

Review of California's 1998 Section 303(d) List
Attachment to Letter from Alexis Strauss, USEPA to Walt Pettit, SWRCB

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1. Summary of Proposed Action

Clean Water Act Section 303(d) and EPA regulations at 40 CFR 130.7 require States to identify water quality-limited water bodies and pollutants of concern for which Total Maximum Daily Loads need to be developed. A TMDL is a quantitative assessment of water quality problems and sources of pollutant discharges which identifies pollutant load reductions needed to attain State water quality protection goals. In addition to listing waters and pollutants for which TMDLs are needed, States are required to develop a priority ranking of listed waters and identify TMDLs to be developed over the following two years. The list of waters and pollutants needing TMDLs and the associated priority rankings (the "303(d) list") must be revised and submitted for EPA review and action every two years. Section 3 describes statutory and regulatory requirements for the 303(d) listing process.

This report describes the rationale for EPA's decisions to partially approve and partially disapprove California's Clean Water Act 1998 Section 303(d) list submittal. EPA is making a final decision to approve California's listings of 472 waterbodies and the associated pollutants along with the priority rankings established for each listed waterbody. Section 3 describes EPA's detailed analysis of the State's listing decisions and our rationale for partially approving the listing submission.

EPA is disapproving California's decisions not to list 37 waterbodies and not to list additional pollutants for 12 waters already listed by the State for other pollutants. These waterbodies and/or additional pollutants are required to be listed under EPA regulations. This report describes the basis for EPA's disapproval of California's decisions concerning these additional waters and pollutants and for EPA's identification of an additional 37 waterbodies and several additional pollutants for 12 waters already listed by California (See Table 1 below). EPA will provide a 45 day period for the public to comment on the inclusion of these additional waterbodies and pollutants on the list. Following the comment period, EPA will consider public comments and issue its decision concerning the additional waters and pollutants. Section 4 describes the rationale for EPA's identification of additional waterbodies and/or additional pollutants for currently listed waters to the list.

California established its 303(d) list in two steps. Each of the nine Regional Water Quality Control Boards (Regional Boards) assembled and reviewed water quality data and information and made listing and priority ranking decisions after considering public comments. The State Water Resources Control Board (State Board) then reviewed the Regional Board decisions and again invited public comment on the listing and priority ranking decisions before making final decisions on the State's 1998 303(d) list.

In reviewing California's 303(d) list, EPA analyzed whether the State reasonably considered existing and readily available water-quality related data and information and reasonably identified waters required to be listed. EPA reviewed the written record submitted by the State which documented the State and Regional Boards' methodology, assessments, listing

decisions, and consideration of public comments. In a few cases, EPA obtained clarification of Regional Board documentation. EPA also reviewed all the written and oral comments to the State Board, along with transcripts or recordings of public workshops and hearings held by the State and Regional Water Boards.

Based on this review, EPA has determined that the Regional Boards generally did a good job of assembling and evaluating existing and readily available data and information, and providing for and responding to public comment. Our review indicates that, with some exceptions, the State's listing decisions satisfy federal listing requirements. The State applied listing guidelines developed in advance in consultation with EPA that contain listing and delisting criteria and procedures that are consistent with federal listing requirements. State decisions based on these guidelines are generally well-documented in the record. However, we have also determined that in its review of Regional Board listing decisions, the State Board did not adequately consider public comments. Also, as noted above, we find that some of the decisions not to list certain waterbodies and/or pollutants were inconsistent with federal listing requirements. As a result, we are disapproving the State's decisions concerning these additional waterbodies and pollutants, and identifying for 303(d) listing 37 additional waterbodies and several additional pollutants for 12 waterbodies which are already listed. Finally, we are inviting public comment on our intended decision to approve the continued listing of Coyote Creek in Region 4 for toxicity because adequate public notice of this listing was not provided by the State. The State inadvertently neglected to include this currently listed water on its list made available for public review.

Table 1: Proposed EPA Additions to 1998 California 303(d) List

Regional Board	Waterbody/Segment	Pollutant(s)	Priority Ranking
1	Stemple Creek Estero de Americano	nutrients	low
2	San Francisco Bay (8 segments):	dioxin-like compounds DDT dieldrin chlordane	high low low low
2	Lake Merritt	dissolved oxygen floating material	low low
2	San Francisco Urban Creeks (35 waterbodies)	diazinon	low
4	Santa Clara River, Reaches 7 and 8	chlorides	medium
5	Stockton Deep Water Channel	dioxins PCBs	medium

2. Statutory and Regulatory Background

Identification of WOLs for Inclusion on Section 303(d) List.

Section 303(d)(1) of the Act directs States to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by State or local authority, and (3) other pollution control requirements required by State, local, or federal authority(40 CFR 130.7(b)(1)).

Consideration of Existing and Readily Available Water Quality-Related Data and Information.

In developing Section 303(d) lists, States are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA (40 CFR 130.7(b)(5)). In addition to these minimum categories, States are required to consider any other data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available (US EPA, 1991, Appendix C ("EPA's 1991 Guidance")). While States are required to evaluate all existing and readily available water quality-related data and information, States may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring States to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require States to include as part of their submissions to EPA documentation to support decisions to rely or not rely on particular data and information and decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region.

Priority Ranking.

EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) of the Act that States establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require States to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those water quality limited segments (WQLSs) targeted for TMDL development in the next two years. In prioritizing and targeting waters, States must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters (Clean Water Act Section 303(d)(1)(A)). As long as these factors are taken into account, the Act provides that States establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities (57 FR 33040, 33045 (July 24, 1992), and USEPA, 1991).

3. Review of California's Submission

3.1. Introduction

California's water quality law (the Porter-Cologne Water Quality Act) establishes nine Regional Water Quality Control Boards (Regional Boards), which have primary responsibility for implementing Federal and State water quality laws. Porter-Cologne also provides for oversight of the Regional Boards and coordination by the State Water Resources Control Board (State Board). In the past, the role of the State Board has been to coordinate the submittal of the 303(d) lists that were prepared at each of the Regional Boards and to forward the Regional Board lists to the EPA. As part of the development of the 1998 303(d) list, the State Board formally reviewed and considered the actions of each of the Regional Boards.

Additionally, state-wide 303(d) listing guidelines ("1998 CLEAN WATER ACT (CWA) SECTION 303(d) LISTING GUIDELINES FOR CALIFORNIA; August 11, 1997; SWRCB, 1997a) were developed by a group of Regional Board, State Board, and EPA staff. The State Guidelines clarified criteria for listing/delisting waterbodies, described approaches for public participation, and described the relationship between TMDL scheduling under 303(d) and resource planning through the State's Watershed Management Initiative.

The review of California's 303(d) submission is in two parts: a review of the approach to 303(d) listing that was generally applied state-wide and a review of how that approach was specifically applied in each Regional Board and at the State Board. The "Statewide" section of this report includes a review of the methodology used to develop the 303(d) list in California as well as a summary of public participation activities.

This document describes EPA's review of each Regional Board list action and the State Board list action and includes a section on "Methodology", "Data and Information Used", "Waterbody Listing Changes", "Public Participation", "Response to Comments", and "Other Information". The "Methodology" section will review any differences between the suggested

methodology described in the State Guidelines and the actual methodology employed by the Regional Board and State Board. A determination as to whether the methodology complies with EPA regulations will be made. The "Data and Information Used" section will describe the information sources used by the Regional Board and State Board and include a determination as to whether the data and information used provided for a comprehensive review of existing and readily available data or whether an acceptable rationale was provided for not using a particular data set. The "Waterbody Listing Changes" section will summarize listing/delisting decisions and include a determination as to whether the decisions were consistent with the identified methodology and EPA regulations. The "Response to Comments" section will summarize significant issues raised by the public and include a determination as to whether the comments were adequately addressed. The "Other Information" section will summarize any EPA request for additional information and the Regional Board and State Board response to the request.

3.2. Statewide

3.2.1. Overview of Listing Approach

For the 1998 303(d) listing process, staff from the Regional Boards, State Board, and EPA developed a set of listing guidelines (State Guidelines). The EPA determined that the State Guidelines were fully consistent with Section 303(d), EPA regulations, and guidance (U.S. EPA, Region 9, 1997b and 1997cc) and the State Board distributed the State Guidelines to the nine Regional Boards (SWRCB, 1997a). Although the Regional Boards were not required to apply the State Guidelines to their listing decisions, all nine Regional Boards largely based their 1998 303(d) list development on the State Guidelines. Any differences between the decision making framework outlined in the State Guidelines and the actual process used at the Regional Board are described in the "Methodology" section.

The State Guidelines included suggested criteria for listing and delisting pollutants; suggested criteria for prioritization; options for public participation; the framework for developing a schedule for completion of TMDLs for all 303(d) listed waterbodies; the relationship of the 303(d) listing process to the Watershed Management Initiative; and the required documentation for the list submittal package. For purposes of approval of the 1998 303(d) list, EPA's review of the state listing guidelines does not include a review of the relationship of the 303(d) listing process to the Watershed Management Initiative.

3.2.2. Listing/Delisting Criteria

The State Guidelines included six listing factors and six delisting factors. Each of these factors is reviewed below.

Listing Factor #1 - *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 Number 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California" [see also 40 CFR 130.7(b)(1)].

This listing factor restates the requirements in 40 CFR 130.7(b)(1) et. seq. "SWRCB and RWQCB objectives" refers to State Water Resources Control Board and Regional Water Quality Control Board water quality objectives ("water quality objectives" is the term used in the Porter-Cologne Water Quality Control Act for water quality criteria). Water quality objectives are expressed as numeric or narrative criteria and can apply state-wide (if adopted by the State Water Resources Control Board) or may be Region specific (if adopted by the Regional Water Quality Control Board). Listing Factor #1 includes the definition of water quality standards found in 40 CFR 130.7(b)(3). The term "beneficial uses" is equivalent to the term "waterbody uses" found in 40 CFR 130.7(b)(3) and the reference to "SWRCB Resolution 68-16" is the State's anti-degradation policy required under 40 CFR 131.12. The EPA has determined that Listing Factor #1 is fully consistent with EPA regulations.

Listing Factor #2 *Fishing, drinking water, or swimming advisory currently in effect. This does not apply to advisories related to discharge in violation of existing WDR's or NPDES permit.*

A fishing, drinking water, or swimming advisory would indicate an impairment of beneficial uses. 40 CFR 130.7(b)(3) states that waterbody uses must be considered in preparation of the 303(d) list. An advisory would indicate that required control measures, including effluent limitations, are not stringent enough to maintain those uses and, therefore, would require listing of that waterbody. In some cases, control measures, including effluent limitations, are included in NPDES permits or WDR's (waste discharge requirements - State permits) and are stringent enough to maintain uses, but the discharger is out of compliance with those control measures or effluent limitations. 40 CFR 130.7(b)(1) does not require listing based on lack of compliance with required control measures or effluent limitations, but only requires listing if such control measures or effluent limitations "...are not stringent enough to implement any water quality standards (WQS) applicable to such waters." The EPA has determined that Listing Factor #2 is fully consistent with EPA regulations.

Listing Factor #3 *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. Impairment will be determined by "qualitative assessment", physical/chemical monitoring, bioassay tests, and/or other biological monitoring. Applicable Federal criteria and RWQCB Water Quality Control Plans determine the basis for impairment status. (Qualitative Assessment: An assessment based upon information other than ambient monitoring data. Information used may include land use data, water quality impacts, predictive modeling using estimated input variables, or fish and game biologist surveys. A sole reliance on professional judgment, literature statements (often judgment based), or public comments should not be the only basis for listing.)*

An impairment of beneficial uses would indicate that water quality standards are not being attained and would require listing under 40 CFR 130.7(b)(1). Listing Factor #3 provides a description of the type of data considered to determine listing as required by 40 CFR 130.7(b)(6)(ii). The types of data described in Listing Factor #3 do provide an appropriate basis for determining impairment. Based on its review of the California submission, it is EPA's understanding that although professional judgement, literature statements, or public comments were not used as the sole basis for listing, these sources of information were taken into account together with other available information in the State listing decision. The EPA has determined that Listing Factor #3 is fully consistent with EPA regulations.

Listing Factor #4 - *The water body is on the previous 303(d) list and either: (a) "monitored assessment" continues to demonstrate a violation of objective(s) or (b) "monitored assessment" has not been performed. Monitored Assessment: For aquatic life uses, monitored assessment should be based upon a minimum of Level 2 information, as indicated in the 1996 305(b) guidance [Guidelines for Preparation of the 1996 State Water Quality Assessments ("305(b) Reports"), EPA 841 B-95-001, May 1995; Pages 5-6 through 5-10, Tables 5-2 & 5-3]. There is a need to develop guidance for Minimum Data Requirements for assessing other beneficial uses.*

Listing factor #4 establishes California's 1996 303(d) list approved by the EPA as the basis for the 1998 303(d) list (SWRCB, 1996). Since the applicable EPA regulations, guidance, and policies did not change significantly since the 1996 303(d) list was approved, it is appropriate for the State to keep previously listed waterbodies on the 1998 303(d) list, unless new information indicates the water body no longer meets the listing requirements. The waterbodies on the 1996 303(d) list remain on the 1998 303(d) list if more recent monitoring information is not available or if recently available monitoring information still indicates a violation of water quality objectives. As required by 40 CFR 130.7(b)(6)(i), the State described the type of methodology used to determine whether a "monitored assessment" had been performed. It is EPA's understanding that the State believed that EPA's 1996 305(b) guidance provided an adequate definition of a monitored assessment for aquatic life uses, but that the State was unable to develop an adequate definition of a monitored assessment for other types of uses. The submittal documents the assessment methods used by the Regional Boards to make decisions where other types of uses were issues in the listing decisions. The EPA has determined that Listing Factor #4 is fully consistent with EPA regulations.

Listing Factor #5 *Data indicate tissue concentrations in consumable body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Such criteria or guidelines may include SWRCB Maximum Tissue Residue Level values, FDA Action Levels, NAS Guidelines, and U.S. EPA tissue criteria for the protection of wildlife as they become available.*

Tissue concentrations elevated above levels associated with adverse aquatic or human health effects would indicate that beneficial uses are not being protected, narrative water quality

standards are being exceeded, and waters involved would require listing under 40 CFR 130.7(b)(1). Federal regulations require the 303(d) assessment to consider whether designated beneficial uses, narrative standards and antidegradation policies, in addition to numeric standards, are now being exceeded or are expected to be exceeded within the next two years (USEPA, 1997b). Designated uses and associated narrative standards have been adopted and approved for all Regional Boards in California, and these uses and narrative standards, along with legally adopted numeric standards for some pollutants were required to be considered in the 303(d) listing process. Listing Factor #5 provides a description of certain types of data considered to determine listing as required by 40 CFR 130.7(b)(6)(ii). The types of data described in Listing Factor #5 do provide an appropriate basis for determining impairment with respect to elevated levels of pollutants in tissue in fish or shellfish. EPA notes that this listing factor provides for the protection of human health, aquatic life, and wildlife. The EPA has determined that Listing Factor #5 is fully consistent with EPA regulations.

Listing Factor #6 *The water quality is of such concern that the RWQCB determines the water body needs to be afforded a level of protection offered by a 303(d) listing.*

This listing factor was not applied by the Regional Boards nor the State Board to the listing of any waters.

Delisting Factor #1 *Objectives are revised (for example, Site Specific Objectives), and the exceedence is thereby eliminated.*

Delisting Factor #1 refers to a situation in which a water body was originally listed based on exceedence of water quality objectives (California's term for water quality standards), but the water quality objectives are changed and ambient conditions are lower than the new water quality objectives. 40 CFR 130.7(b)(1) only requires waters to be listed if water quality standards are not attained. The EPA has determined that Delisting Factor #1 is fully consistent with EPA regulations.

Delisting Factor #2 *A beneficial use is de-designated after U.S. EPA approval of a Use Attainability Analysis, and the non-support issue is thereby eliminated.*

For the purposes of 303(d) listing water quality standards includes waterbody uses (40 CFR 130.7(b)(3)). A waterbody/pollutant combination may originally be listed based on a waterbody use that is subsequently removed or modified as allowed under 40 CFR 131.10(g) (i.e. a Use Attainability Analysis). If the use is removed or modified and the basis for the original listing is no longer relevant (i.e. "the non-support issue is thereby eliminated"), then the waterbody/pollutant combination may be delisted. The EPA has determined that Delisting Factor #2 is fully consistent with EPA regulations.

