all below the application limit (0.8 mg/L; USEPA, 1995).[3] Hydrogen sulfide (H_2S) concentrations were above the observed "low effects" level (0.114 mg/L; Knezovich, 1996).[4] H_2S might have contributed to toxicity at this station, but seems unlikely because the H_2S concentration in another station was over twice as high without demonstrating toxicity.

Sea urchin embryo-larval development testing was performed on *Strongylocentrotus purpuratus* at the sediment / water interface for 96 hours. After the exposure period, larvae were examined to determine the proportion of normally developed larvae. The proportions of normal larvae were compared against control cultures to determine toxicity. Testing on *S. purpuratus* indicated toxicity. Ammonia levels were all below the "no effects" level (0.07 mg/L; Bay, 1993)[5] and likely did not contribute to observed toxicity. H_2S might have contributed to toxicity and should be considered a potential confounding factor.

Chemistry In addition, chlordane, lindane and PAH concentrations were all 4 times above the Effects Range Medians (ERMs) and 5.9 times above the Probable Effects Levels (PELs). The ERM reflects the 50th percentile of ranked data and represents the level above which effects are expected to occur. The PEL value is derived by taking the geometric mean of the 85th percentile of the "no effects" data and the 50th percentile of the "effects" data. Combining these high concentrations with evidence of benthic degradation and sediment toxicity satisfies the criteria that was used to list other San Diego Bay locations in 1998 based upon the same BPTCP data.[2,6]

All 3 components of the "Triad of Evidence" provide evidence that the benthic community is being negatively impacted in San Diego Bay at the mouth of Switzer Creek. This level of benthic degradation, sediment toxicity and sediment chemistry is direct evidence of impairment of the following beneficial uses: BIOL, EST, WILD, RARE, MAR, MIGR and SHELL.

EXTENT OF IMPAIRMENT

Benthic degradation Area at the outlet of Switzer Creek, bound by piers on the north and south side of the outlet, extending to the edge of the piers.

Sediment toxicity Area at the outlet of Switzer Creek, bound by piers on the north and south side of the outlet, extending to the edge of the piers.

POTENTIAL SOURCES

Benthic degradation Elevated concentrations of chlordane, lindane, poly aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs)[2] could be the cause. Current and historic shipyard activity may be a source. Historically, this site served as a PAH waste dump site for an SDG&E coal gasification plant.[7] Prior to that, the site served as one of the original garbage dumps in the San Diego region.[7] Other potential sources are urban runoff, other point sources, and non-point sources.

Sediment toxicity Elevated concentrations of chlordane, lindane, PAHs and PCBs[2] could be the cause. Current and historic shipyard activity may be a source. Historically, this site served as a PAH waste dump site for an SDG&E coal gasification plant.[7] Prior

to that, the site served as one of the original garbage dumps in the San Diego region.[7] Other sources are urban runoff, other point sources, and non-point sources.

TMDL PRIORITY

Benthic degradation	High
Sediment toxicity	High

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Bay Protection Toxic Cleanup Program, 1998. Chemistry, Toxicity, and Benthic Community Conditions in Sediments of the San Diego Bay Region. California State Water Resources Control Board.

[3] United States Environmental Protection Agency, 1995. Short term methods for estimating the chronic toxicity of effluent and receiving water to west coast marine and estuarine organisms. EPA/600/R-95/136. Office of Research and Development. Washington, D.C. U.S.A.

[4] Knezovich, J., D. Steichen, J. Jelinski and S. Anderson. 1996. Sulfide tolerance of four marine species used to evaluate sediment and pore water toxicity. Bull. Environ. Contam. Toxicol. 57: 450-457.

[5] Bay, S., R. Burgress and D. Greenstein. 1993. Status and applications in the Echinoid (Phylum Echniodermatata) toxicity test methods. In: W.G. Landis, J.S. Hughes and M. A. Lewis, eds. Environmental Toxicology and Risk Assessment. ASTM, STP 1179, Philadelphia, PA.

[6] Bay Protection Toxic Cleanup Program, 1998. Chemistry, Toxicity and Benthic Community Conditions in Sediments of the San Diego Bay Region. Final Addendum Report. California State Water Resources Control Board.

[7] California Regional Water Quality Control Board, San Diego Region. Staff observations. 2001.

PACIFIC OCEAN SHORELINE AT CORONADO BEACH
Hydrologic area 910.00

Note: This Fact Sheet supports the **de-listing** of Pacific Ocean Shoreline at Coronado Beach. Remedial measures taken in response to Regional Board enforcement actions have resulted in water quality that now meets applicable water quality objectives.

NEW 303(d) *DE*-LISTINGS
Bacterial indicators (total coliform, fecal coliform)

PREVIOUS 303(d) LISTINGS
High Coliform Count at the following Coronado Beach segments: North Beach / Sunset Park, Loma Avenue, and Pine Street

WATERSHED CHARACTERISTICS
The Coronado Hydrologic Area is composed of the North Island Naval Air Station, the City of Coronado and the Silver Strand. North Beach is located adjacent to the perimeter of the North Island Naval Station. Sunset Park drains directly into North Beach. Loma Avenue and Pine Street are located in the area of Coronado known as Central Beach.

Coastal waters, including Coronado Beach, include some or all of the following beneficial uses: IND, NAV, REC1, REC2, COMM, BIOL, WILD, RARE, MAR, AQUA, MIGR, SPWN, and SHELL.

This Fact Sheet describes evidence of the restoration of the REC1 beneficial use due to reduced bacterial contamination at Coronado beaches. The REC1 beneficial use is described as "uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible[1]."

WATER QUALITY OBJECTIVES ATTAINED
Total coliform The Ocean Plan[2] REC1 objective states that not more than 20% of samples at any sampling station, in any 30-day period, shall exceed 1000 colonies/100 mL. Additionally, no single sample, when verified by a repeat sample taken within 48 hours, shall exceed 10,000 colonies /100 mL.

The Ocean Plan[2] and Basin Plan[1] SHELL objective states that the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 colonies/100 mL, nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 colonies/100 mL for a five-tube decimal dilution test or 330 colonies/100 mL when a three-tube decimal dilution test is used.

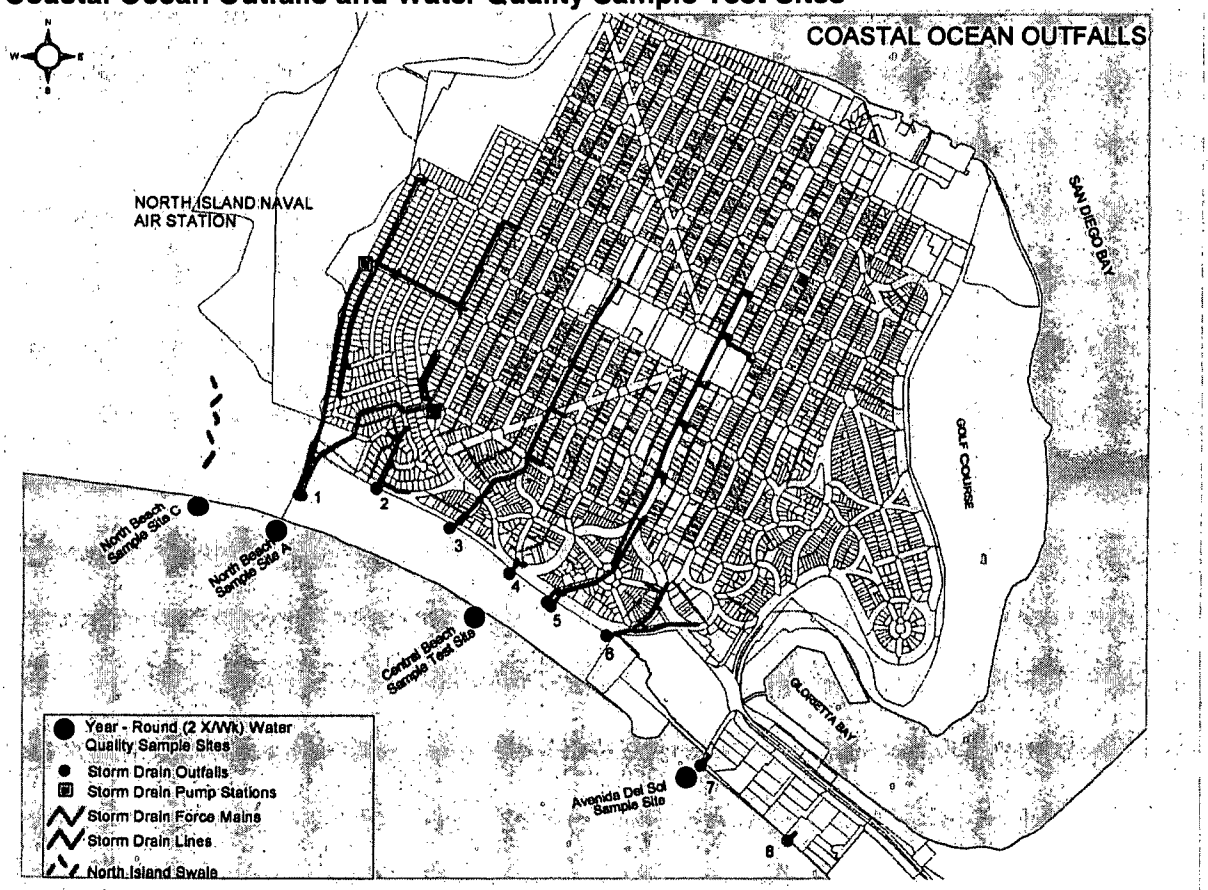
Fecal coliform The Basin Plan[1] REC1 objective states that for not less than 5 samples, in any 30-day period, the log mean shall not exceed 200 colonies/100 mL. Additionally, no more than 10% of the total samples during any 30-day period shall exceed 400 colonies /100 mL.

EVIDENCE OF REC1, SHELL BENEFICIAL USE ATTAINMENT
Bacterial concentration data from the City of Coronado,[3,4] for the beaches of Coronado was reviewed for this listing cycle. In January 2000, the City of Coronado submitted a Final Report[3] as required by Regional Board Cease and Desist Order No.98-74. This report formally requested the rescission of both this Cease and Desist Order, as well as Cleanup and Abatement Order No. 97-69. Both of these orders had been issued by the

Regional Board to address the severe bacterial contamination at North Beach, one of the coastal areas on the 1998 303(d) list. To comply with these orders, the City of Coronado implemented wet / dry weather diversion systems in areas that discharge into North Beach, and an ultra-violet (UV) treatment system to treat discharges. Fecal and total coliform data submitted in this report showed monitoring at 3 sites, 2 in North Beach and 1 in Central Beach. The data contained in this report is a sub-set of the data described in the report below.