Delisting Factor #3 *Faulty data led to the initial listing. Faulty data include, but are not limited to, typographical errors, improper quality assurance/quality control (QA/QC) procedures, or*

Toxic Substances Monitoring/State Mussel Watch EDLs which are not confirmed by risk assessment for human consumption.

40 CFR 130.7(b)(6)(iv) specifically allows delisting if "flaws in the original analysis" lead to the initial listing. EPA agrees that "flaws" includes typographical errors, improper or inadequate QA/QC, and the sole use of Elevated Data Levels as the basis for listing. Elevated data levels are statistical calculations based on statewide monitoring of contaminants in fish tissues (SWRCB, 1997b, pps. 14-15). "EDLs" were calculated for tissue concentrations that were in the 85th percentile and 95th percentile of all tissue data collected. The most recent State Toxic Substances Monitoring Program (TSMP) report states "... EDLs are not directly related to potentially adverse human or animal health effects; they are only a way to compare findings in a particular area with the larger data base of findings from all over the state." (SWRCB, 1997b, pg 15). Since EDLs are a statistic used to make relative comparisons of data and are not directly related to beneficial use impairment, the State's decision to no longer list waterbody/pollutant combinations based solely on EDLs is a reasonable approach. Based on a review of the Regional Boards' submittals, it is EPA's understanding that the Regional Boards re-evaluated the fish tissue data from the TSMP to determine whether listing factors 1-5 would still apply. If any of the listing factors still applied, the waterbody/pollutant combination remained on the list. Note that listing factor 5 provides for the protection of aquatic life and wildlife uses which might be impaired due to sediment or tissue accumulation of toxic pollutants. The EPA has determined that Delisting Factor #3 is fully consistent with EPA regulations and provides a "good cause" basis for not including waters on the 303(d) list as required by 40 CFR 130.7(b)(6)(iv).

Delisting Factor #4 *It has been documented that the objectives are being met and beneficial uses are not impaired based upon "Monitored Assessment" criteria.*

40 CFR 130.7(b)(1) only requires waters to be listed if water quality standards are not attained. Documentation that water quality objectives are being met and that beneficial uses are not impaired would indicate attainment of water quality standards and would provide the basis for not listing or delisting a waterbody/pollutant combination from the 303(d) list. The State described the methodology used to determine whether a "monitored assessment" had been performed. The EPA has determined that Delisting Factor #4 is fully consistent with EPA regulations.

Delisting Factor #5 *A TMDL has been approved by the U.S. EPA.*

40 CFR 130.7(b) applies to "...water quality-limited segments still requiring TMDLs." If a TMDL has been approved by EPA for a waterbody/pollutant combination, that waterbody/pollutant need not be identified on the 303(d) list. The EPA has determined that Delisting Factor #5 is fully consistent with EPA regulations.

Delisting Factor #6 *There are control measures in place which will result in protection of beneficial uses. Control measures include permits, clean up and abatement orders, and watershed management plans which are enforceable and include a time schedule.*

40 CFR 130.7(b)(1)(ii) & (iii) would require the identification of water quality-limited segments if “More stringent effluent limits” or “Other pollution control measures (e.g. best management practices) required by local, State, or Federal authority” are not stringent enough to implement water quality standards. For the purposes of 303(d) listing water quality standards includes waterbody uses (40 CFR 130.7(b)(3)). The Porter-Cologne Water Quality Act gives the Regional Water Quality Control Boards specific authority to issue waste discharge requirements (i.e. permits) and clean up and abatement orders which can be used to impose requirements or restrictions on discharges to water quality limited segments. To the extent that watershed management plans are based on required, enforceable controls, have a schedule for implementation (e.g. time schedule), and are reasonably likely to result in attainment of water quality standards (e.g. protection of beneficial uses), it would be consistent with EPA regulations to delist the water body/pollutant based on this criterion. Neither the Regional Boards nor the State Board applied this delisting factor by relying on watershed management plans. In a few other instances, Regional Boards relied on this Delisting Factor, documenting in each case the specific control mechanism used and the expectation that standards would be met with approximately two years. The EPA has determined that Delisting Factor #6 is fully consistent with EPA regulations.

Rotating Watershed Management Approaches and 303(d) Listing

Some Regional Boards (e.g. Regions 2, 3, 4, 8, and 9) have adopted a watershed management approach to water quality management through which the 303(d) assessment approach has changed. These Regions targeted a subset of the basins within the Regional Board areas for more intensive water quality assessment during the 1998 assessment cycle. Other basins within the Regional Board areas will be targeted for intensive assessment in future assessment cycles, until all basins are addressed through this more intensive assessment approach. Each Regional Board which has adopted this approach has established its schedule for moving to other basins in the future. This targeted assessment approach provides the benefit of allowing more intensive monitoring and assessment work which is expected to result in more thorough and accurate assessment results which better mesh with the planning and implementation of water quality protection controls and restoration projects.

EPA supports the rotating watershed approach and finds that California’s application of this approach is consistent with 303(d) listing requirements. Each Regional Board used as its starting point for the 1998 listing assessment the 1996 303(d) lists, which were comprehensive in geographical coverage of data and information considered. Each Regional Board considered all existing and readily available information for the targeted basins, as well as all specific data and information provided by the public during the comment period for any waterbody, regardless of whether the waterbody is located within a targeted basin.

Listing Due to Non-Pollutant Stressors

EPA recognizes that the State included some waters beyond the minimum required by EPA regulations to be included on the Section 303(d) list, (e.g., waters which are impaired due to the presence of exotic species or fish passage barriers). While EPA is not disapproving the State's inclusion of these waters and stressors on the list, neither the State nor EPA has an obligation under current regulations to develop TMDLs for such waters because the waters are not impaired by a pollutant. States have the discretion under Section 303(d), which charges States with the primary responsibility to identify water quality limited segments for TMDL development, and Section 510, which authorizes States to adopt more stringent pollution controls, to include waters on their Section 303(d) lists that may not be required to be included by current EPA regulations, and EPA's regulations do not compel the Agency to disapprove the State's list because of the inclusion of such waters. EPA guidance also recognizes that States may take a conservative, environmentally protective approach in identifying waters on their Section 303(d) lists. See National Clarifying Guidance for 1998 Section 303(d) Lists, Aug. 27, 1997 (USEPA, 1997b).

Waters in Indian Country

EPA's partial approval of California's Section 303(d) list extends to all waterbodies on the list with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the State's list with respect to those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.

Assessments Based on Sediment Toxicity Data

Several Regional Boards and commenters addressed the issue of how sediment toxicity data should be considered in the 303(d) listing decision. The San Diego Regional Board listed several areas of San Diego Bay where available information indicated the presence of both sediment toxicity and benthic community effects. Among the types of information considered in the listing assessment for San Diego Bay were exceedences of "Effects Range-Medium" (ERM) and "Effects Range-Low" (ERL) screening levels for individual pollutants in sediments. The San Diego Regional Board did not rely solely upon exceedences of ERMs or ERLs for individual pollutants in making 303(d) listing decisions. Instead, the Regional Board considered the additive effect of multiple pollutants, different measures of sediment toxicity, and separate analysis of benthic community effects in determining whether areas of the Bay were impaired. Several commenters (e.g. Lake Merritt Institute regarding Lake Merritt in Region 1 and Procopio, Cory, Hargreaves, & Savitch regarding Los Angeles Harbor in Region 4) suggested that specific waters should be listed based primarily upon data indicating that ERMs or ERLs for individual pollutants are being exceeded. It is not clear that the ERM or ERL levels cited by the commenters (1) exceed recognized action levels or guidelines established by resource protection agencies or (2) provide conclusive evidence of waterbody impairment. Therefore, EPA believe a decision not to

list these waters on the 303(d) list due to the pollutants associated with ERL or ERM exceedences is reasonable.

3.2.3. Priority Ranking

The State Guidelines described criteria for priority ranking that the Regional Boards could apply (SWRCB, 1997a, pps. 4-5). The criteria included: 1) water body significance; 2) degree of impairment or threat; 3) conformity with related activities in the watershed; 4) potential for beneficial use protection or recovery; 5) degree of public concern; and 6) available information. The criteria regarding water body significance and degree of impairment or threat directly address the statutory and regulatory requirements to consider "...the severity of the pollution and the uses to be made of such waters.." in establishing the priority ranking (see Section 3, Priority Ranking). The criteria were used to rank waterbody/pollutant combinations into high, medium, or low priority for TMDL development.

In addition, the State Guidelines included a framework for scheduling TMDL development, including start and end dates. The start dates included in the schedules provide an indication of which waters are targeted for TMDL development in the next two years. Over twenty waterbody/pollutant combinations are targeted scheduled for TMDL development beginning in the next two years, representing a mix of simple and complex watershed situations addressing both point and nonpoint source problems.

The EPA has determined that the priority ranking criteria identified in the State Guidelines and the schedules for TMDL development included with the 303(d) list submittals for each Regional Board satisfy the requirements of 40 CFR 130.7(b)(4).

3.2.4. Information and Data Used

Each Regional Board used the 1996 303(d) list as the starting point for the 1998 303(d) list (SWRCB, 1996). In general, the information used to generate the 1996 303(d) list was not re-evaluated unless more recent information was available for a particular waterbody/pollutant combination. EPA had previously determined that the 1996 303(d) list and antecedent lists submitted by the State met the regulatory requirement to review "all existing and readily available water quality-related data and information". Therefore, the Regional Boards generally confined their review of "readily available and existing information" to data that has become available since the 1996 303(d) list assessment. The data and information used by each Regional Board included a review of the State's 1996 305(b) report (the 1998 305(b) report had not yet been developed). Based on a review of the State's 305(b) report, it is EPA's understanding that the State has incorporated information on waters impaired or threatened by non-point sources in its 305(b) assessment. The 1996 water quality assessment information, which served as the basis for the 1996 303(d) list and 305(b) reports, was the product of a comprehensive review of information and data which were existing and readily available in 1996. The State's consideration of data in the 305(b) report satisfies the requirements of section 40 CFR 130.7(b)(5)(I) and 40

CFR 130.7(b)(5)(iv). It is EPA's understanding that dilution calculations and predictive modeling are generally not performed by the State and were not readily available from other sources. Based on EPA's review of the State's 1998 303(d) list submittal, it is EPA's understanding that dilution calculations and predictive modeling results were generally not submitted to the Regional Boards in response to their requests for information and data. Since such calculations and modeling are not performed by the State or provided to the State, such information is generally not available for use by the State. The State requested and considered information and data submitted by the public through its public notice and comment process. An extensive amount of data and information were submitted by the public and used by the State in its decision process. Specific information and data sources used by the Regional Boards are described in their respective sections in this report.

3.2.5. Public Participation

The 1998 Clean Water Act Section 303(d) Listing Guidelines for California provided a description of "Public Notice Procedures" including preparation of a responsiveness summary. The Regional Boards considered three options for public review of their respective 303(d) lists: 1) a workshop followed by a public hearing; 2) a public meeting; and 3) a public hearing without a prior workshop. A public meeting or workshop would require a 30-day public notice and a public hearing would require a 45-day public notice. In addition, Regional Boards were given the option of preparing a separate public notice for the purpose of soliciting information to assist in preparing the draft 303(d) list. Each of the Regional Boards and the State Board used one of these options. Each Regional Board responded to comments individually or prepared a responsiveness summary. The specific public participation efforts of each Regional Board and the State Board are described below.

3.3. State Water Resources Control Board

References in this section to the State Board apply to the California State Water Resources Control Board.

3.3.1. Methodology

As described in the State Board's submittal "California Report on Impaired Surface Waters" (SWRCB, 1998a; pps 1-3, 7-9), the State Board generally did not provide its own independent review of the waters on the 303(d) list. The State Board consolidated the information submitted by the nine Regional Water Quality Control Boards. The State Board had originally intended to forward the consolidated 303(d) list to the EPA. Based on a number of comments made and petitions filed with the State Board, the State Board decided to allow another opportunity for public comment on the Regional Board-adopted lists.

The State Board indicated that it would rely on the Regional Boards to respond to comments (SWRCB, 1998a, pg 7). The methodology used by the State Board to add/remove

waters from the 1998 303(d) lists submitted by the Regional Boards was not described, but a specific rationale was provided for each water body/pollutant combination that was added/removed (SWRCB, 1998a, pg. 9). The State Board's review was based solely on written and oral testimony received and the responses provided by representatives from the Regional Boards. The rationale for each waterbody listing change proposed by the State Board is reviewed below (see section 3.3.3.).

3.3.2. Data and Information Used

As indicated in the State Board submittal, the State Board relied solely on written and oral comments provided as part of its May 14, 1998 workshop (SWRCB, 1998a, pg. 2) and the responses provided by representatives from the Regional Boards. The State Board did not perform a separate review of "existing and readily available information". The EPA has determined that a separate review of "existing and readily available information" by the State Board was not required, since each Regional Board satisfied the requirements of 40 CFR 130.7(b)(5), as described above.

3.3.3. State Board Decisions to Revise Waters Identified by Regional Boards

Waterbodies/pollutants deleted from the Regional Boards' 1998 303(d) Lists

Santa Clara River, Reaches 7 and 8, Chloride - The Los Angeles Regional Board included this waterbody on the 1998 303(d) for chloride based on its analysis of data indicating that existing numeric water quality objectives are exceeded more than 25% of the time. However, the State Board concluded that these segments should not be listed for chloride based on a rationale that the chloride objective is considered to be too stringent and that efforts are underway to review and potentially revise the numeric objective. This rationale for not listing this waterbody is inconsistent with federal listing requirements, as discussed in greater detail in section 4. Therefore, EPA is disapproving the State Board decision not to list Santa Clara River, Reaches 7 and 8, for chloride and is identifying these reaches for listing on the 303(d) list for chlorides.

Switzer Creek (San Diego Bay), Benthic Community Effects/Sediment Toxicity - The rationale provided by the State Board not to list Switzer Creek (San Diego Bay) from the 303(d) list for benthic community effects and sediment toxicity was that it was mistakenly listed by the San Diego Regional Water Quality Control Board (SWRCB, 1998a, pg. 9). The San Diego Regional Water Quality Control Board listed San Diego Bay for benthic community effects and sediment toxicity for particular areas of San Diego Bay. A six acre area of San Diego Bay near Switzer Creek was listed by the Regional Board. At the State Board workshop, the San Diego Regional Water Quality Control Board representative stated that the Switzer Creek area did not meet the Regional Board's listing criteria as had the other areas in San Diego Bay and should be removed from the 303(d) list (SWRCB, 1998b). EPA has reviewed the original listing of the Switzer Creek area of San Diego Bay relative to the methodology described by the San Diego Regional Water Quality Control Board. In other areas of San Diego Bay, waters were listed where

information was available indicating both elevated levels of toxic pollutants in sediments and benthic community effects. *Benthic community analysis had not been completed for the Switzer Creek area.* EPA has determined that the decision not to list the Switzer Creek area of San Diego Bay on the 1998 303(d) list is consistent with that methodology and the requirements of 40 CFR 130.7(b).

Waterbodies/pollutants added to the Regional Boards' 1998 303(d) List

Lake Pillsbury, Mercury - The rationale provided by the State Board for adding Lake Pillsbury to the 303(d) list for mercury was that fish tissue samples exceeded FDA (Food and Drug Administration) action levels and that the North Coast Regional Water Quality Control Board is requesting that a fish advisory be issued for Lake Pillsbury (SWRCB, 1998a, pg. 9). Testimony provided by the representative from the North Coast Regional Water Quality Control Board supported listing Lake Pillsbury for mercury (SWRCB, 1998b). The representative from the North Coast Regional Water Quality Control Board also indicated that the mercury TMDL for Lake Pillsbury should be given a low priority since the source of contamination is natural. EPA has reviewed the addition of Lake Pillsbury for mercury and the priority ranking relative to the methodology described by the North Coast Regional Water Quality Control Board. EPA has determined that the addition of Lake Pillsbury to the 303(d) list for mercury is consistent with that methodology and the requirements of 40 CFR 130.7(b).

Chino Creek, Reach 2; Cucamonga Creek, Coliform - The rationale provided by the State Board for adding Chino Creek, Reach 2 and Cucamonga Creek to the 303(d) list for coliform was that the coliform objectives in the Santa Ana Regional Water Quality Control Board's Basin Plan are exceeded (SWRCB, 1998a, pg. 9). Additionally, the Santa Ana Regional Water Quality Control Board requested the State Board to list those waterbodies (SARWQCB, 1998a). The State Board assigned a low priority to Chino Creek, Reach 2 and Cucamonga Creek for coliform, since the creeks are concrete lined and not used for recreational purposes. EPA has reviewed the addition of Chino Creek, Reach 2 and Cucamonga Creek for coliform relative to the methodology described by the Santa Ana Regional Water Quality Control Board, along with the rationale for the priority ranking. EPA has determined that the addition of Chino Creek, Reach 2 and Cucamonga Creek to the 303(d) list for coliform and the priority ranking are consistent with that methodology and the requirements of 40 CFR 130.7(b).

3.3.4. Public Participation

The State Board provided notice of its May 14, 1998 public workshop to consider the 303(d) list on April 14, 1998 (SWRCB, 1998c). The notice required submittal of written comments by May 4, 1998 and requested that commenters limit their comments to issues raised before the Regional Water Quality Control Boards. The agenda for the hearing to consider adoption of the 303(d) list included a statement that the comment period ended May 4, 1998 and no additional written comments or testimony would be accepted (SWRCB, 1998d). As evidenced

in the tape of the May 14, 1998 workshop (SWRCB, 1998b), comments were received at the workshop.

3.3.5. Response to Comments

State Board responded to few of the over 30 comment letters received during the State Board comment period. This section reviews State Board's responses where they were prepared, and summarizes EPA's responses to remaining comments which State Board did not adequately address.

On November 25, 1997, the Natural Resources Defense Council (NRDC) sent a letter to all nine Regional Boards and the State Board, which outlined a number of concerns with respect to the State's 303(d) efforts (NRDC, 1997). NRDC incorporated those comments by reference when it provided specific comments on each Regional Board's draft 303(d) lists. NRDC's comments addressed 303(d) listing issues, the development of TMDLs, and the description of the implementation of 303(d) in the State's continuing planning process document. On behalf of each Regional Board, the State Board responded to NRDC's comments. EPA has reviewed the State Board's response (SWRCB, 1998e) relative to the 303(d) listing issues.

The EPA agrees with the State Board that the State has prepared a comprehensive listing of waters requiring TMDLs and that the State's prioritization of TMDLs does consider the severity of pollution and uses of the waters as required (see discussion below for each Regional Board). The EPA agrees with the State Board that the Federal regulations have only required "targeting" of waters on the 303(d) list for TMDL development in the next two years, but in accordance with EPA's national policy dated August 8, 1997, the State provided a schedule for TMDL development for all waters on the 1998 list requiring TMDLs (this review does not address the State's schedule). NRDC also made a comment that the State had failed to submit lists required by 40 CFR 130.7. The EPA believes that the State has submitted lists as required by 40 CFR 130.7 which, with few exceptions, have been consistent with federal listing requirements.

In response to the State Board's formal public notice concerning its review of Regional Board lists, over 30 comment letters were received. In addition, more than 20 parties testified on the 303(d) list before the State Board.

No detailed written responses to written comments were prepared by State Board. No formal response to oral comments was made by the State Board in connection with the State Board workshop and meeting. Responses to comments were provided by Regional Board representatives at the State Board workshop (SWRCB, 1998b). The State Board also prepared a comment summary which includes responses to some comments (SWRCB, 1998a, Attachment O). In addition, the State Board considered written comments submitted by the California Office of Environmental Health Hazard Assessment (OEHHA) after the May 14, 1998 workshop (OEHHA, 1998, in SWRCB, 1998a).

Because the State Board either did not consider or did not fully consider oral and written comments on the 303(d) list, and declined to respond further to comments in response to an EPA request, EPA reviewed all written and oral comments made to the State Board regarding the proposed listing decisions. EPA responses to those comments are summarized in a document which is part of the administrative record for EPA's decision. Although the State Board announced its intention to limit comments to comments made before the Regional Boards or which could not have been made to the Regional Boards for just cause, EPA considered all comments submitted to the State Board as part of the State's 303(d) submission package to ensure that the States 303(d) list complied with applicable requirements of the Clean Water Act and applicable regulations.

Based on information provided in public comments to the State Board, EPA has determined that several waterbody/pollutant combinations meet the listing guidelines and should be added to the 303(d) list. Therefore, EPA is disapproving the State's decision not to list those waters for those pollutants. EPA's decision is discussed in detail in Section 4 below.

3.3.6. Other Information Requested by EPA

In a letter to the State Board dated July 6, 1998, EPA requested that the State Board (1) respond more fully to the oral and written comments submitted to the State Board and (2) provide transcripts, summaries, or tape recordings of State and Regional Board public hearings in which public comment was heard on the 303(d) listing decisions (USEPA, 1998j). In a letter to EPA, the State Board declined to provide further responses to comments (SWRCB, 1998f). The State and Regional Boards did provide copies of hearing transcripts or recordings. EPA has reviewed and prepared responses to all comments made to State Board (USEPA, 1998k). As discussed above, EPA is disapproving the State's decision not to list certain waters for certain pollutants and is identifying for inclusion on the 303(d) list some waterbody/pollutant combinations raised during the comment process.

3.4. North Coast Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, North Coast Region.

3.4.1 Methodology

As indicated in the Regional Board's staff reports dated September 25, 1997, October 23, 1997, and December 11, 1997 (in NCRWQCB, 1998a), the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (SWRCB, 1997a). The Regional Board's staff report dated December 11, 1997 and memorandum from the Regional Board to the State Board dated March 9, 1998 provide a specific rationale for each listing decision (NCRWQCB, 1998a). The Regional Board applied a listing approach which assumed that waters listed in 1996 would remain on the 303(d) list unless more recent information supported a decision to add or remove waters and/or pollutants from the list. The Regional Board considered all information provided to it during the public comment period. The Regional Board used the criteria for prioritization described in the State Guidelines. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.4.2 Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board identified other information sources that were "existing and readily available". The sources of information included state, federal, and local agencies, academic researchers, and members of the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. The Regional Board focused its assessment efforts for the 1996-98 biennium on the solicitation of data and information from the public. The Regional Board solicited public input on the list several times between August-December 1997 (NCRWQCB, 1998a).

The Regional Board assembled and considered all existing and readily available information for the Region (see NCRWQCB, 1998a, p. 4). Information provided during the comment period was also considered. The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 list update satisfy the information requirements of 40 CFR 130.7(b)(5).

3.4.3 Waterbody Listing Changes

Waterbodies/Pollutants added to the 303(d) List

Waterbody	Pollutant(s)	Listing Factor #
Elk River	sedimentation	3
Freshwater Creek	sedimentation	3
Garcia River (designated reaches)	temperature	1
Klamath River	low dissolved oxygen	1
Russian River	sedimentation	3
South Fork Trinity River	temperature	1

Waterbodies/Pollutants deleted from the 303(d) List

Waterbody	Pollutant(s)	Delisting Factor #
Laguna de Santa Rosa	nitrogen, ammonia	5
Stemple Creek	nutrients	5
Estero de San Antonio	nutrients	5
Beaughton Creek	unknown	6

The other waters on the 1996 303(d) list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's staff reports cited above (in NCRWQCB, 1998a) and the memorandum from the Regional Board to State Board (NCRWQCB, 1998a). The additions to the list are based on detailed information provided to the Regional Board by other agencies and members of the public, and on information from Regional Board field inspection files.

The deletions of Laguna de Santa Rosa and Beaughton Creek from the list are consistent with EPA regulations. The TMDL for Laguna de Santa Rosa was approved by EPA in 1995 (EPA, 1995). Beaughton Creek was listed due to illegal discharges from a single facility which are now being addressed through a Regional Board enforcement action (NCRWQCB, 1998a). Controls to address waste discharge in Beaughton Creek are currently in place (personal communication with Bruce Gwynne, September 3, 1998 (USEPA, 1998)). It is appropriate not to list a water quality limited segment on the 303(d) list if other required, enforceable controls are

(1) in place or scheduled for implementation in the near future, (2) specific to the waterbody and pollutant(s) of concern, (3) reasonably likely to result in attainment of water quality standards within two years (40 CFR 130.7(b), EPA 1991, and EPA 1997b). Each of these conditions is met in the case of Beaughton Creek; therefore, the delisting decision is appropriate.

The deletions of Stemple Creek and Estero de San Antonio are inconsistent with federal regulations and national listing guidance (EPA, 1997b). Impaired waters must generally remain on the 303(d) list until TMDLs for these waters are submitted to and approved by EPA (40 CFR 130.7). This has not yet occurred.

The Regional Board removed Stemple Creek and Estero de San Antonio from the 303(d) list because the TMDLs for these two waterbodies were adopted by the Regional Board shortly before the 1998 303(d) listing decisions were made by the Regional Board. However, because the final TMDLs for Stemple Creek and Estero de San Antonio have not been submitted to or approved by EPA, and no evidence exists in the record indicating that they are no longer impaired, these waters do not meet the delisting criteria and must remain listed on the 1998 303(d) list. EPA is disapproving the State's decision not to list these waters and identifying these waters for addition to the 1998 303(d) list. EPA remains supportive of these TMDLs as they were drafted by the Regional Board, and EPA hopes the State will adopt and submit these TMDLs in the near future. After EPA reviews and approves TMDLs for Stemple Creek and Estero de San Antonio, the State would be able to remove them from the 303(d) list during the next listing revision.

In comments to the Regional Board, EPA noted that available evidence indicates that Lake Pillsbury is impaired due to mercury contamination. The Regional Board declined to list Lake Pillsbury for mercury, opting instead to request the issuance of a fish consumption advisory. As discussed in section 3.3.3, this decision was reversed by the State Board and Lake Pillsbury was listed for mercury.

The EPA has determined that, with the exception of the decision not to list Lake Pillsbury, Stemple Creek, and Estero de San Antonio, the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (NCRWQCB, 1997b). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates for several TMDLs to be addressed over the next two years (NCRWQCB, 1997b). The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.4.4 Public Participation

The Regional Board provided a lengthy public comment period (August-December, 1997) and held three public hearings receive additional public comment on the proposed 1998 303(d) list decision. On December 11, 1998, the Regional Board held a public hearing to consider the 303(d) list. Public comments were considered in the final decision (see next section), and the list was approved by the Regional Board at the December 11, 1998 meeting (NCRWQCB, 1998a).

3.4.5 Response to Comments

The Regional Board's responses to comments were included in its responsiveness summary dated December 11, 1997 (NCRWQCB, 1998a) and in an additional summary in the March 9, 1998 memo to State Board (NCRWQCB, 1998a). In addition, staff responded to comments made at the December 11, 1997 hearing (NCRWQCB 1998a).

Most public comments addressed the Regional Board's proposed decisions to list or not to list particular water bodies. Several requests to list particular waterbodies and/or pollutants were not supported by the Regional Board because insufficient data and information were provided to support a listing decision. In the case of a public comment requesting listing of Laguna de Santa Rosa for dissolved oxygen, the Regional Board responded that water should not be listed because the water quality standard is scheduled for review and possible revision. EPA contacted the Regional Board to seek clarification of this response, and learned that the actual reason for not listing Laguna de Santa Rosa for dissolved oxygen was that insufficient data were available to support such a decision, and that the reference to standards review as a basis for not listing was in error (Record of Communication with Bruce Gwynne, September 3, 1998, USEPA, 1998). EPA agrees with the Regional Board's interpretations of 40 CFR 130.7(b)(2) in responding to public comments.

3.4.6 Other Information Requested by EPA

On September 3, 1998, EPA requested additional clarifying information from the Regional Board through a telephone conversation between David Smith, U.S. EPA, and Bruce Gwynne of the Regional Board (USEPA, 1998). The Regional Board clarified its response to comments requesting that the Regional Board list Laguna de Santa Rosa, as well as several other comments. The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.5. San Francisco Bay Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, San Francisco Bay Region.

3.5.1 Methodology

The Regional Board described its assessment and priority ranking methods in a Staff Report dated March 9, 1998 (SFRWQCB, 1998a), and in a letter to EPA dated July 14, 1998 (SFRWQCB, 1998b). The assessment and priority ranking factors used by the Regional Board are consistent with the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines, SWRCB, 1997a). The Regional Board's staff report dated March 9, 1998 provides a specific rationale for each listing decision (SFRWQCB, 1998a). The Regional Board conducted a comprehensive water quality assessment which focused upon the San Francisco Bay and its tributaries. Although little or no new data were readily available for most of the other waterbodies in the Regional Board area, the Regional Board indicated its plans to improve monitoring and assessment of these other waters over the next two years (SFRWQCB, 1998a, p. 2). The Regional Board applied a listing approach which assumed that waters listed in 1996 would remain on the 303(d) list unless more recent information supported a decision to add or remove waters and/or pollutants from the list. The Regional Board considered all information provided to it during the public comment period (SFRWQCB, 1998a and 1998b). The Regional Board used the criteria for prioritization described in the State Guidelines. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.5.2 Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board identified other information sources that were "existing and readily available". The sources of information included the Regional Monitoring Program and information provided by state, federal, and local agencies and members of the public. The Regional Monitoring Program is an intensive cooperative monitoring program focusing upon San Francisco Bay and key tributaries. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. The Regional Board focused its assessment efforts for the 1996-98 biennium on review of Regional Monitoring Program data, data collected by local stormwater management agencies and other NPDES dischargers, and the solicitation of data and information from the public. The Regional Board solicited public input on the list through a comment period between January 7, 1998 and February 18, 1998 and a public hearing on February 18, 1998 (SFRWQCB, 1998a).

The Regional Board assembled and considered all existing and readily available information for the Region (see SFRWQCB, 1998a). Information provided during the comment period was also considered. The combination of the previous assessments performed by the

Regional Board and the information assembled as part of the 1998 list update satisfy the information requirements of 40 CFR 130.7(b)(5).

3.5.3 Waterbody Listing Changes

Waterbodies/Pollutants added to the 303(d) List

Waterbody	Pollutant(s)	Listing Factor #
San Francisco Bay Delta	exotic species	3
	mercury	3
	copper	1,3
	diazinon	3
	PCBs	2
	selenium	2,3
	nickel	1,3
South San Francisco Bay	exotic species	3
	diazinon	3
	PCBs	2
Lower San Francisco Bay	exotic species	3
	diazinon	3
	PCBs	2
Central San Francisco Bay	exotic species	3
	diazinon	3
	PCBs	2
Richardson Bay	exotic species	3
	PCBs	2
San Pablo Bay	exotic species	3
	diazinon	3
	PCBs	2
Carquinez Strait	exotic species	3
	diazinon	3
	PCBs	2
Suisun Bay	exotic species	3
	diazinon	3
	PCBs	2
Pescadero Creek	sedimentation	3
Butano Creek	sedimentation	3
San Francisquito Creek	sedimentation	3
San Gregorio Creek	sedimentation	3

In addition, several listings from the 1996 list were clarified. The listing of Bay segments

for "metals" has been clarified to reflect the specific metals of concern in each Bay segment, including copper, nickel, mercury, and/or selenium. In addition, the Richardson Bay listing for pathogens has been modified to reflect that the actual affected area is Waldo Point Harbor-- not the entire Richardson Bay. No waterbodies were deleted from the 1996 list in this region of the State during the 1998 listing update.

The other waters on the 1996 303(d) list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's staff report cited above (SFRWQCB, 1998 a). The additions to the list are based on detailed information provided to the Regional Board by other agencies and members of the public, and on information from Regional Board files and Regional Monitoring Program results.

The EPA has determined that the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b). However, as discussed below and in Section 5, EPA has found that additional waters and additional pollutants for currently listed waters meet the listing requirements.

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (SFRWQCB, 1998a). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates for several TMDLs to be addressed over the next two years (SFRWQCB, 1998a). The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.5.4 Public Participation

The Regional Board provided an adequate public comment period (January 7-February 18, 1998) and held one public hearing to receive additional public comment on the proposed 1998 303(d) list decision (SFRWQCB, 1998a). Public comments were considered in the final decision (see next section). The Regional Board discussed public comments following the public hearing on February 18, 1998 and directed the Regional Board Executive Officer to forward the final list to State Board after responding to all public comments. The March 9, 1998 Staff Report and letter to EPA dated July 14, 1998 (SFRWQCB, 1998a and 1998b) provide responses to public comments made to the Regional Board.