In January 2001, the City of Coronado submitted a Semi-Annual Waste Discharge Compliance Report[4]. Weekly monitoring was done by both the City of Coronado and the San Diego County Department of Environmental Health. This report showed monitoring along Coronado Beach at four monitoring stations. Two stations are located in the vicinity of North Beach, which are called "Surf Zone A" and "Surf Zone C." Surf Zone A is in the tidal zone directly downstream of the outfall from Sunset Park. Surf Zone C is located 50-ft. upshore of Surf Zone A. One monitoring location is at Central Beach, which is adjacent to F Street. The Pine Street outfall lies between the Surf Zone A monitoring location and the Central Beach monitoring location. Additionally, monitoring is done at Avenida del Sol. The Loma Avenue outfall is between the Central Beach and Avenida del Sol monitoring sites. A map showing the previously listed locations, as well as the monitoring locations, is shown below. These 4 monitoring stations provide coverage of the 4 beach locations recommended for de-listing.

Coastal Ocean Outfalls and Water Quality Sample Test Sites



Outfall locations:

1 = Coronado Street (downstream of Sunset Park)
2 = Pine Street
3 = G Street
4 = F Street
5 = Loma Avenue
6 = Churchill Place

A summary of the data is provided below. The column labeled "Number of Exceedances" refers to the number of times one of the aforementioned water quality objectives was exceeded.

Location	Monitoring Start	Last Reported	No. of Exceedances (REC1, Total Coliform)	No. of Exceedances (REC1, Fecal Coliform)	No. of Exceedances (SHELL, Total Coliform)
Surf Zone C	1/13/00	1/2/01	4	3	0
Surf Zone A	5/26/99	12/28/00	3	4	0
Central Beach	11/1/99	1/2/01	3	4	0
Ave. del Sol	4/3/00	1/2/01	3	1	2

This bacterial concentration data demonstrates minimal contamination in these areas. The temporal span covers almost one full year in one location and almost two full years in two locations. Further, the spatial span of these areas are sufficient to cover the areas described in the 1998 303(d) list. These areas include North Beach / Sunset Park, Loma Avenue, and Pine Street.

Based on this bacterial concentration data, the de-listing of North Beach and Central Beach from the 303(d) list is recommended.

EXTENT OF DE-LISTED AREAS

This de-listing recommendation and Fact Sheet applies only to the 1998 listing of the Pacific Ocean Shoreline at Coronado Beach. Although in the same hydrologic area, it should not be confused with the 2002 new listing of San Diego Bay Shoreline at Tidelands Park, which is located on the bayside of Coronado Island. See Fact Sheet for Pacific Ocean Shoreline, San Diego Region (pgs B69 – B74) for rationale pertaining to the listing of Tidelands Park.

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

[2] Water Quality Control Plan for Ocean Waters of California, 1997. State Water Resources Control Board.

Data Sources

[3] Final Report for Cease and Desist Order No. 98-74; Demonstration of Compliance. City of Coronado, January 2000.

[4] Semi-Annual Waste Discharge Compliance Report for the City of Coronado, in compliance with NPDES Order No. 90-42, January 2001.

TIJUANA RIVER ESTUARY
Hydrologic Subarea 911.11

NEW 303(d) LISTINGS
Dissolved Oxygen (DO)

PREVIOUS 303(d) LISTINGS
Eutrophication, Coliform, Lead, Nickel, Pesticides, Thallium and Trash.

WATERSHED CHARACTERISTICS
The Tijuana River Watershed comprises a region of approximately 1,750 square miles that lies astride the California-Baja California border. Approximately one third of the watershed is in the United States and two thirds is in Mexico. The watershed contains the Tijuana River Estuary, a protected area containing one of the largest remaining functioning wetlands. The estuary encompasses an area of about 150 acres. The estuary is designated with the following beneficial uses: REC1, REC2, COMM, BIOL, EST, WILD, RARE, MAR, MIGR and SHELL.[1]

WATER QUALITY OBJECTIVE NOT ATTAINED
Dissolved Oxygen The Basin Plan[1] objective for dissolved oxygen concentration is 5.0 mg/L in any waterbody designated with a MAR beneficial use. In addition, the Basin Plan sets an annual objective of 7mg/L that shall not be exceeded more than 10% of the time during a one-year period.

EVIDENCE OF IMPAIRMENT
Dissolved Oxygen Dissolved oxygen measurements were collected every 30 minutes for the entire year of 1997 and 1998. Due to the large amount of data collected, only 1998 data were summarized. Data for 1997 were reviewed and found to follow similar trends.

Dissolved oxygen concentrations violated the water quality objective almost every day of the month. Dissolved oxygen concentrations generally dropped below the water quality objective for a portion of the day (typically between 10pm and 8am). Although it is typical for dissolved oxygen concentrations to decrease during this time period, the DO levels in the estuary dropped to excessively low concentrations (generally below 3 mg/L). The table below shows the mean, median and percent above or below both water quality objectives during 1998. The median concentrations for 6 of the 12 months (50%) were below 5 mg/L and the median concentrations for 7 of 12 months (58%) were below 7.0 mg/L. This high percentage of median concentrations below 7.0 mg/L is considered as evidence of violation of the annual Basin Plan objective for dissolved oxygen. These low DO conditions are expected to impair the COMM, BIOL, EST, WILD, RARE, MAR and MIGR beneficial uses.