3.5.5 Response to Comments

The Regional Board's responses to comments were included in a responsiveness summary contained in the Staff Report dated March 9, 1998 (SFRWQCB, 1998a) and in a letter to EPA (SFRWQCB, 1998b). In addition, staff responded to some comments made at the hearing

(SFRWQCB 1998c).

Most public comments addressed the Regional Board's proposed decisions to list or not to list particular water bodies or the Regional Board's 303(d) assessment process. Several requests to list particular waterbodies and/or pollutants were agreed to by the Regional Board, and those waters and/or pollutants were added to the list by the Regional Board.

The Regional Board evaluated specific data and information sources identified by one commenter during the Regional Board comment period (San Francisco BayKeeper) after the State submitted its final 303(d) list to EPA. The Regional Board informed EPA of the results of its review of these sources (SFRWQCB, 1998b). In this letter, the Regional Board staff recommended the listing of 35 urban streams which flow into San Francisco Bay for the pesticide diazinon. This letter was prepared after the Regional Board and State Board completed their decisions, and the State elected not to amend the list to incorporate these waters. Therefore, EPA is disapproving the State's decision not to list these waters and is identifying these 35 streams for inclusion on the 303(d) list for diazinon (see section 4 for a more detailed discussion).

The Regional Board responded to other requests to list particular waters and/or pollutants by determining that available data did not support a finding that the waterbody is impaired or that insufficient data and information were provided to support a listing decision. While EPA agrees with the Regional Board's assessment of available information for some of these waters and pollutants, we disagree with the Regional Board's analysis of public comments requesting listing of dioxin-like compounds, DDT, dieldrin, and chlordane in San Francisco Bay. As discussed in greater detail in Section 4, we are disapproving the State's decision not to list these pollutants and are identifying San Francisco Bay for inclusion on the 303(d) list for these four pollutants.

3.5.6 Other Information Requested by EPA

In its comments to State Board, EPA indicated that information sources identified by San Francisco BayKeeper constituted existing, readily available information that must be considered in the listing process. EPA also sought clarification of several issues discussed in the Regional Board response to comment summary. The Regional Board provided a review of information sources identified by the BayKeeper and clarified its responses to several previous comments in a letter to EPA (SFRWQCB, 1998b). The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.6. Central Coast Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Central Coast Region.

3.6.1. Methodology

As indicated in the Regional Board's Public Notices, dated October 14, 1997 (CCRWQCB, 1997a) and March 2, 1998 (CCRWQCB, 1998a), and as indicated in the Regional Board's staff report dated December 10, 1997 (CCRWQCB, 1997b, pg. 3), the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines). The Regional Board's staff reports dated December 10, 1997 (CCRWQCB, 1997b, pp. 3-6) and January 21, 1998 (CCRWQCB, 1998b, pp. 2-5) provided a specific rationale for each listing decision. Additionally, the Regional Board clarified the listing factors that were applied for each listing decision (see "Other Information Requested by EPA"). The Regional Board also used the criteria for prioritization described in the State Guidelines. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.6.2. Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board also identified a number of other data sources that were "existing and readily available". The sources of information included local, state, and federal agencies and members of the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Although monitoring efforts for the 1996-98 biennium focused on three watersheds: Morro Bay, Pajaro, and Moss Landing/Elkhorn Slough, the Regional Board considered all existing and readily available information for the Region (see CCRWQCB, 1998c). Information provided during the comment period was also considered. The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 303(d) list update satisfy the requirements of 40 CFR 130.7(b)(5).

3.6.3. Waterbody Listing Changes

Waterbodies/pollutants added to the 303(d) List

Waterbody	Pollutant	Listing Factor#
Watsonville Slough	Metals	3
San Lorenzo R. Estuary	Silt	3
San Lorenzo River	Pathogens	2
Hernandez Reservoir	Mercury	5

Arroyo Burro	Pathogens	2
Chorro Creek	Nutrients	3
Clear Creek	Mercury	5
Los Osos Creek	Nutrients	3
San Antonio Creek	Silt	3
San Benito River	Silt	3
Pacific Ocean -Point Rincon	Pathogens	2

The only waterbody removed from the 1996 list was Old Salinas River. Old Salinas River was removed from the list because it represented a duplicate listing. It is also referred to as Old Salinas River Estuary, which remains on the list (CCRWQCB, 1998c). In addition, the listing for Carpenteria Marsh was clarified to show "other habitat alterations" as a pollutant source rather than a pollutant (CCRWQCB 1998i).

The other waters on the 1996 303(d) list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in its December 10, 1997, Staff Report (CCRWQCB, 1997b, pp. 3-6), its January 21, 1998, Supplemental Sheet (CCRWQCB, 1998b), the minutes of the January 30, 1998, Regional Board meeting (CCRWQCB, 1998d, pg. 6), the March 24, 1998 memo to the State Board (CCRWQCB, 1998e), the April 15, 1998 memo to the State Board (CCRWQCB, 1998f), and the response to EPA's request for information (CCRWQCB, 1998c). The December 10, 1997, Staff Report (CCRWQCB, 1997b, pp. 3-6), and the January 21, 1998, Supplemental Sheet (CCRWQCB, 1998b), also provided the rationale for not listing certain waterbodies. The EPA has determined that the changes made by the Regional Board and its decisions not to list certain waters are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

The Regional Board provided an explanation for its priority ranking in its December 10, 1997, Staff Report (CCRWQCB, 1997b, pp. 4) and its response to EPA's request for clarification (CCRWQCB, 1998c). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates, and therefore, provides a clear indication of which waters are targeted for TMDL development over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.6.4. Public Participation

The Regional Board provided several opportunities for the public to comment on its proposed 303(d) list. On October 14, 1997, the Regional Board provided notice of its public hearing on the 303(d) list and solicited comments from the public on the list (CCRWQCB, 1997a). On December 10, 1997, the Regional Board distributed a staff report on proposed changes in the 303(d) list as well as a response to written comments received (CCRWQCB, 1997b). On January 21, 1998, the Regional Board distributed supplemental information on the 303(d) list, including additional responses to comments (CCRWQCB, 1998b). On January 30, 1998, the Regional Board held a meeting to consider the 303(d) list (CCRWQCB, 1998d, pps. 5-6). At the Regional Board meeting, the Regional Board voted unanimously to extend the comment period on the 303(d) list (CCRWQCB, 1998d, pg. 6). Additionally, the Regional Board approved the 303(d) list and directed the Executive Officer to forward the 303(d) list to the State Board and EPA, along with any changes in response to public comments received by April 8, 1998. The extended comment period was provided to allow for adequate notice of the Regional Board's schedule for TMDL development and priority rankings, although the Regional Board did consider additional comments on the list of waterbodies and pollutants. The Regional Board also considered EPA's request for expedited submittal of its 303(d) list (US EPA, Region 9, 1998). Changes to the 1998 303(d) list were made in response to comments received by April 8, 1998 and were reported to the Regional Board at its May 29, 1998 meeting (CCRWQCB, 1998g; CCRWQCB, 1998h, pg. 14). The Regional Board's second comment period was noticed on March 2, 1998 and extended until April 8, 1998 (CCRWQCB, 1998a). Additional comments were received by the Regional Board after April 8, 1998, but did not result in any changes to the 303(d) list (CCRWQCB, 1998g, pp 3-4).

3.6.5. Response to Comments

The Regional Board's response to comments was included in its December 10, 1997, Staff Report (CCRWQCB, 1997b, pp. 4-6), its January 21, 1998, Supplemental Sheet (CCRWQCB, 1998b), the minutes of the January 30, 1998, Regional Board meeting (CCRWQCB, 1998d), the April 15, 1998 memo to the State Board (CCRWQCB, 1998f), and the response to EPA's request for information (CCRWQCB, 1998c).

Many of the comments raised were relevant to specific waterbodies/pollutants and the Regional Board addressed the comments in a manner consistent with its listing methodology. There were a number of comments raised as to whether the assessment for specific waters was comprehensive, the amount of data used to list a waterbody was sufficient, and the quality of the data used for certain waters was adequate. As discussed above the EPA agrees with the Regional Board that it met the requirements of 40 CFR 130.7(b)(5) by assembling and evaluating all existing and readily available water quality-related data and information. The EPA also agrees with the Regional Board that additional information may be needed as part of the TMDL development process for listed waters, especially with respect to source identification, and that listing can be based on relatively limited information if that is all that is available. The EPA also agrees with the Regional Board that in some cases, a further assessment of a listed waterbody may be appropriate prior to development of a TMDL. Concerns were also raised about the schedule

for completion of TMDLs and the Regional Board provided an extensive explanation for the basis of its schedule.

3.6.6. Other Information Requested by EPA

The EPA requested that the Regional Board provide a number of clarifications of its 303(d) list submittal (US EPA, Region 9, 1998). The Regional Board responded to EPA's request for additional information (CCRWQCB, 1998c). The Regional Board provided a rationale for adding nutrients as a pollutant for Los Osos and Chorro Creeks. The Regional Board also provided a rationale for the change in the areal extent of impairment of Moss Landing Harbor. The Regional Board provided documentation of the removal of Old Salinas River from the 303(d) list since it was a duplicative listing.

The Regional Board confirmed EPA's understanding of listing factors applied to each newly listed waterbody, except for the Pacific Ocean at Point Rincon, for which the Regional Board applied listing factor #2 and not #3 as EPA had originally understood. The Regional Board provided a complete list of data sources used as part of the 303(d) assessment. The Regional Board also clarified responses to several comments. The EPA has determined that the Regional Board fully responded to the request for additional information as required by 40 CFR 130.7(b)(6)(iv).

3.7 Los Angeles Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Los Angeles.

3.7.1 Methodology

As indicated in the Regional Board's staff report dated March 23, 1998, the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines) (LARWQCB, 1998a). The Regional Board's staff report provides a specific rationale for each listing decision (LARWQCB, 1998a). The Regional Board clarified the listing factors that were applied for each listing decision in a memorandum from the Regional Board to the State Board dated May 4, 1998 (included in LARWQCB, 1998a). Additionally, the Regional Board staff clarified its consideration of particular water bodies in three telephone conversations with David Smith, USEPA, in September, 1998 (USEPA, 1998i). Although the Regional Board focused its 1998 assessment on a few watersheds within the region (see following section), the Regional Board applied a listing approach which assumed that waters listed in 1996 would remain on the 303(d) list unless more recent information supported a decision to remove the waters from the list. The Regional Board considered all information provided to it during the public comment period, regardless of whether the subject waters were in the watersheds targeted for assessment during the current biennium. The Regional Board used the criteria for prioritization described in the State Guidelines. The

documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.7.2 Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board identified other information sources that were "existing and readily available". The sources of information included state and local agencies, academic researchers, and members of the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Assessment efforts for the 1996-98 biennium focused on the Calleguas Creek watershed and Santa Clara River watershed. The Regional Board considered all existing and readily available information for the Region (see LARWQCB, 1998a, p. 11), including information provided during the comment period. The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 list update satisfy the information requirements of 40 CFR 130.7(b)(5).

3.7.3 Waterbody Listing Changes

Waterbodies/Pollutants added to the 303(d) List

Waterbody	Pollutant(s)	Listing Factor #
Santa Clara River Estuary	ChemA, Toxaphene	5
Brown Barranca/Long Canyon	Nitrate + Nitrite	1
Todd Barranca/Wheeler Canyon	Nitrate + Nitrite	1
Santa Clara River (Reach 3)	Ammonia Chloride	1 1
Torrey Canyon Creek	Nitrate + Nitrite	1
Santa Clara River (Reach 7)	Ammonia Chloride Nitrate + Nitrite	1 1 1
Santa Clara River (Reach 8)	Chloride Nitrate + Nitrite Organic enrichment, Low dissolved oxygen	1 1 1
Santa Clara River (Reach 9)	Coliform	1
Calleguas Creek (Reach 3)	Chloride Nitrate + Nitrite Total Dissolved Solids	1 1 1

Conejo Creek (Reach 1)	Sulfate Total Dissolved Solids	1 1
Conejo Creek (Reach 2)	Chloride Sulfate Total Dissolved Solids	1 1 1
Conejo Creek (Reach 3)	Sulfate Total Dissolved Solids	1 1
Conejo Creek/Arroyo Conejo NF	Sulfate Total Dissolved Solids	1 1

Waterbodies/Pollutants Removed From the 303(d) List

Waterbody	Pollutant(s)	Listing Factor #
San Gabriel River Estuary	Toxicity	4
San Gabriel River (Reach 1)	Lead	4
Coyote Creek	Chloride, Chromium, Copper, Lead	4
San Jose Creek	Lead, Toxicity	4
Ventura River (Reach 1)	Selenium	3
Mugu Lagoon	Arsenic, Cadmium, Silver	3
Revolon Slough	Hexachlorobenzene	3
Beardsley Channel	Hexachlorobenzene	3
Calleguas Creek (Reach 1)	Dacthal	3
Conejo Creek (Reach 4)	Cadmium, Chromium, Nickel, Silver	3
Malibu Lagoon	Arsenic, Chromium, Lead, Nickel, Selenium, Silver	3
Malibu Creek	Arsenic, Cadmium, Chromium, Copper, Lead, Nickel	3
Malibu Lake	Cadmium, Zinc	3
Lake Lindero	Oxadiazon	3
Westlake Lake	Cadmium, Zinc	3
Lake Callabastas	Cadmium	3
Marina Del Ray Harbor	ChemA	3

Ballona Creek Wetlands	Chromium, Lead	3
Colorado Lagoon	ChemA, Copper	3
Dominguez Channel	Benthic Effects	3
San Gabriel Estuary	Chromium, Copper, Silver	3
El Dorado Lakes	Chromium	3
Puddingstone Reservoir	Arsenic, Dacthal, Oxadiazon	3

The other waters on the 1996 303(d) list were listed again in 1998 based on listing factor 4. However, the continued listing of Coyote Creek for toxicity was not properly public noticed (SWRCB, 1998g). Therefore, EPA will provide an opportunity for public comment on this continued waterbody listing.

The EPA has determined that the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

The rationale for each listing decision is contained in the Regional Board's March 23, 1998 staff report and responsiveness summary, (LARWQCB, 1998a), May 4, 1998 memorandum to State Board, and response to EPA's request for information (USEPA, 1998i). The delisting decisions were based upon two factors. Waters delisted due to listing factor 3 had been listed in 1996 based on EDL fish tissue data indicating elevated levels of pollutants when compared with other sites. As discussed in section 3.3.1, listing based solely on EDL data was not required because high EDL levels are not necessarily associated with use impairments or threats. The Regional Board properly delisted waters listed in 1996 based on EDL data if there were no exceedences of agency screening or action levels associated with risk to human health or other uses. Waters delisted due to listing factor 4 are meeting water quality standards.

The State Board reversed the Regional Board's decision to list Santa Clara River Reaches 7 and 8 for chlorides based on concerns about the appropriateness of the underlying standard and the existence of studies to review the standard. As discussed in section 4, that rationale for reversing the Regional Board's listing decision are invalid, and EPA is identifying these two reaches of the Santa Clara River for listing of the 303(d) list for chlorides.

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (LARWQCB, 1998a). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates for TMDLs to be addressed over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.7.4 Public Participation

The Regional Board provided a lengthy public comment period (January 2, 1998-March 6, 1998) and held 3 workshops (January 28, 1998; January 30, 1998; and February 6, 1998) and 2 hearings (March 2, 1998 and April 13, 1998) to receive additional public comment on the proposed 1998 303(d) list decision (LARWQCB, 1998a). The Regional Board provided notice of its public workshops and hearings on the 303(d) list and solicited water quality data and information from the public (LARWQCB, 1998a). On April 13, 1998, the Regional Board held a public hearing to consider the 303(d) list. Public comments were considered in the final decision (see next section), and the list was approved by the Regional Board at the April 13, 1998 meeting.

The State Board notified EPA that the State had intended to continue listing Coyote Creek for toxicity. This waterbody was listed in 1996, and was intended to be listed in 1998. However, through an oversight, this waterbody was not included on the public review draft lists provided by the Regional Board or the State Board. EPA intends to approve this listing, but EPA is providing an opportunity for public comment since the State did not do so.

3.7.5 Response to Comments

The Regional Board's responses to comments were included in its responsiveness summary dated March 23, 1998 (LARWQCB, 1998a). In addition, staff responded to comments made at the hearing (LARWQCB 1998b). Finally, EPA requested and received clarifying information from the Regional Board concerning several comment responses during the preparation of this report (USEPA, 1998i).

Most public comments addressed the Regional Board's proposed decisions to list or not to list particular water bodies. Several commenters requested the listing of additional waters and/or pollutants, and urged the Regional Board to consider other information sources in its assessment process. The Regional Board generally cited the fact that waterbody-specific data and/or specific references to existing, readily available reports were not provided, and that existing, readily available data did not support listing, as the basis for not listing the waters proposed by these commenters. For example, general references to data sources such as Environmental Impact Reports, discharger monitoring data, and dredging permit data are not specific enough to enable the Regional Board to locate and evaluate the specific data source within the timeframes allowed for the assessment process. The Regional Board focused an intensive data gathering and analysis effort in the watersheds targeted for attention during that listing cycle as part of its rotating watershed approach to water quality assessment. The Regional Board also reviewed specific data or specific references to data sources identified by commenters regardless of the location of the subject waterbody. As discussed above, these data gathering and analysis commitments are adequate, and EPA agrees with the Regional Board that it is not required to review all data sources mentioned by the public in general terms as part of the listing process, and that the Regional Board did assemble and evaluate all existing and readily available data and information,

as required by EPA regulations.

Other commenters asserted that waters proposed for listing by the Regional Board should not be listed for various reasons, including claims that:

- the applicable water quality standards are inappropriate,
- other programs would adequately address pollutant problems, and/or
- the Regional Board's assessment of available data was flawed.

The Regional Board generally responded to these claims as follows:

- 303(d) listings must be based on currently applicable standards regardless of whether changes to those standards are being considered,
- the other programs cited to address pollution problems do not meet the requirements of 40 CFR 130.7(b)(2) concerning decisions not to list waters due to the presence of NPDES permit provisions or other required controls, and
- the analysis of available data was consistent with the listing methodology developed by the State and EPA and described in the Staff Report.

EPA agrees with the Regional Board's response that listings must be based on existing water quality standards (40 CFR 130.7(b)). EPA also agrees with the Regional Board's interpretations of 40 CFR 130.7(b)(2) concerning circumstances in which the State may decide not to list particular waters due to the presence of other control programs. It was not clear that implementation of controls through the programs indicated by commenters would actually result in attainment of water quality standards. Finally, EPA agrees with the Regional Board's responses to the comments concerning analysis of available data for individual waterbodies.

Several commenters expressed concern about the list revision process, claiming that:

- listing and priority ranking criteria or their application were not clear,
- inadequate time was provided for public input, and
- all readily available information was not considered in the listing process.

The Regional Board responded to these comments as follows:

- responses to comments and the final staff report clarified the listing and priority ranking criteria and the Regional Board's method of applying these criteria,
- an extended public comment period was provided, and
- all readily available information was considered except in a few cases, which are discussed below.

EPA finds these responses reasonable. Within a fairly short period of time, the Regional Board assembled all existing, readily available information for the watersheds targeted for focused assessment as part of this listing cycle as well as additional specific information sources identified by commenters. Listing criteria were clearly explained in public staff reports. The Regional Board applied a new and initially confusing priority ranking approach to the 1998 list. However, EPA finds that the priority rankings were explained adequately to afford opportunities for public

comment.

The Regional Board worked with interested parties during the comment period to clarify available data and the basis for Regional Board waterbody assessments. The Regional Board's comment period was longer than the minimum suggested by EPA, and multiple workshops and hearings were held to consider the proposed listings and associated public comments.

A number of issues raised by commenters warrant additional discussion because Regional Board responses to comments did not clearly respond to the issues raised.

Los Angeles Harbor Piers 210 and 211

The waters adjacent to Piers 210 and 211 were not listed for the following reasons (Record of Communication of telephone call with Mark Smythe, Wendy Phillips, and Shirley Birosek (USEPA, 1998). First, data available to the Regional Board and supplemented by commenters did not support a clear finding that water quality standards are not being met or are about to be exceeded, or that beneficial uses in the Harbor are impaired or threatened. The Regional Board found that trends concerning toxics in sediment appear to be improving. The Regional Board properly noted that although toxics levels in sediment may be somewhat elevated compared to other sites, they do not clearly exceed levels associated with water quality use impairment.

Second, The Regional Board noted that the area concerned is small when compared to the rest of the Los Angeles Inner Harbor segment. While EPA recognizes that a Regional Board may delineate a small area of a larger waterbody for 303(d) listing purposes (as was done for San Diego Bay), the Regional Board is not required to do so. The State's decision to delineate small areas of the very large San Diego Bay segment based on a comprehensive assessment of the Bay makes sense in order to guide targeted TMDL action. No comprehensive assessment of the much smaller Inner Harbor area segment had been completed prior to the listing decisions, and the evidence of water quality impairment at the Pier 210/211 site was uncertain. Given these uncertainties, the State's decision not to list a much smaller segment of Los Angeles Inner Harbor also makes sense. We understand that the Regional Board intends to conduct a more comprehensive review of all available data concerning water quality issues in Los Angeles Inner Harbor when that watershed management area is scheduled for focused assessment as part of the rotating watershed cycle.

Priority Ranking For Santa Clara River Chlorides

The Regional Board listed this waterbody and set a medium priority ranking for TMDL development. A commenter requested a rationale for the priority ranking. The Regional Board

set a medium priority ranking for chlorides TMDLs for the Santa Clara River based on two factors: (1) the existence of ongoing TMDL-like assessment efforts focusing on chlorides in the basin, and (2) the fact that no human health issues are involved (Record of Communication with Regional Board staff, USEPA, 1998i). EPA concurs with this rationale. As discussed in Section 4, EPA is disapproving the State's decision not to list the Santa Clara River for chlorides, is identifying this waterbody/pollutant combination for inclusion on the 303(d) list, and is identifying a medium priority ranking for TMDL development.

Los Angeles River Discharger Monitoring Data for Lindane

One commenter asserted that discharger monitoring data from one permitted facility would support a decision to list the Los Angeles River for lindane. In a telephone call with EPA, Regional Board staff clarified that it would be inappropriate to make a listing judgement for the Los Angeles River based solely on the review of data collected by this single facility. Rather, a reasonable assessment of whether Los Angeles River or any of its reaches is impaired due to lindane or other pollutants would require the assembly and analysis of data from multiple sources. EPA agrees with the Regional Board that it is reasonable not to list the Los Angeles River for lindane without more data and information than that referenced by the commenter. Ambient monitoring data just downstream from one discharger would not be enough to provide a valid basis for a listing decision, and additional data which may exist but which is not readily available would need to be gathered for this assessment. This more in-depth assessment is beyond the scope of the analysis conducted for basins which were not targeted for intensive assessment during this phase of the Regional Board's rotating watershed assessment schedule. Regional Board staff clarified that all existing and readily available data would be assembled and considered for Los Angeles River when the basin is scheduled for intensive assessment. In contrast, the Regional Board did consider specific data in basins not targeted for intensive assessment in 1998 where the data were adequate to make assessment judgements. EPA accepts the Regional Board's rationale that examining data from a single monitoring facility in Los Angeles River watershed would not provide an adequate basis to make a listing judgement, and EPA finds that the Regional Board has provided an acceptable rationale for not considering this information source during this listing cycle.

Summary

EPA has reviewed the Regional Board's responses to public comments and finds that the Regional Board appropriately applied the assessment, listing, and prioritization criteria described in the State Guidelines.

3.7.6 Other Information Requested by EPA

In September 1998, EPA requested additional clarifying information from the Regional Board through telephone conversations between David Smith, U.S. EPA, and Mark Smythe,

Wendy Phillips, and Shirley Birosek, LARWQCB (USEPA, 1998i). The Regional Board clarified its responses to comments on several issues as discussed in section 3.7.5. The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.8. Central Valley Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Central Valley Region.

3.8.1. Methodology

As indicated in the Regional Board's Public Notices, dated November 17, 1997 (CVRWQCB, 1997) and January 5, 1998 (CVRWQCB, 1998a, Attachment 2), the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines). The Regional Board provided a rationale for each change in waterbodies/pollutants listed, including the listing or delisting factor that was applied (CVRWQCB, 1998a, Attachment 3; 1998b, Attachment 3; 1998c). The Regional Board also used the criteria for prioritization described in the State Guidelines and provided an explanation for changes in priorities for TMDL development. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.8.2. Data and Information Used

In addition to the data and information described in section 4.2.3., the Regional Board also identified a number of other data sources that were "existing and readily available". The sources of information included local, state, and federal agencies and members of the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Information provided during the comment period was also considered. The complete list of data sources considered by the Regional Board is contained in its response to EPA's request for additional information (CVRWQCB, 1998c). The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 303(d) list update satisfy the requirements of 40 CFR 130.7(b)(5).

3.8.3. Waterbody Listing Changes

Waterbodies/pollutants added to the 303(d) List

Waterbody	Pollutant	Listing Factor#
Arcade Creek	Diazinon, Chlorpyrifos	1
Chicken Ranch Slough	Diazinon, Chlorpyrifos	1
Strong Ranch Slough	Diazinon, Chlorpyrifos	1
Elder Creek	Diazinon, Chlorpyrifos	1
Elk Grove Creek	Diazinon	1
Morrison Creek	Diazinon	1
Merced River	Diazinon, Chlorpyrifos	1
Stanislaus River	Diazinon	1
Tuolumne River	Diazinon	1
Mosher Slough	Diazinon, Chlorpyrifos	1
5-Mile Slough	Diazinon, Chlorpyrifos	1
San Joaquin River	DDT	5

Waterbodies/pollutants deleted from the 303(d) List

Waterbody	Pollutant	Delisting Factor#
Lower Feather River	Chlorpyrifos	3
Natomas East Main Drain	Chlorpyrifos	3
Sacramento River	Chlorpyrifos	3
Sacramento River	Carbofuran, Malathion, Methyl Parathion	4,6
Sacramento Slough	Chlorpyrifos	3
Lower Kings River	As, Cu	3
Merced River	DDT	4
Stanislaus River	DDT	4
Tuolumne River	DDT	4
Sacramento River	Temperature	4,6
San Joaquin River	Cabaryl, eptam, parathion	4,6
Beach Lake	Mercury, Group A pesticides, Cu, Zn	3,4

Lower Mokelumne River	DO, Hydrogen Sulfide	4
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The other waters on the 1996 303(d) list were listed again in 1998 based on listing factor 4.

The Regional Board also made additional changes to the extent of impairment of waterbodies, renamed one waterbody, modified sources of contamination, and changed all salt and total dissolved solids (TDS) designations to EC (electrical conductivity) (CVRWQCB, 1998a, Attachment 3).

The rationale for each listing decision is contained in the Regional Board's 303(d) list submittal package (CVRWQCB, 1998a, Attachment 3; 1998b, Attachment 3-5; 1998e, 1998d). The listing decisions were based on water quality data analysis and application of the listing factors. The delisting decisions were based primarily upon two factors. Waters delisted due to listing factor 3 had been listed in 1996 based on EDL fish tissue data indicating elevated levels of pollutants when compared with other sites. As discussed in section 4.3.1, listing based solely on EDL data was not required because high EDL levels are not necessarily associated with use impairments or threats. The Regional Board properly delisted waters listed in 1996 based on EDL data if there were no exceedences of agency screening or action levels associated with risk to human health or other uses. Waters delisted due to listing factor 4 are meeting water quality standards. Where factor 6 is mentioned, the waterbody may be meeting standards due to the application of other control programs. The EPA has determined that the changes made by the Regional Board and its decisions not to list certain waters are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (CVRWQCB, 1997; 1998a - Attachments 2 & 3). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates, and therefore, provides a clear indication of which waters are targeted for TMDL development over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.8.4. Public Participation

The Regional Board provided several opportunities for the public to comment on its proposed 303(d) list. On November 17, 1997, the Regional Board provided notice of its public hearing on the 303(d) list and solicited comments from the public on the list (CVRWQCB, 1997). On January 5, 1998, the Regional Board distributed a staff report on proposed changes in the 303(d) list as well as a response to comments received (CVRWQCB, 1998a). On January 23, 1998, the Regional Board held a hearing to consider the 303(d) list and received additional comments (CVRWQCB, 1998d). The 1998 303(d) list was approved by the Regional Board

(CVRWQCB, 1998b).

3.8.5. Response to Comments

The Regional Board's response to comments was included in its 303(d) list submittal package (CVRWQCB, 1998b, Attachments 4-5). Many of the comments raised were relevant to specific waterbodies/pollutants and the Regional Board addressed the comments in a manner consistent with its listing methodology. There was a comment raised as to whether the assessment of existing and readily available data was comprehensive (CVRWQCB, 1998b, Attachment 4, pp. 6-7). As discussed above, the EPA agrees with the Regional Board that it met the requirements of 40 CFR 130.7(b)(5) with respect to the comprehensiveness of the assessment. There were also questions raised with respect to the criteria used for prioritizing 303(d) listed waters (CVRWQCB, 1998b, Attachment 4, pg. 7). The EPA believes that the Regional Board appropriately applied the prioritization criteria described in the State Guidelines.

There were a number of issues raised regarding the legality of the listing of specific pollutants, which were listed based on interpretations of narrative water quality objectives (CVRWQCB, 1998b, Attachment 5, pp. 5). 40 CFR 130.7(b)(3) specifically states that, for the purposes of listing, the term water quality standards includes "...numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements." The EPA, therefore, agrees with the Regional Board that Federal regulations required the listing of pollutants even in the absence of specific numeric criteria. Specifically, the EPA believes that it is reasonable to use ambient toxicity testing as an indicator of compliance with the Regional Board's narrative toxicity objective, to use the toxicity identification evaluations performed in conjunction with the toxicity tests to implicate the specific pollutants causing toxicity, and to conclude that there was an exceedence of its narrative toxicity objective. The Regional Board's conclusion that the water quality objective was exceeded supports its decision to include the waterbody on the list.

An argument was also made by some commenters that existing programs would result in attainment of the water quality standards, with respect to pesticides (CVRWQCB, 1998b, Attachment 5, pp. 7,11). The programs described by the commenters are voluntary in nature and do not "require" pollution control requirements. The EPA agrees with the Regional Board that delisting factor #6 does not apply to such programs, but such programs can be used a vehicle to develop TMDLs.

The EPA agrees with the Regional Board that a fish consumption advisory or exceedence of the tissue criteria described in listing factor #2 provide a clear indication of impairment of waterbody uses. Evidence of impairment of waterbody uses compels the Regional Board to list those pollutants under Federal statute and regulations.

3.8.6. Other Information Requested by EPA

On July 9, 1998, EPA requested additional clarifying information from the Regional Board

(U.S. EPA, Region 9, 1998) and the Regional Board provided a response (CVRWQCB, 1998c, 1998e). The Regional Board clarified that the staff report was incorrect in stating that USGS data indicated that chlorpyrifos should be added to the 303(d) list for the Tuolumne River. The Regional Board also clarified that the extent of impairment for unknown toxicity in Orestimba Creek should be 10 miles and not three as indicated in the 303(d) list. The Regional Board provided the specific listing and delisting factors for pollutants added/removed from the 303(d) list as a result of changes made shortly before the Regional Board decisions were made.

The Regional Board also provided a comprehensive list of data sources and minutes from the Regional Board meeting to consider the 303(d) list (CVRWQCB, 1998d). The Regional Board indicated that the oral comments made were substantially the same as written comments made.

The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.9. Lahontan Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Lahontan Region.