Month	Dissolved Oxygen Average (mg/L)	Median (mg/L)	Median (% *below* 5.0)	Median (% *below* 7.0)
Jan-98	8.5	8.3	-65.2%	-18.0%
Feb-98	7.3	7.4	-47.2%	-5.1%
Mar-98	8.1	7.0	-40.9%	-0.6%
Apr-98	7.4	6.1	-22.2%	12.7%
May-98	6.8	6.0	-20.5%	13.9%
Jun-98	3.8	2.6	48.4%	63.1%
Jul-98	2.7	1.2	75.2%	82.3%
Aug-98	4.1	3.3	33.4%	52.4%
Sep-98	3.8	2.9	41.9%	58.5%
Oct-98	7.4	7.3	-46.0%	-4.3%
Nov-98	4.7	4.6	8.1%	34.4%
Dec-98	6.6	7.2	-43.6%	-2.6%

a negative percent indicates that the median was above the either 5.0 or 7.0

EXTENT OF IMPAIRMENT

Dissolved oxygen Only one sampling point was assessed for dissolved oxygen concentrations. Despite this, the entire estuary is likely to have low DO concentrations due to the massive loading of bacteria from raw sewage flows. Therefore, the entire estuary (150 acres) is listed as impaired.

POTENTIAL SOURCES

Dissolved oxygen Raw sewage flows bring massive bacterial loading that can deplete available oxygen. Other sources of compounds that may cause low DO include decaying organic matter, urban runoff, other point sources and non-point sources.

TMDL PRIORITY

Dissolved oxygen Low

INFORMATION SOURCES

Water Quality Objectives

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] Toxic Substances Monitoring Program, Preliminary Data Tables. 1997 – 1999. State Water Resources Control Board.

PINE VALLEY CREEK, Upper
Hydrologic Subarea 911.30

NEW 303(d) LISTINGS
Enterococci

PREVIOUS 303(d) LISTINGS
None

WATERSHED CHARACTERISTICS
The Tijuana watershed is a 470 square mile land area that is drained by the Cottonwood Creek and Campo Creek, which are tributaries of the Tijuana River. This watershed lies in the southeast corner of San Diego County and 75% of the area resides in Mexico. Pine Creek flows into Barrett Reservoir. Water from Barrett Reservoir is conveyed by flume to Dulzura Summit where it is discharged into the headwaters of Dulzura Creek. Dulzura Creek flows to Lower Otay Reservoir, where in most years it is drawn, treated, and distributed as potable water. Only in very wet years will the dams at Lower Otay or Barrett spill. When Barrett spills, the flow is into Cottonwood Creek, which then flows into Mexico. Cottonwood Creek is a tributary of the Tijuana River. When Lower Otay spills, it is into the Otay River. Designated beneficial uses of Pine Valley Creek include: MUN, AGR, IND, PROC, FRSH, REC1, REC2, WARM, COLD and WILD.[1]

WATER QUALITY OBJECTIVES NOT ATTAINED
Enterococci The bacterial objectives used for evaluation of Pine Valley Creek water quality pertain to freshwater areas considered moderately or lightly used. This particular decision, namely the extent to which the area is used, is based on best professional judgement. Although both steady state (30-day period) and single sample objectives are available, only the particular objective used for data assessment is described.

The Basin Plan[1] REC1 single sample maximum allowable density is 108 colonies/100 mL, for a moderately or lightly used area.

EVIDENCE OF IMPAIRMENT
Enterococci The City of San Diego Water Department[2] sampled five locations along the Pine Valley Creek shoreline from January to December 1998. At sampling station PVC1a, the data showed that 6 of 11 samples (55%) exceeded the Basin Plan[1] objectives for enterococci. There was evidence of both wet and dry weather impairment of the creek at this location. The raw data at sampling station PVC1a is shown below. The samples indicating exceedances of water quality objectives are highlighted.

Sampling Date	Enterococci (CFU / 100 mL)	Sampling Date	Enterococci (CFU / 100 mL)
1/14/98	20	5/20/98	100
2/4/98	**20000**	6/18/98	**140**
2/24/98	**2100**	7/14/98	**130**
3/4/98	50	8/18/98	**260**
3/18/98	27	9/15/98	100
4/15/98	**530**		

The concentration levels of enterococci in Pine Valley Creek over the Basin Plan[1] objectives can contribute to human illness through contact with contaminated water, and is expected to impair the REC1 beneficial use.

In addition, visual inspection of this section of the creek by San Diego Regional Water Quality Control Board staff[3] revealed heavy use of the creek for cattle grazing and impacts from numerous nearby horse stables. Undocumented migrants traveling through the Pine Valley Reserve use this portion of the creek. Encampments are frequently noted in this area.

EXTENT OF IMPAIRMENT

Enterococci The extent of impairment is the two mile reach between stations PVC1a and PVC1b. Sampling at PVC1b, which is downstream of PVC1a, showed little impairment.

POTENTIAL SOURCES

Enterococci Impairment appears to come from horse stables, cattle grazing in and near the creek, and human encampments.

TMDL PRIORITY

Enterococci Medium. The PVC1a sampling station is located 0.25 miles below the confluence of the Upper Pine Valley Creek and the South Pine Creek tributary that is at the Old Highway 80 crossing. Impairment due to bacteria can probably be reduced or eliminated through proper Best Management Practices (BMPs) for horse stables and livestock grazing.

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

Data Sources

[2] City of San Diego Water Department, 1998. Pine Creek Assessment Project (PCAP) Raw Bacteria Data.

[3] California Regional Water Quality Control Board, San Diego Region. Staff observations. 2001.

PACIFIC OCEAN SHORELINE FOR SAN DIEGO REGION
(including San Diego Bay, Mission Bay, and Dana Point Harbor)
Hydrologic Units 901.00-911.00

Note: This Fact Sheet is inclusive of all coastal public beaches within the Hydrologic Units of the San Diego Region that are impaired due to bacterial indicator exceedances, including the public beaches of San Diego Bay, Mission Bay, and Dana Point Harbor.

NEW 303(d) LISTINGS
Bacterial indicators (total coliform, fecal coliform, enterococci)

PREVIOUS 303(d) LISTINGS
High Coliform Count

WATERSHED CHARACTERISTICS
Coastal watersheds in the San Diego region are highly urbanized, with relatively high population densities. Coastal waters include some or all of the following beneficial uses: IND, NAV, REC1, REC2, COMM, BIOL, WILD, RARE, MAR, AQUA, MIGR, SPWN, and SHELL. All listed public beaches and bays include the REC1 beneficial use.

The subject of this Fact Sheet is impairment of the REC1 beneficial use at public beaches and bays due to bacterial contamination. The REC1 beneficial use is described as "uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible[1]." The SHELL beneficial use is also designated for all areas adjacent to the Pacific Ocean, including San Diego Bay, Mission Bay, and Dana Point Harbor.

WATER QUALITY OBJECTIVES NOT ATTAINED
Total coliform The Ocean Plan[2] REC1 objective states that not more than 20% of the samples at any sampling station, in any 30-day period, shall exceed 1000 colonies/100 mL. Additionally, no single sample, when verified by a repeat sample taken within 48 hours, shall exceed 10,000 colonies /100 mL.

The Basin Plan[1] REC1 objective for Bays and Estuaries states that the most probable number of coliform organisms in the upper 60 feet of the water column shall be less than 1000 per 100 mL (10 per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1000 per 100 mL (10 per mL), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 (100 per mL).

The Basin Plan[1] and Ocean Plan[2] SHELL objective states that the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 colonies/100 mL, nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 colonies/100 mL for a five-tube decimal dilution test or 330 colonies/100 mL when a three-tube decimal dilution test is used.

Fecal coliform The Basin Plan[1] REC1 objective states that for not less than 5 samples, in any 30-day period, the log mean shall not exceed 200 colonies/100 mL. Additionally, no more than 10% of the total samples during any 30-day period shall exceed 400 colonies /100 mL.

Enterococci The Basin Plan[1] REC1 objective states that the steady state value log mean indicator density (generally not less than 5 samples equally spaced over a 30-day period) for enterococci in a saltwater body shall not exceed 35 colonies/100 mL. Additionally, no single sample shall exceed 104 colonies /100 mL in a designated beach saltwater body. These numeric criteria originated in guidance published by USEPA[3].

Fecal Coliform / Total Coliform Ratio The California Department of Health Services (DHS) has published guidance for bacterial monitoring at salt and fresh water beaches[3]. Department of Health Services bacteriological standards of single samples for total coliform, fecal coliform, and enterococci are identical to the Basin Plan[1] and Ocean Plan[2] objectives described above. In addition to these standards, DHS also describes a fourth standard. This states that a single sample for total coliform shall not exceed 1000 colonies/100 mL if the ratio of fecal coliform/total coliform exceeds 0.1[4].

EVIDENCE OF IMPAIRMENT

Data was submitted by several agencies [5-12] for this listing cycle. Impairment was determined in San Diego County based on Beach Posting and Closing Data[7] from the San Diego County Department of Environmental Health. Impairment was determined in Orange County based on Beach Closures[5] and Postings Data for Assembly Bill 411[6] from the Environmental Health Care Agency, County of Orange. Data for the Year 2000 was reviewed. These reports demonstrate recurring bacterial exceedances of REC1 Basin Plan[1], Ocean Plan[2], and California DHS[4] objectives or standards.

Beach and bay bacterial exceedances in the San Diego Region are indicated by temporary public health risk warnings, or beach advisories / warnings (hereafter referred to as beach advisories), and beach closures. Beach advisories are assigned to beach locations where routine monitoring performed by the county health departments have indicated violations of any one of the four bacteriological standards described by DHS, three of which are identical to Basin Plan[1] and Ocean Plan[2] objectives. Beach advisories remain in effect until continued monitoring shows that bacterial levels do not exceed any of the four water quality standards or objectives. Beach closures follow a sewage spill. Closures remain in effect until continued monitoring shows that bacterial levels do not exceed any of the four water quality standards or objectives.

Beach advisories and closures are indicated publicly by placement of temporary beach postings. These postings are placed and removed by county health departments.

Raw data used to generate advisory and closure reports[5-7] was not assessed by the Regional Board to determine impairments. Rather, the advisory and closure reports[5-7] were used, since these are indicative of REC1 bacterial exceedances. Although the SHELL beneficial use applies to all coastal waters, the water quality objectives associated with this beneficial use, which are more stringent than REC1 beneficial use, were not evaluated. The nature of the data, in the form of advisory and closure reports,[5-7] did not permit evaluation of water quality objectives associated with the SHELL beneficial use.