3.9.1. Methodology

As indicated in the Regional Board's staff report, dated November, 1997 (LRWQCB, 1997), the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines). The Regional Board's November 1997 staff report and response to EPA's request for information (LRWQCB, 1998a) provide a rationale for each change in waterbodies/pollutants listed, including the listing or delisting factor that was applied. The Regional Board also used the criteria for prioritization described in the State Guidelines and provided an explanation for changes in priorities for TMDL development. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.9.2. Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board also identified a number of other data sources that were "existing and readily available" (LRWQCB, 1997, pp 6-7, LRWQCB, 1998a, LRWQCB, 1998b, pg. 3, USEPA, 1998h). The sources of information included local, state, and federal agencies and members of the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Information provided during the comment period was also considered. The complete list of data sources considered by the Regional Board is contained in its response to EPA's request for additional information (LRWQCB, 1998a). The combination of the previous assessments

performed by the Regional Board and the information assembled as part of the 1998 303(d) list update satisfy the requirements of 40 CFR 130.7(b)(5).

3.9.3. Waterbody Listing Changes

Waterbodies/pollutants added to the 303(d) List (LRWQCB, 1998c)

Waterbody	Pollutant	Listing Factor#
Crowley Lake	Nutrients	4- water was on 1994 list and was inadvertently removed in 1996
East Walker River	Siltation	4- water was on 1994 list and was inadvertently removed in 1996
Owens River	Arsenic & Habitat Alteration	4- water was on 1994 list and was inadvertently removed in 1996

Waterbodies/pollutants deleted from the 303(d) List (LRWQCB, 1998c)

Waterbody	Pollutant	Delisting Factor#
Boca Reservoir	Metals	3
Convict Lake	Metals	3
Donner Lake	Metals	3
Eagle Lake (2)	Metals	3
Fallen Leaf Lake	Metals	3
Grant Lake	Metals	3
Gull Lake	Metals	3
June Lake	Metals	3
Little Rock Reservoir	Metals	3
Lundy Lake	Metals	3
Sabrina Lake	Metals	3
Silverwood Lake	Metals	3
Stampede Reservoir	Metals	3
Twin Lakes, Upper	Metals	3
Twin Lakes, Lower	Metals	3
Bishop Creek Canal	Metals	3

Carson River, E. Fork	Metals	3
Carson River, W. Fork	Metals	3
Martis Creek	Metals	3
McGee Creek (1)	Metals	3
Moutaineer Creek	Metals	3
Owens River	Metals	3
Pine Creek	Metals	3
Robinson Creek	Metals	3
Silver Creek (1)	Metals	3
Slinkard Creek	Metals	3
Squaw Creek	Metals	3
Trout Creek (1)	Metals	3
Truckee River	Metals	3
Virginia Creek	Metals	3

The other waters on the 303(d) list which were on the final 1996 list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's November 1997 staff report (LRWQCB, 1997), response to EPA's request for information (LRWQCB, 1998a), and response to comments dated March, 1998 (LRWQCB, 1998b). The delisting decisions were based on listing factor 3. These waters had been listed in 1996 based on EDL fish tissue data indicating elevated levels of pollutants when compared with other sites. As discussed in section 3.3.1, listing based solely on EDL data was not required because high EDL levels are not necessarily associated with use impairments or threats. The Regional Board properly delisted waters listed in 1996 based on EDL data if there were no exceedences of agency screening or action levels associated with risk to human health or other uses. The EPA has determined that the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for provided an explanation for the priority ranking of waters for TMDL development (LRWQCB, 1997a). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates for TMDLs to be addressed over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.9.4. Public Participation

The Regional Board provided two opportunities for the public to comment on its proposed 303(d) list. On November 26, 1997, the Regional Board provided notice of its public hearing on the 303(d) list and solicited comments from the public on the list (LRWQCB, 1997b). On January 8, 1998, the Regional Board held a public hearing to consider the 303(d) list. No testimony from the public was offered at the public hearing (LRWQCB, 1998c). The 1998 303(d) list was approved by the Regional Board.

3.9.5. Response to Comments

The Regional Board's response to comments was included in its responsiveness summary dated March, 1998 (LRWQCB, 1998b and 1998d). Three comment letters were received and no oral comments were made at the Regional Board hearing.

Comments were raised regarding the use of EPA water quality criteria to interpret applicable State narrative standards and determine beneficial use impairment. EPA agrees with the Regional Board that the listing of water bodies must be based on existing water quality standards and that questions regarding the appropriateness of those standards must be addressed through the State's Basin Planning process. A number of the comments raised were relevant to specific waterbodies/pollutants and the Regional Board addressed the comments in a manner consistent with its listing methodology. There was a comment raised as to whether the assessment of existing and readily available information was comprehensive. As discussed above, the EPA agrees with the Regional Board that it met the requirements of 40 CFR 130.7(b)(5) with respect to the comprehensiveness of the assessment. There were also questions raised with respect to the criteria used for prioritizing 303(d) listed waters. The EPA believes that the Regional Board appropriately applied the prioritization criteria described in the State Guidelines.

3.9.6. Other Information Requested by EPA

On July 9, 1998, EPA requested additional clarifying information from the Regional Board (U.S. EPA, Region 9, 1998) and the Regional Board provided a response (LRWQCB, 1998a). The Regional Board provided a rationale for the changes between the 1996 303(d) list and the 1998 303(d) list. The Regional Board also provided a description of the data sources used as part of the 303(d) list update. No oral comments were made by the public at the Regional Board hearing on January 8, 1998, but the Regional Board provided a tape of the Regional Board's consideration of the 303(d) list. The Regional Board also clarified its use of all existing and readily available information in the listing process through a telephone communication with EPA (USEPA, 1998h).

The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.10. Colorado River Basin Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Colorado River Basin Region.

3.10.1. Methodology

The Regional Board described the methodology it used in preparing its 1998 303(d) list submittal package (CRBRWQCB, 1997, Attachment 2; CRBRWQCB, 1998a, CRBRWQCB, 1998b, Attachment 3). The Regional Board indicated that it used the State Guidelines as the basis for its listing decisions (CRBRWQCB, 1998c).

The Regional Board stated that water bodies were listed "when data indicated a violation of Water Quality Objectives which would impact Beneficial Uses of particular water bodies as outlined in the Basin Plan..." (CRBRWQCB, 1998a). The Regional Board's staff report states that water bodies are considered impaired when they "do not fully achieve their designated beneficial uses" (CRBRWQCB, 1998b, Attachment 3). Based on a review of the Regional Board's submittal, it is EPA's understanding that there are not existing pollution control requirements or effluent limits that will result in attainment of water quality standards for the water bodies and pollutants listed on the Regional Board's 303(d) list. The Regional Board's statements with respect to the listing of waterbodies are consistent with the State Guidelines and meets the requirements of 40 CFR 130.7(b).

The Regional Board indicated (CRBRWQCB, 1998a) that it used the State Guidelines to prioritize and schedule TMDL development and that higher priority was given to its priority watershed (the Salton Sea watershed).

The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.10.2. Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board also identified a number of other data sources that were "existing and readily available" (CRBRWQCB, 1998b). The sources of information included local and state agencies. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Information provided during the comment period was also considered. The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 303(d) list update satisfy the requirements of 40 CFR 130.7(b)(5).

3.10.3. Waterbody Listing Changes

Waterbodies/pollutants added to the 303(d) List

Waterbody	Pollutant	Listing Factor#
New River	Bacteria, Nutrients, VOCs	3
Salton Sea	Salt, Nutrients	3

No waterbodies/pollutants were deleted from the 303(d) list.

All the waters which were on the final 1996 list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's response to EPA's request for information (CRBRWQCB, 1998c). The EPA has determined that the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (CRBRWQCB, 1997, Attachment 2; 1998a; 1998b, Attachment 3). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates, and therefore, provides a clear indication of which waters are targeted for TMDL development over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.10.4. Public Participation

The Regional Board provided two opportunities for the public to comment on its proposed 303(d) list. On November 24, 1997, the Regional Board provided notice of its public hearing on the 303(d) list and solicited comments from the public on the list (CRBRWQCB, 1997). On January 8, 1998, the Regional Board held a public hearing to consider the 303(d) list. No testimony from the public was offered at the public hearing (CRBRWQCB, 1998c). The 1998 303(d) list was approved by the Regional Board.

The Regional Board did not inform the public of its proposal to add certain pollutants for previously listed waters; in fact, the Regional Board indicated that there were no new listings in 1998. However, the Regional Board statement that no new waters were added was correct. Moreover, the public did have the opportunity to review the specific listed waters and pollutants (which included the newly listed pollutants) at the time of the Regional Board public comment period. In addition, the public had a second opportunity to comment on the proposed list when the State Board opened its comment period. Therefore, EPA concludes that although the Regional Board Staff Report may not have been clear about the new pollutant listings, adequate opportunities for public comment on the newly listed pollutants were provided.

3.10.5. Response to Comments

The Regional Board's response to comments was included in its 303(d) list submittal package (CRBRWQCB, 1998b, Attachment 1). Two comment letters were received and no oral comments were made at the Regional Board hearing.

Some comments raised were relevant to specific waterbodies/pollutants and the Regional Board addressed the comments in a manner consistent with its listing methodology. There was a comment raised as to whether the assessment of existing and readily available information was comprehensive. As discussed above, the EPA agrees with the Regional Board that it met the requirements of 40 CFR 130.7(b)(5) with respect to the comprehensiveness of the assessment. There were also questions raised with respect to the criteria used for prioritizing 303(d) listed waters. In response to EPA's request for additional information, the Regional Board further described the basis for prioritization (CRBRWQCB, 1998c). The EPA believes that the Regional Board appropriately applied the prioritization criteria described in the State Guidelines.

3.10.6. Other Information Requested by EPA

On July 10, 1998, EPA requested additional clarifying information from the Regional Board (U.S. EPA, Region 9, 1998) and the Regional Board provided a response (CRBRWQCB, 1998c). The Regional Board provided a rationale for the changes between the 1996 303(d) list and the 1998 303(d) list. The Regional Board also clarified its response to comments. No oral comments were made by the public at the Regional Board hearing on January 8, 1998, but the Regional Board provided a tape of the Regional Board's consideration of the 303(d) list.

The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.11. Santa Ana Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, Santa Ana Region.

3.11.1. Methodology

As indicated in the Regional Board's staff report dated December 23, 1997 (SARWQCB, 1998b, Attachment 6.3.1, pg. 2), the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines). The Regional Board's 303(d) responses to EPA's request for clarification (SARWQCB, 1998a, 1998c) and its responsiveness summaries (SARWQCB, 1998b, Attachment 6.4.1, 6.4.2) provide a rationale for each change in waterbodies/pollutants listed. In response to EPA's request for additional information, the Regional Board also clarified which listing or delisting factor from the State Guidelines was applied (SARWQCB, 1998c). The Regional Board used the criteria for prioritization described in the State Guidelines as well as additional factors (e.g., the existence of consent decree schedules which require TMDLs to be established according to a particular schedule for Newport Bay/San Diego Creek watershed, and the potential for funding of TMDL development) (SARWQCB, 1998b, Attachment 5.1). The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.11.2. Data and Information Used

In addition to the data and information described in section 4.2.3., the Regional Board also identified a number of other data sources that were "existing and readily available" (SARWQCB, 1998b, Attachment 7). The sources of information included local and state agencies and the public. The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. The Regional Board focussed its update of the 303(d) list on the Newport Bay and Chino Basin watersheds (SARWQCB, 1998b, Attachment 3), although it specifically solicited and considered information from all other watersheds (SARWQCB, 1998b, Attachment 6.1). The Regional Board has also provided a schedule for its water quality assessment/303(d) list update by watershed management area (SARWQCB, 1998b, Attachment 3). The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 303(d) list update satisfy the requirements of 40 CFR 130.7(b)(5).

3.11.3. Waterbody Listing Changes

Waterbodies added to the 303(d) list.

Waterbody	Pollutant	Listing Factor#
Canyon Lake	Nutrients	1
Canyon Lake	Pathogens	3
Fulmor Lake	Pathogens	1
Prado Park Lake	Nutrients	1
Prado Park Lake	Pathogens	3
Chino Creek, Reach 2*	High Coliform	1
Cucamonga Crk, Valley Reach*	High Coliform	1
Lytle Creek	Pathogens	3
Mountain Home Creek	Pathogens	3
Mill Creek, Reaches 1 &2	Pathogens	3
Summit Creek	Nutrients	1

* These waters were actually added to the list by State Board with Regional Board staff support.

Waterbodies Deleted from the 303(d) list.

Waterbody	Pollutant	Delisting Factor#
Santa Ana River, Reach 4	TDS/chlorides/salinity	6
Santa Ana River, Reach 4	Unknown toxicity	4

The other waters on the 303(d) list which were on the final 1996 list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's 303(d) responses to EPA's request for clarification (SARWQCB, 1998a, 1998c) and its responsiveness summaries (SARWQCB, 1998b, Attachment 6.4.1, 6.4.2). As part of its response to EPA, the Regional Board indicated that there was no information to support the listing of Mountain Home Creek, East Fork. Therefore, EPA is acknowledging the State's clarification that this waterbody was not intended to be listed. The delisted waters were removed because the waterbody is expected to meet standards within two years through application of other required controls-- NPDES discharge permits (delisting factor 6) or because the waterbody meets standards (delisting factor 4). The Regional Board made changes to the extent of impairment for certain water bodies and described those changes (SARWQCB, 1998c). The Regional Board also made changes to the priority ranking applied to specific water bodies and provided its rationale for priority ranking (SARWQCB, 1998b, Attachment 5.1). The EPA has determined that the changes made by the

Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

The State Board added Chino Creek Reach Two and Cucamonga Creek Valley Reach for coliform. The Regional Board staff supported this change based on the correct interpretation of the applicable designated beneficial use to these streams.

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines, along with additional criteria (SARWQCB, 1998b, Attachment 5.1), and provided an explanation for the priority ranking of waters for TMDL development (SARWQCB, 1998b, Attachment 5.1). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates, and therefore, provides a clear indication of which waters are targeted for TMDL development over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.11.4. Public Participation

The Regional Board provided several opportunities for the public to comment on its proposed 303(d) list. On October 28, 1997, the Regional Board solicited comments from the public on the 1996 303(d) list as well as requesting additional information (SARWQCB, 1998b, Attachment 6.1). On December 10, 1997, the Regional Board provided public notice of its hearing and made available its proposed 303(d) list for 1998 (SARWQCB, 1998b, Attachment 6.2.2). On January 23, 1998, the Regional Board held a public hearing to consider the 303(d) list. No action was taken by the Regional Board at the January 23, 1998, hearing (SARWQCB, 1998b, Attachment 6.2.3). The Regional Board issued a second public notice on January 27, 1998 and received comments on the 303(d) list and TMDL development schedule through February 27, 1998. The Regional Board held a second public hearing on March 6, 1998 and approved the 303(d) list (SARWQCB, 1998b, Attachment 8).

3.11.5. Response to Comments

The Regional Board's response to comments was included in its December 23, 1997 staff report (SARWQCB, 1998b, Attachment 6.3.1), January 20, 1998 memo (SARWQCB, 1998b, Attachment 6.4.1), February 24, 1998 memo (SARWQCB, 1998b, Attachment 6.4.2), and May 19, 1998 memo (SARWQCB, 1998a).

Many of the comments raised were relevant to specific waterbodies/pollutants and the Regional Board addressed the comments in a manner consistent with its listing methodology. There was a comment raised as to whether the assessment was comprehensive (SARWQCB, 1998b, Attachment 6.3.1, pg. 2). As discussed above, the EPA agrees with the Regional Board that it met the requirements of 40 CFR 130.7(b)(5) with respect to the comprehensiveness of the assessment. A comment was also raised suggesting that the Regional Board create three sublists

of the 303(d) list based on whether exceedence of water quality criteria is supported by specific studies of beneficial uses impacts (SARWQCB, 1998b, Attachment 6.3.1, pg. 1). The EPA believes that no such "sub-lists" are required by Federal regulation and that the Regional Board prepared its 303(d) list consistent with Federal regulation.

3.11.6. Other Information Requested by EPA

On July 10, 1998, EPA requested additional clarifying information from the Regional Board (U.S. EPA, Region 9, 1998) and the Regional Board provided a response (SARWQCB, 1998c). The Regional Board indicated which listing/delisting factors were applied from the State Guidelines. The Regional Board also clarified its response to comments and provided a rationale for changes in the extent of impairment for several waterbodies. The Regional Board also indicated that no oral comments were made by Regional Board members or the public at its public meeting to consider the 303(d) list. The Regional Board's response to EPA's request for information satisfies 40 CFR 130.7(b)(6)(iv).

3.12 San Diego Bay Region

References in this section to the Regional Board apply to the California Regional Water Quality Control Board, San Diego Region.

3.12.1 Methodology

As indicated in the Regional Board's staff report dated January 8, 1998, the Regional Board used the listing and delisting factors contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (State Guidelines). The Regional Board's staff report provides a specific rationale for each listing decision (SDRWQCB, 1998a). Additionally, the Regional Board clarified the listing factors that were applied for each listing decision (see "Other Information Requested by EPA"). Although the Regional Board focused its 1998 assessment on a few watersheds within the region (see following section), the Regional Board applied a listing approach which assumed that waters listed in 1996 would remain on the 303(d) list unless more recent information supported a decision to remove the waters from the list. The Regional Board considered all information provided to it during the public comment period, regardless of whether the subject waters were in the watersheds targeted for assessment during the current biennium. The Regional Board used the criteria for prioritization described in the State Guidelines. The documentation provided by the Regional Board provides a description of the methodology used to develop the 303(d) list as required by 40 CFR 130.7(b)(6)(I).

3.12.2 Data and Information Used

In addition to the data and information described in section 3.2.4, the Regional Board identified other information sources that were "existing and readily available". The sources of information included state and local agencies, academic researchers, and members of the public.

The Regional Board had previously conducted comprehensive assessments for prior 303(d) list submittals. Assessment efforts for the 1996-98 biennium focused on Aliso Creek, Santa Margarita River, San Diego Bay watershed, and coastal ocean waters. The Regional Board considered all existing and readily available information for the entire Region (see SDRWQCB, 1998a, p. 11). Information provided during the comment period was also considered. The combination of the previous assessments performed by the Regional Board and the information assembled as part of the 1998 list update satisfy the information requirements of 40 CFR 130.7(b)(5).

3.12.3 Waterbody Listing Changes

Waterbodies/Pollutants added to the 303(d) List

Waterbody	Pollutant(s)	Listing Factor #
San Diego Bay, Near Sub Base	benthic community degradation, toxicity	3
San Diego Bay, Near Grape Street	benthic community degradation, toxicity	3
San Diego Bay, Downtown Piers	benthic community degradation, toxicity	3
San Diego Bay, Near Switzer Creek*	benthic community degradation, toxicity	3
San Diego Bay, Near Coronado Bridge	benthic community degradation, toxicity	3
San Diego Bay, Near Chollas Creek	benthic community degradation, toxicity	3
San Diego Bay, San Diego Naval Station	benthic community degradation, toxicity	3
San Diego Bay, Seventh Street Channel	benthic community degradation, toxicity	3
San Diego Bay, Near 24th Street Marine Terminal	benthic community degradation, toxicity	3
San Diego Bay Shoreline, Lindbergh HSA 908.21	coliform	2,3
San Diego Bay Shoreline, Telegraph HSA 909.11	coliform	2,3
Pacific Ocean Shoreline, Laguna Beach HSA 901.12	coliform	2,3
Pacific Ocean Shoreline, Aliso Beach HSA 901.13	coliform	2,3
Pacific Ocean Shoreline, Dana Point HSA 901.14	coliform	2,3
Pacific Ocean Shoreline, Lower San Juan HSA 901.27	coliform	2,3
Pacific Ocean Shoreline, San Clemente HA 901.30	coliform	2,3
Pacific Ocean Shoreline, San Luis Rey HU 903.00	coliform	2,3
Pacific Ocean Shoreline, Loma Alta HA 904.14	coliform	2,3

Pacific Ocean Shoreline, Buena Vista Creek HA 904.20	coliform	2,3
Pacific Ocean Shoreline, San Marcos HA 904.50	coliform	2,3
Pacific Ocean Shoreline, Escondido Creek HA 904.60	coliform	2,3
Pacific Ocean Shoreline, San Diegote HU 905.00	coliform	2,3
Pacific Ocean Shoreline, Scripps HA 906.30	coliform	2,3
Pacific Ocean Shoreline, San Diego HU 907.00	coliform	2,3
Pacific Ocean Shoreline, Coronado HA 910.10	coliform	2,3
Pacific Ocean Shoreline, Tijuana HU 911.00	coliform	2,3

* At the request of the Regional Board, the State Water Resources Control Board removed Switzer Creek from the final 303(d) list because the Regional Board staff determined it did not meet the listing criteria (see section 4.3).

Two additional changes were made to the list. The areal extent of the Tijuana River Estuary listing was changed from one acre to 150 acres based on a study by a researcher at San Diego State University (SDRWQCB, 1998a, p. 5). In addition, a typographical correction was made to the correct numerical designation for Aliso Creek hydrologic subarea.

The other waters on the 303(d) list which were on the 1996 list were listed again in 1998 based on listing factor 4.

The rationale for each listing decision is contained in the Regional Board's January, 1998 staff report and responsiveness summary, (SDRWQCB, 1998a) and in responses to comments to the State Board (SWRCB, 1998b). The EPA has determined that the changes made by the Regional Board are consistent with the methodology described by the Regional Board and satisfy the requirements of 40 CFR 130.7(b).

As discussed above, the Regional Board used the criteria for prioritization described in the State Guidelines and provided an explanation for the priority ranking of waters for TMDL development (SDRWQCB, 1998a). Additionally, the schedule for TMDL development included with the Regional Board's 303(d) list includes start and end dates for TMDLs to be addressed over the next two years. The EPA has determined that the priority ranking applied by the Regional Board and the schedules for TMDL development over the next two years satisfy the requirements of 40 CFR 130.7(b)(4).

3.12.4 Public Participation

The Regional Board provided a lengthy public comment period (November, 1997-February, 1998) and held a hearing to receive additional public comment on the proposed 1998 303(d) list decision. On November 3, 1997, the Regional Board provided notice of its public

hearing on the 303(d) list and solicited information from the public on the list (SDRWQCB, 1997a). On February 11, 1998, the Regional Board held a public hearing to consider the 303(d) list. Public comments were considered in the final decision (see next section), and the list was approved by the Regional Board at the February 11, 1998 meeting.

3.12.5 Response to Comments

The Regional Board's responses to comments were included in its responsiveness summary dated January 29, 1998 and a letter from the Regional Board to Martha Gandy of the U.S. Navy dated February 11, 1998. In addition, staff responded to comments made at the Regional Board and State Board hearings (SDRWQCB 1998a, SWRCB 1998b).

Most public comments addressed the Regional Board's proposed decisions to list or not to list particular water bodies. One commenter requested the listing of additional waters and/or pollutants. The Regional Board generally cited the existence of other required controls as the basis for not listing these waters. Conversely, other commenters asserted that waters proposed for listing by the Regional Board should not be listed partly because other required controls are in effect for pollutant sources. EPA requested clarifying information from the Regional Board in order to determine if the provisions of 40 CFR 130.7(b)(2) concerning other required controls were applied correctly in considering these comments. It would be appropriate not to list a water quality limited segment on the 303(d) list if other required, enforceable controls are (1) in place or scheduled for implementation in the near future, (2) specific to the waterbody and pollutant(s) of concern, (3) reasonably likely to result in attainment of water quality standards within two years (40 CFR 130.7(b), EPA 1991, and EPA 1997b). Regional Board staff explained the rationale for not listing several areas of San Diego Bay (David Barker testimony before SWRCB (SWRCB, 1998b)). EPA has determined that this rationale for not listing these areas of San Diego Bay is consistent with federal regulations.

Other commenters cited the existence of NPDES stormwater permits as an example of "other required controls" which obviate the need for listing under Section 303(d). The Regional Board disagreed, reasoning that there may be other sources of these pollutants found in San Diego Bay in addition to stormwater discharges regulated by NPDES permits. EPA agrees with this rationale and notes that the existence of the stormwater permit is not in itself adequate evidence that water quality standards will be met in the receiving water for the pollutants of concern. EPA agrees with the Regional Board's interpretations of 40 CFR 130.7(b)(2) in responding to public comments.

Two commenters asserted that the assessment supporting the listings of areas of San Diego Bay made inappropriate use of available data concerning sediment contamination and benthic community effects and incorrectly found beneficial use impairments. EPA agrees with the Regional Board's responses to these comments and finds that the Regional Board appropriately considered existing and readily available information in applying the listing guidelines to reach its listing decisions. We note that the Regional Board listed areas of the Bay only where evidence of

both sediment toxicity and benthic community effects were available. The Regional Board's decision to list only where corroborating evidence of benthic community effects was available was reasonable. The same commenters opposed the new listings on the grounds that there must be evidence of ongoing pollutant inputs in order to list waters on the 303(d) list. EPA agrees with the Regional Board's response that the 303(d) list must address pollutant problems regardless of whether discharges of the pollutants are currently active. Finally, the commenters asserted that changes in the listed sites (e.g., dredging and removal of creosote-contaminated pilings) have remedied Bay contamination and that the listing assessment relied improperly on monitoring conducted prior to these remedial actions. EPA agrees with the Regional Board's response that no data were provided by commenters (or are otherwise existing and readily available) which support the assertion that these remedial actions have fully addressed contamination of Bay sites identified in the monitoring studies relied upon for the listing decisions.

Remaining public comments focus primarily on alleged deficiencies in the listing, priority ranking, scheduling, and TMDL development process and activities of the Regional Board. EPA has reviewed the Regional Board's responses to these other public comments and finds that the Regional Board appropriately applied the assessment, listing, and prioritization criteria described in the State Guidelines.

3.12.6 Other Information Requested by EPA

EPA did not request additional information from the Regional Board aside from our written comments, to which the Regional Board adequately responded. Because no additional information was requested, the requirements of 40 CFR 130.7(b)(6)(iv) have been met.

4. Rationale for EPA Decisions to Partially Disapprove State Listing Decisions and to Add Waters To California's 303(d) List

As discussed briefly in the sections above addressing the listing decisions of the State Board, San Francisco Bay Regional Board, and Central Valley Regional Board, the State's decisions not to list several waterbodies and/or pollutants are inconsistent with federal listing requirements. This section describes the basis for EPA's decisions to (1) disapprove the State's failure to list these waterbodies and/or pollutants for currently listed waterbodies, and (2) identify these waterbodies for inclusion on the final 1998 303(d) list for California. The table below summarizes these waterbody/pollutant additions.

Each waterbody and pollutant on the 303(d) list receives a priority ranking which determines the order of TMDL development. In establishing priority rankings, the State considered the following factors, which address severity of pollution and the uses to be made of the listed waters, as well as other relevant factors (SWRCB, 1997a and USEPA, 1997c):

- waterbody significance (e.g., importance and extent of beneficial uses),
- degree of impairment or threat,
- conformity with related activities in the watershed (e.g., other pollution control or assessment activities),
- potential for beneficial use protection or recovery,
- degree of public concern, and
- available information.

EPA is applying these same priority ranking factors in proposing priority rankings for TMDL development for each waterbody and/or pollutant which EPA is identifying for inclusion on the 303(d) list. This priority ranking is intended to guide the order in which TMDLs should be initiated and developed, and is not intended to express EPA's overall judgement of the significance of a pollutant issue in a particular location. In many cases, other activities to address the listed pollutant(s) are expected to proceed prior to and in conjunction with TMDL development.

EPA Additions to 1998 California 303(d) List

Regional Board	Waterbody/Segment	Pollutant(s)	Priority Ranking
North Coast (1)	Stemple Creek Estero de San Antonio	nutrients	low
San Francisco Bay (2)	San Francisco Bay (all segments): - Central S.F. Bay - Lower S.F. Bay - South S.F. Bay - Carquinez Strait - Richardson Bay - San Pablo Bay - Suisun Bay - Sacramento San Joaquin Delta	dioxin-like compounds* DDT dieldrin chlordane	high low low low
San Francisco Bay (2)	Lake Merritt	dissolved oxygen floating material	low low
San Francisco Bay (2)	Mt. Diablo Creek, Pine Creek, Pinole Creek, Rodeo Creek, San Pablo Creek, Walnut Creek, Wildcat Creek, Laurel Creek, Ledgewood Creek, Suisun Slough, Arroyo Corte Madera del Presidio, Corte Madera Creek, Coyote Creek (Marin County), Gallinas Creek, Miller Creek, Novato Creek, San Antonio Creek, San Rafael Creek, San Mateo Creek, Calabazas Creek, Coyote Creek (Santa Clara County), Guadalupe River, Los Gatos Creek, Matadero Creek, Permanente Creek, San Felipe Creek, San Francisquito Ck., Saratoga Creek, Stevens Creek, Alameda Creek, Arroyo de la Laguna, Arroyo Del Valle, Arroyo Hondo, San Leandro Creek, San Lorenzo Creek	diazinon	low
Los Angeles (4)	Santa Clara River, Reaches 7 and 8	chlorides	medium
Central Valley (5)	Stockton Deep Water Channel	dioxins PCBs	medium

* Dioxin-like compounds include 7 types of dioxin, 10 types of furans, and 12 types of PCBs. See list of specific compounds in section 4.2.

4.1 Stemple Creek and Estero de San Antonio-- nutrients

The Regional Board removed Stemple Creek and Estero de San Antonio from the 303(d) list because the TMDLs for these two waterbodies were adopted by the Regional Board shortly before the 1998 303(d) listing decisions were made by the Regional Board. However, because the final TMDLs for Stemple Creek and Estero de San Antonio have not been submitted to or approved by EPA, and no evidence exists in the record indicating that they are no longer impaired, these waters do not meet the delisting criteria and must remain listed on the 1998 303(d) list. Impaired waters must generally remain on the 303(d) list until TMDLs for these waters are submitted to and approved by EPA (40 CFR 130.7). This has not yet occurred for Stemple Creek and Estero de San Antonio.

EPA is disapproving the State's decision not to list these waters and identifying these waters for inclusion on the 1998 303(d) list. EPA remains supportive of these TMDLs as they were drafted by the Regional Board, and EPA hopes the State will adopt and submit these TMDLs in the near future. After EPA reviews and approves TMDLs for Stemple Creek and Estero de San Antonio, the State would be able to remove them from the 303(d) list during the next listing revision.

Low priorities for TMDLs are being proposed for Stemple Creek and Estero de San Antonio based primarily on the facts that the TMDLs are essentially done and have already been approved by the Regional Board with no significant opposition. The TMDLs need only to be formally adopted by the State and submitted for EPA approval. Other considerations in setting the priority ranking include:

- Beneficial uses of Stemple Creek and the Estero are of moderate importance (e.g., they have supported anadromous fish habitat in the past).
- The degree of impairment is historically severe, but significant improvements in water quality conditions have occurred over the past few years.
- The TMDL is essentially completed; therefore, this TMDL should not require significant effort to complete and submit to EPA.
- No member of the public raised issues concerning these waters during the 303(d) listing cycle.
- The potential for beneficial use recovery through TMDL implementation is unknown.
- It appears that adequate data were available to develop a TMDL.

4.2 San Francisco Bay-- dioxin-like compounds, dieldrin, chlordane, and DDT

San Francisco Bay was listed by the State for several pollutants including mercury, PCBs, other metals and exotic species. The State's listings include dioxin-like PCBs.

EPA is identifying dioxin-like compounds for inclusion on the 303(d) list for San Francisco Bay (including all Bay segments), based on (1) the reference to these pollutants in a

State fish consumption advisory issued December, 1994 (referenced in comment letters (SFRWQCB, 1998a), and Regional Board letter to EPA (SFRWQCB, 1998b) and (2) EPA's analysis of available data which indicate potential health risk from eating fish contaminated with these pollutants. EPA has concluded that the fish consumption beneficial use of San Francisco Bay is being impaired, and that narrative standards which prohibit the discharge of toxic pollutants in amounts which adversely affect beneficial uses are not being met.

"Dioxin-like compounds" are a group of dioxins, furans, and dioxin-like PCBs which are chemically similar and cause similar health effects.¹ EPA is defining the listing in terms of "dioxin-like compounds" because they are chemically similar, have similar neuro-toxicological effects, and are generally studied together. Because the State has already listed dioxin-like PCBs, the practical effect of this additional listing is to add dioxins and furans to the list.