In one isolated case where raw bacterial data was assessed, the SHELL beneficial use was evaluated. This occurred at Coronado Beach and lead to the recommendation for de-listing. The rationale for de-listing can be found in a separate Fact Sheet (pgs B62 – B64).

CRITERIA FOR LISTING

Beaches were listed as impaired if the number of days that water quality exceeded bacterial REC1 standards (indicated by either beach advisories or closures) was greater than 10 days per year. The days did not have to be consecutive and the season of the posting was not a consideration. The choice of >10 days per year as the listing criteria was based upon best professional judgement, including consideration of the relative threat to human health associated with bacterial contamination. This temporal span was considered to be indicative of REC1 beneficial use impairment due to elevated bacterial concentrations.

RESULTS

The results of the assessment are presented below in three distinct categories that describe changes to the 1998 listing and new 2002 listing recommendations. For the current list update, a waterbody listing is defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. Please see the Staff Report, pages 15 and 19-20 for more information on how a listing is defined.

The first category describes the extent of impairment that was applied to all newly recommended listings and to most of the previous listings. The second category describes additions of new segments to 1998 listings. This resulted in changes to the extent of impairment to previously listed hydrologic units, areas, or subareas. In contrast, the third category recommends addition of new, distinct segments that were not contained within hydrologic units, areas, or subareas described in the 1998 303(d) list. These new segments constitute new listings. The segments of impairment for both the 1998 and 2002 list update are defined within larger hydrologic boundaries and are presented in Table 4.

Extent of Impairment

For each listed beach, impairment generally occurs at the mouth of a creek or storm drain. The recommended extent of impairment is 400 yards (0.2 mi.) on each side of the drain / outlet, for a total of 800 total yards (0.4 mi.). This is based on the Santa Monica Bay Epidemiology Study[13], which estimated the "safe zone" for swimming near storm drains associated with public beaches to be 400 yards from either side of an outlet containing urban runoff. This distance is set as the extent of impairment for all new and existing beach and bay listings to more accurately demarcate bacterial contamination. The extent of impairment for most existing listings was therefore increased to reflect this finding. If an existing listing had an extent of impairment larger than 0.4 miles, then no changes were recommended. Extents of impairment for individual segments have been summed to provide the total extent of impairment within the larger hydrologic listing. Often, the individual segments within a single listing are closer than 0.4 miles apart. In these cases, the total extent of impairment for each listing is less than the sum of all individual segments and takes overlapping spatial extents into account.

Additions of New Segments to 1998 Listings

The 1998 303(d) list presents beach and bay impairments as segments within hydrologic units (HU), hydrologic areas (HA), or hydrologic sub areas (HSA). Applying the aforementioned listing criteria to new data revealed that the 1998 beach and bay listings should be updated to include more segments in previously listed waterbodies. The evidence showing support of this is presented below in Table B1. The segments shown below are not newly recommended listings, but are additional segments within previously listed waterbodies located within previously listed hydrologic boundaries. It is

recommended that the extent of impairment within existing listings be modified to include these segments. Table B1 shows the number of days that each beach / bay segment, recommended for addition, demonstrated exceedances in REC1 standards or objectives, as indicated by either a beach advisory or beach closure in 2000.

Table B1 - New Locations within 1998 Listings

	Hydrologic Descriptor		Waterbody	Segment / Area	# Days Posted (Year 2000)
1	901.27	Lower San Juan HSA	Pacific Ocean Shoreline	South Capistrano Beach at Beach Road	40
2	901.51	San Onofre Valley HSA	Pacific Ocean Shoreline	San Onofre State Beach at San Mateo Creek outlet	15
3	907.11	Mission San Diego HSA	Pacific Ocean Shoreline	Ocean Beach at Bermuda Ave	13
4	908.10	Point Loma HA	San Diego Bay Shoreline	at Kellogg Street beach	17
			San Diego Bay Shoreline	Shelter Island Shoreline Park	24
5	910.10	Coronado HA	San Diego Bay Shoreline	at Tidelands Park	17

San Diego Bay, although a large waterbody covering several hydrologic areas, is treated as one waterbody. Therefore, it is reported on the Section 303(d) list once, having several segments of impairment.

Additions of New Segments that lead to New Listings

Of the 18 beach and bay listings in Table 4, 16 were listed in the 1998 listing cycle. The Regional Board recommends adding one new beach segment and one new bay segment to the 2002 list update. These new locations show evidence of impairment of the REC1 beneficial use. Table B2 shows the number of days that each newly recommended beach / bay segment demonstrated exceedances of REC1 standards or objectives, as indicated by either a beach advisory or beach closure in 2000.

Table B2 - New Section 303(d) Listings

	Hydrologic Location		Waterbody	Segment / Area	# Days Posted (Year 2000)
1	901.14	Dana Point HSA	Dana Point Harbor	at Baby Beach	54
2	906.10	Miramar Reservoir HA	Pacific Ocean Shoreline	Torrey Pines State Beach at Los Penasquitos Lagoon outlet	32

These newly recommended segments are not within the hydrologic or waterbody boundaries of any of the 1998 Section 303(d) listings. Therefore, the addition of these segments leads to the addition of new listings. Although the hydrologic sub area 901.14 (Dana Point HSA) was previously listed, the segment specified in 1998 consisted of

Pacific Ocean shoreline. Dana Point Harbor at Baby Beach is a distinct waterbody, and is therefore a new listing. While the hydrologic area 906.10 (Miramar Reservoir HA), was on the 1998 Section 303(d) list, the Pacific Ocean Shoreline was not listed within this hydrologic boundary. Therefore, Pacific Ocean Shoreline: Torrey Pines State Beach at Los Penasquitos Lagoon outlet is also a new listing.

POTENTIAL SOURCES

Bacterial Indicators sewage spills and leaks, urban runoff, other point sources and non-point sources, domestic and wild animals

TMDL PRIORITY

High A high priority is assigned to most beach / bay listings showing impairment from bacterial contamination, which has the potential to adversely affect human health. See Tables 1 and 3 for the priority designations for each segment of beach and bay shoreline. The Regional Board is currently developing a Total Maximum Daily Load (TMDL) to address elevated bacterial contamination in Mission Bay.

INFORMATION SOURCES

Water Quality Objectives and Watershed Characteristics

[1] Water Quality Control Plan for the San Diego Basin (9), 1994. California Regional Water Quality Control Board, San Diego Region.

[2] Water Quality Control Plan for Ocean Waters of California, 1997. State Water Resources Control Board.

[3] Ambient Water Quality Criteria for Bacteria, 1986. United States Environmental Protection Agency. EPA A440/5-84-002.

[4].Draft Guidance for Salt and Fresh Water Beaches + Appendices, 2000. California Department of Health Services.

Data Sources

[5] 1997-2001 Beach Closures. April, 2001. Environmental Health Care Agency, County of Orange. Santa Ana, California.

[6] 1999-2000 Posting for AB 411. Environmental Health Care Agency, County of Orange. Santa Ana, California.

[7] Beach Posting and Closing data from 1997 – 2000. 2000. San Diego County Department of Environmental Health. San Diego, California.

[8] South East Regional Reclamation Authority, 2000. Monthly Monitoring Repots, MRP 2000-13, NPDES Permit No. CA0107417

[9] Southern California Bight 1998 Regional Monitoring Program: I. Summer Shoreline Microbiology. 2001. Southern California Coastal Waters Research Project (SCCWRP). Westminster, California.

[10] Southern California Bight 1998 Regional Monitoring Program: II. Winter Shoreline Microbiology. 2001. Southern California Coastal Waters Research Project (SCCWRP). Westminster, California.

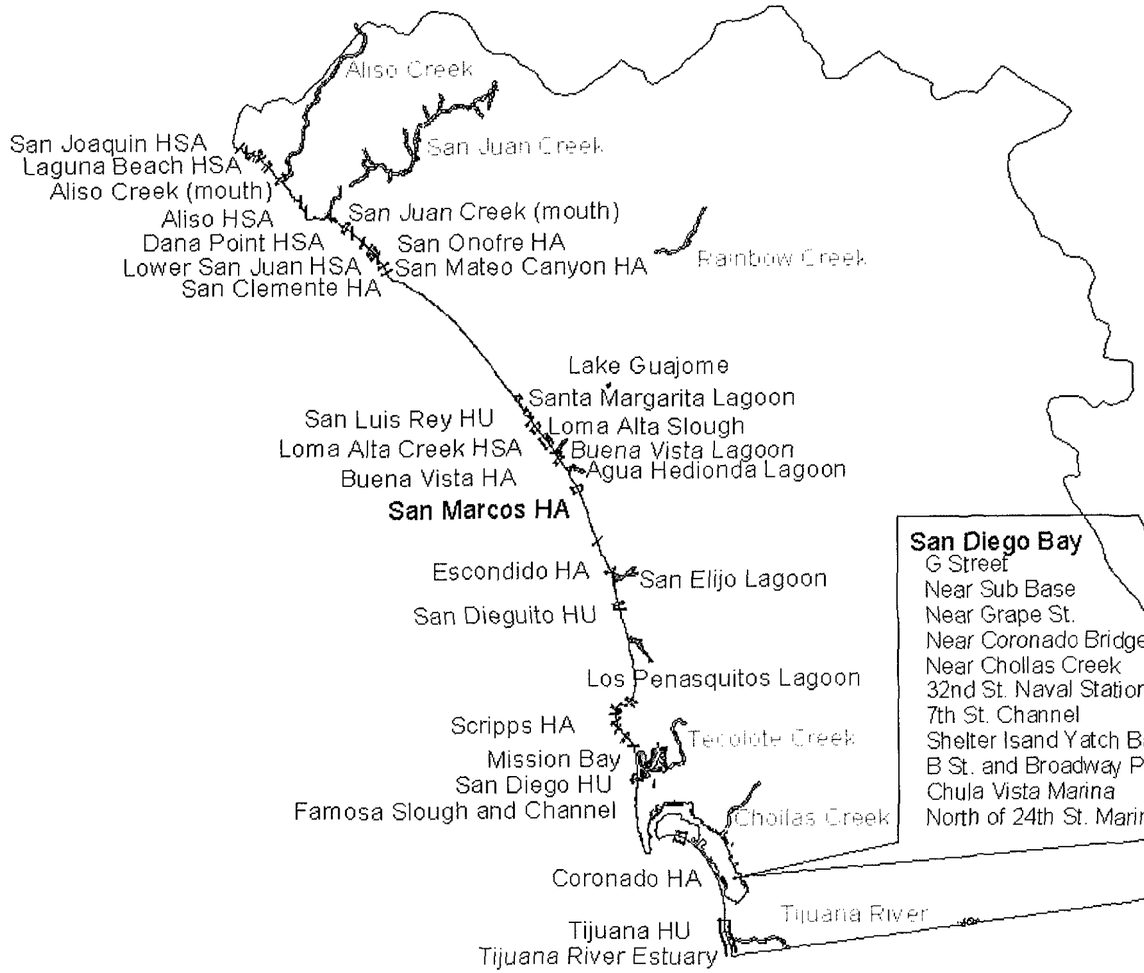
[11] Southern California Bight 1998 Regional Monitoring Program: 3. Storm Event Shoreline Microbiology. 2001. Southern California Coastal Waters Research Project (SCCWRP). Westminster, California.

[12] Volunteer Collected Estuary Water Quality Data (bacteria) 2000-2001. Electronic data submission. Tijuana Visitors Center, Chula Vista, California.

Other sources

[13] Haile, Robert W., John S. Witte, Mark Gold, Ron Cressey, Charles McGee, Robert C. Millikan, Alice Glasser, Nina Harawa, Carolyn Ervin, Patricia Harmon, Janice Harper, John Dermand, James Alamillo, Kevin Barrett, Mitchell Nides, and Guang-yu Wang, 1999. "The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff." *Epidemiology* 10:355-363.

Figure 1: 1998 303(d) Waters

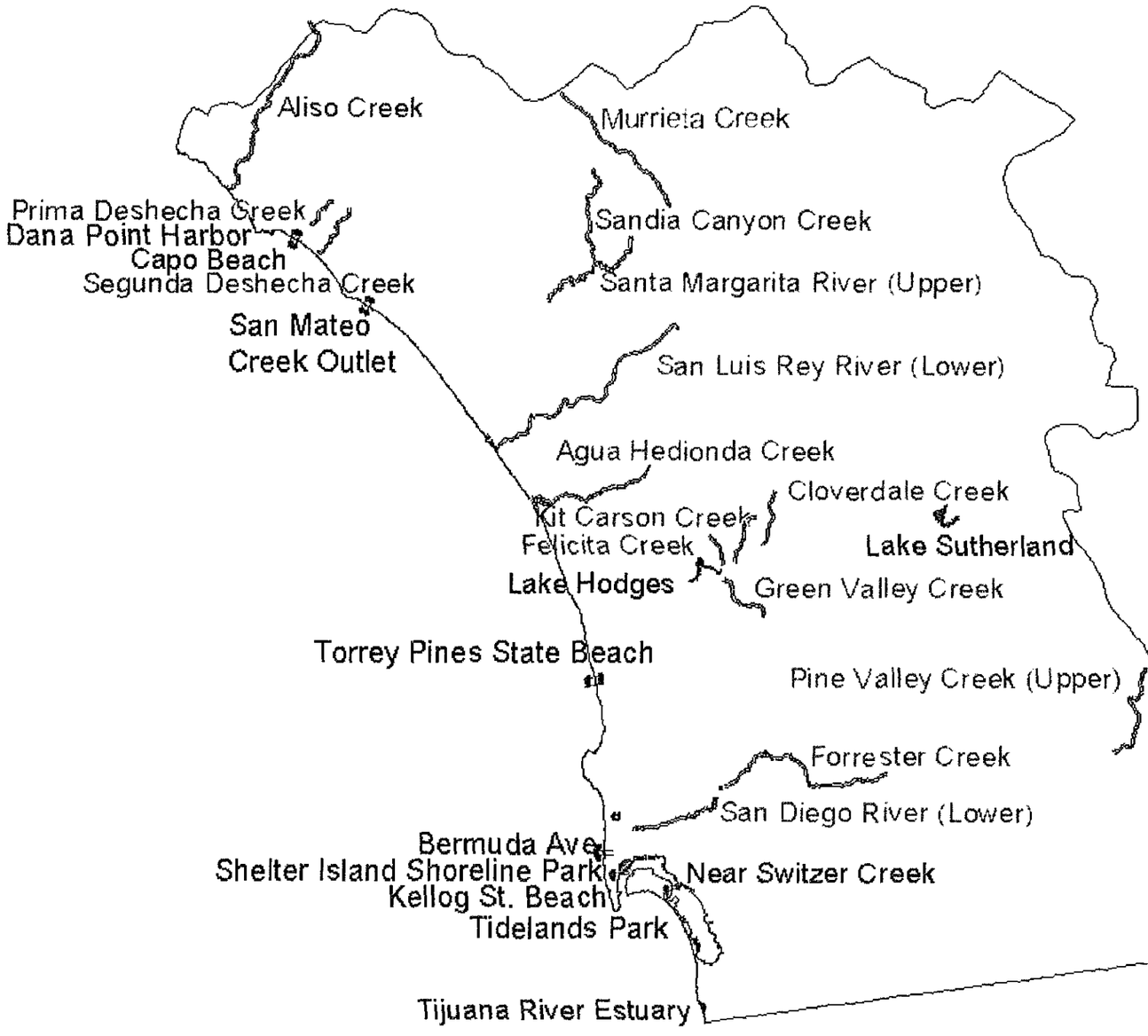


Coastline
River
Estuary
Bay
Lake

N
W
E
S

California Regional Water Quality Control Board, San Diego Region

Figure 2: 2002 303(d) Waters



Bay
Estuary
Lake
River
Coastline

N
W
E
S

California Regional Water Qualtiy Control Board, San Diego Region

Figure 3: 1998 + 2002 303(d) Waters