EPA is identifying dieldrin, chlordane, and DDT for inclusion on the 303(d) list based primarily on the fish consumption advisory for San Francisco Bay which mentions these pesticides. Dieldrin, chlordane, and DDT are all types of pesticides currently banned from use. This fish consumption advisory includes these pollutants along with mercury and PCBs (which were listed by the Regional Board) and dioxins in the list of pollutants suspected of causing human health risk to members of the public who consume fish caught in San Francisco Bay. Although the fish advisory lists "pesticides like DDT" among the pollutants of concern, the press release issued by the Regional Board in December 1994 (attached to SFRWQCB, 1998b) specifically cites dieldrin, chlordane, and DDT as the specific pesticides of concern in the advisory. Based on this clarification, EPA is identifying these three specific pesticides for inclusion on the list instead of the more general (and less workable) "pesticides" pollutant

¹ Dioxin-like compounds include the following pollutants:

<u>Dioxins</u>	<u>Furans</u>	<u>Dioxin-like PCBs</u>
2,3,7,8-TCDD	2,3,7,8-TCDF	3,4,4',5'-TCB (81)
1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	3,3',3,3'-TCB (77)
1,2,3,4,7,8-HxCDD	2,3,4,7,8-PeCDF	3,3',4,4',5'-PeCB (126)
1,2,3,6,7,8-HxCDD	1,2,3,4,7,8-HxCDF	3,3',4,4',4,4'-HxCB (169)
1,2,3,7,8,9-HxCDD	1,2,3,6,7,8-HxCDF	2,3,3',4,4'-PeCB (105)
1,2,3,4,6,7,8-HpCDD	1,2,3,7,8,9-HxCDF	2,3,4,4',5'-PeCB (114)
	2',3,4,6,7,8-HxCDF	2,3',4,4',5'-PeCB (118)
	1,2,3,4,6,7,8-HpCDF	2',3,4,4',5'-PeCB (123)
	1,2,3,4,7,8,9-HpCDF	2,3,3',4,4',5'-HxCB (156)
	OCDF	2,3,3',4,4',5'-HxCB (157)
		2,3',4,4',5,5'-HxCB (167)
		2,3,3',4,4',5,5'-HpCB (189)

category. Some additional information is in the record concerning contamination of San Francisco Bay fish by dieldrin, chlordane, and DDT (USEPA, 1997d, cited by commenter to Regional Board, RWQCB, 1998a). An EPA assessment of fish consumption risk found that dieldrin, chlordane, and DDT are responsible for a total of 9.9% of the total increased cancer risk due to consumption of Bay fish (USEPA, 1997d). This risk assessment found that individual excess lifetime cancer risk associated with these three pesticides is in the range of $2.0-3.9 \times 10^{-5}$ -- about an order of magnitude higher than the generally recognized "acceptable" cancer risk of 10^{-6} . This information provides support to the finding that dieldrin, chlordane, and DDT are contributing to the impairment of the fish consumption beneficial use. EPA has concluded that the fish consumption beneficial use of San Francisco Bay is being impaired, and that narrative standards which prohibit the discharge of toxic pollutants in amounts which adversely affect beneficial uses are not being met.

EPA is identifying dioxin-like compounds, dieldrin, chlordane, and DDT for inclusion on the 303(d) list for all Bay segments because the Regional Board listed all Bay segments for PCBs and mercury based on the fish consumption advisory. The advisory covers the Bay itself and not its tributaries.

Additional Discussion of Dioxin-Like Compounds

Members of the public submitted several types of information concerning dioxins, furans, and PCBs in San Francisco Bay and its tributaries, including fish tissue data, stormwater monitoring data, the fish consumption advisory issued by the State, an EPA risk assessment prepared for San Francisco Bay, and various supporting studies. The State fish consumption advisory refers only to dioxins and PCBs and does not mention furans. Although EPA is identifying dioxin-like compounds as a group, our analysis distinguishes dioxins and furans from dioxin-like PCBs. This is done because dioxins/furans are believed to be associated with different sources than dioxin-like PCBs, and because the State has already listed dioxin-like PCBs on the 303(d) list. We have concluded that available information indicates that significant health risk to consumers of fish from San Francisco Bay is associated with dioxins and furans in addition to health risk associated with dioxin-like PCBs for the reasons discussed below.

The State did not explicitly address the issue of whether furans should be listed along with dioxins (SFRWQCB, 1998a and 1998b). The State declined to list dioxins for the following reasons:

- water column dioxin levels did not exceed water quality criteria for dioxin,
- concentrations of dioxins and furans are within national background levels, and
- the fish consumption advisory issued by the State was an interim advisory which was not based on a quantitative risk assessment of dioxins, and which mentions dioxins only because of exceedances of screening levels used in the study of San Francisco Bay fish tissue data (i.e., the advisory was not based on dioxin risk). (SFRWQCB, 1998a, SWRCB, 1998b, OEHHA, 1998 (cited in SWRCB, 1998a)).

EPA disagrees with this rationale for not listing dioxins on the 303(d) list. First, the primary beneficial use issue of concern with dioxins is the risk to human health posed by consumption of contaminated fish tissue. Although dioxins and furans may not have been observed in ambient water column samples at levels exceeding ambient water quality standards, available evidence discussed below indicates fish tissue bioaccumulation and contamination by these long-lasting pollutants has occurred. EPA is not asserting that water-column standards for dioxin-like compounds were exceeded. Rather, the record supports a finding that the beneficial use of fish consumption is not being supported, and that the narrative standard which prohibits pollutants at levels which impair designated uses is being exceeded.

Second, the issue of national background dioxin/furan levels is not relevant to the question of whether to list San Francisco Bay for dioxins. Information about national background levels does not address potential human health risk in San Francisco Bay, where large numbers of subsistence anglers consume large amounts of fish caught in the Bay. Moreover, there is evidence that at national background levels, human health risk associated with dioxins/furans may be significant (personal communication with Arnold Den, EPA Region 9 Regional Scientist (USEPA, 1998m).

Finally, where a fishing advisory is in place, the beneficial use (fish consumption) is impaired. Absent further more detailed analysis of the relative importance of individual pollutants to that risk, it would be reasonable to conclude that all individual pollutants identified in the advisory as contributing to the fish consumption risk should be listed on the 303(d) list. Moreover, EPA did conduct a more detailed analysis of available data. EPA's review of available evidence indicates that dioxins/furans are a significant contributor to fish consumption risk in San Francisco Bay, as discussed below.

The Regional Board and the California Office of Environmental Health Hazard Assessment (OEHHA) imply that pollutants identified in the fish advisory which were not subjected to a quantitative risk assessment (dioxins, dieldrin, chlordane, and DDT) should not be listed on the 303(d) list because these pollutants were identified in the advisory solely on the basis of exceedence of screening levels which are not clearly indicative of human health risk. (SFRWQCB, 1998a and 1998b). The State asserts that the screening levels were not intended to reflect actual thresholds of human health risk, but instead to indicate fish tissue levels which should trigger further investigation. In contrast, PCBs and mercury were identified as significant risk sources through a quantitative risk assessment conducted by the State.

EPA believes there is additional evidence of health risk associated with dioxins/furans, in particular, based on other analysis of available fish tissue data (EPA, 1997d-- (CTR Risk Assessment, pp 3-30 - 3-44) and EPA 1998g). EPA understands that the State's position is that available fish tissue data for the Bay do not indicate the presence of actual human health risk due to fish consumption associated with dioxins (OEHHA, 1998 and SFRWQCB, 1998a). EPA's risk assessment prepared for the California Toxics Rule Economic Analysis (EPA, 1997d did identify significant potential human health risk due to dioxins based on a conservative risk assessment

procedure. The risk assessment estimated that individual excess lifetime cancer risk associated with dioxin for the 90th percentile fish consumption level (107.1 g/day) is 3.8×10^{-4} . That study concluded that "PCBs, mercury, and dioxin are the contaminants with the greatest potential to cause adverse (cancer) health effects for Bay anglers" (EPA 1997d, p. 3-39).

EPA also evaluated Bay fish tissue data using EPA national guidance for developing fish consumption advisories. The average chemical concentration of dioxins and furans in fish tissue samples for San Francisco Bay was about 1.6 parts per trillion (ppt). EPA's national guidance for assessing fish tissue data for use in fish advisories indicates that where fish tissue dioxin/furan levels are on the order of 2 ppt, consumption of three fish meals a month (0.5 pound portions) would be associated with a cancer risk level of 10^{-4} . (USEPA, 1997a, p. 4-68). This cancer risk level is 10-100 times higher than the risk level usually defined as acceptable. Information submitted by a commenter suggests that many regular consumers of Bay fish consume far more than 1.5 pounds of fish per month on average. (SFRWQCB, 1998a, comments of Communities for a Better Environment). This brief analysis suggests that increased cancer risk associated with dioxins/furans in Bay fish may be significant even at fairly low fish consumption levels.

EPA also conducted a more detailed reevaluation of the fish tissue data in order to better understand some of the issues raised by the State concerning data quality and the relative importance of dioxins/furans as compared to dioxin-like PCBs (USEPA, 1998g). During the comment period, commenters and the State disagreed about the interpretation of available data based largely on two factors-- how non-detects were treated in the risk assessments and whether dioxin/furan risk is significant when distinguished from PCB risk. EPA's data review had two goals-- (1) evaluate the extent to which the use of one-half the detection limit for non-detectable tissue concentrations affected risk assessment conclusions, and (2) separate the risks associated with dioxins/furans versus PCBs. Although the data are limited, this analysis suggests that the calculated risk is considerably reduced if only measured concentrations of dioxins/furans are used and that the co-planar (dioxin-like) PCBs constitute a 5-60 fold greater risk than the dioxins/furans. Nonetheless, even when the non-detects were excluded, the average dioxin/furan tissue residues significantly exceeded the suggested screening level of 0.15 ppt TEQ. EPA understands that this screening level is not a definitive measure of dioxin/furan related risk; however, it does provide an additional point of reference in evaluating the probability that dioxins/furans contribute to fish consumption risk.

Other information and data provided by commenters concerning dioxin related health risk and aquatic life impacts was inconclusive. Most of the additional data was for stormwater and facility discharges to tributaries to San Francisco Bay, which are not directly indicative of receiving water levels of dioxin-like compounds. In addition, several papers and journal articles were provided which did not directly support additional findings of beneficial use impairment due to dioxins and furans. In particular, a conclusive case was not made regarding aquatic life impairment associated with dioxins and furans. See responsiveness summary (USEPA, 1998k).

In summary, our review of the underlying data, the State's analysis, and public comments on

dioxin/furan contamination indicates that there is evidence of dioxin/furan-related health risk associated with eating fish from the Bay. This evidence is not definitive enough to support an analysis of the exact level of risk associated with these pollutants. However, the existence of the fish consumption advisory combined with available information suggesting probable fish tissue contamination provides a sufficient rationale to list San Francisco Bay segments for dioxins and furans. The Bay is already being listed for dioxin-like PCBs. Therefore, the listing for dioxin-like compounds is warranted.

Priority Ranking

EPA is identifying a high priority ranking for development of TMDLs for dioxin-like compounds and low TMDL development priority rankings for dieldrin, chlordane and DDT. This proposed decision is based on the following assessment of the ranking factors listed above. This report discusses priority ranking issues concerning dioxins in greater detail than for other waters or pollutants proposed for addition to the 303(d) list due to the level of commenter interest in this issue.

Waterbody Significance

Because large numbers of subsistence anglers consume large amounts of fish caught in San Francisco Bay, the beneficial use affected by issuance of the fish advisory including dioxin-like compounds, dieldrin, chlordane, and DDT is highly important.

Degree of Impairment or Threat

The Regional Board and OEHHA strongly disagree with conclusions drawn by some commenters concerning the degree of human health risk attributable to dioxin/furan contamination of San Francisco Bay. There was no disagreement concerning the risks associated with dioxin-like PCBs. EPA reviewed the technical data, information, and analysis submitted by commenters and found evidence that dioxins/furans as well as dioxin-like PCBs are causing or contributing to human health risk to anglers in San Francisco Bay. In addition, an EPA risk assessment prepared for the California Toxics Rule economic analysis suggests that dioxin-like compounds are present at levels of significant concern for human health risk. Information concerning alleged impairment of aquatic life beneficial uses which was provided by commenters was inconclusive.

The EPA risk assessment prepared for the California Toxics Rule indicated that increased cancer risk to San Francisco Bay fishers associated with dieldrin, chlordane, and DDT exists but is relatively low (about the 10^{-5} level). No other information concerning the degree of impairment associated with DDT, dieldrin, or chlordane was available in the record. Therefore, the degree of impairment or threat associated with these pesticides is not fully understood but is believed to be relatively low.

Conformity with Related Activities

As listed above, several assessment and control activities are underway which, when completed over the near term will more clearly set the stage for productive efforts to establish TMDLs for dioxin-like compounds. It may be feasible to plan these assessment activities in a way that facilitates collection of data and information needed to develop TMDLs for dioxin-like compounds. These other activities include:

- EPA's completion of the final national dioxin health risk study,
- EPA's completion of the California Toxics Rule, which will result in the establishment of numeric water quality standards for the most toxic form of dioxin, 2,3,7,8-TCDD,
- additional San Francisco Bay fish tissue sampling and analysis for dioxin, PCBs, furans, mercury, and pesticides,
- completion of a more thorough dioxin risk assessment for San Francisco Bay based on a larger fish tissue data set and consideration of higher fish consumption levels by some anglers
- OEHHA's completion of a final fish consumption advisory for San Francisco Bay which more carefully examines all the pollutants identified as concerns in the interim advisory.

While these activities are underway, the Regional Board is expected to build analytical capacity it will need to establish TMDLs for dioxin-like compounds, dieldrin, chlordane, and DDT. The Regional Board is currently developing as high priority TMDLs for several toxic pollutants, including mercury, copper, and nickel. The mercury TMDL will directly address one of the most significant contributors to human health risk due to fish consumption in San Francisco Bay. The Regional Board is also developing TMDLs for exotic species in San Francisco Bay. Through development of these TMDLs, the Regional Board is expected to develop a much more sophisticated understanding of Bay hydrodynamics, pollutant loadings from land and air sources, and toxics bioaccumulation-- areas of knowledge that will be vital for development of TMDLs for dioxin-like contaminants and which may assist in development of dieldrin, chlordane, and DDT TMDLs. However, because discharges of dioxin-like compounds are associated primarily with different sources than the metals currently being addressed by the Regional Board, these current activities would not directly support development of TMDLs for dioxin-like compounds.

Based on the listing record, EPA is unaware of existing or planned activities which could be of direct assistance in developing TMDLs for dieldrin, chlordane, or DDT. The knowledge developed through the completion of the Regional Board's high priority TMDLs could be of general use in the future development of TMDLs for these pesticides.

Potential for Beneficial Use Protection or Recovery

Risk to human health associated with dioxin-like compounds is believed to derive primarily from dietary sources, including fish. Food chain accumulation of these compounds in fish tissue occurs over a multi-year time frame, and these compounds tends to remain in fish tissue. Once these compounds enters the human body, they are persistent toxins which remains in human tissue for long periods of time. It appears that average national human cancer risk

associated with existing body burdens of dioxin-like compounds is at the 10^{-4} level, (personal communication with Arnold Den, Regional Scientist, EPA Region 9, (USEPA, 1998m)). It is unlikely that there would be a rapid reduction in human health risk following further reductions of dioxin-like compound discharges into the environment. However, there are believed to be ongoing discharges of dioxin-like compounds to the environment, and there may be some potential to reduce human health risk by addressing these ongoing sources.

Few if any new discharges of dieldrin, chlordane, or DDT are believed to occur (personal communication with Arnold Den, EPA Regional Scientist (USEPA, 1998m)). Therefore, it is unlikely that TMDLs for these pesticides would identify readily controllable ongoing discharge sources. These pesticides are long-lived in the environment, and can be expected to contribute to human health risk for significant periods of time. It is unlikely that substantial reductions in human health risk can be expected pursuant to TMDL development.

Degree of Public Concern

Several environmental and community groups have expressed strong concerns about dioxins and PCB contamination of San Francisco Bay fish through their comments to the Regional Board. The National Environmental Justice Advisory Committee passed a resolution calling on EPA to list dioxins and PCBs on the 303(d) list for San Francisco Bay.

No public concern has been expressed during the listing process concerning dieldrin, chlordane, and DDT in San Francisco Bay.

Available Information

Less than 20 fish tissue samples have been analyzed for dioxins and furans for San Francisco Bay. Conflicting information has been introduced into the record concerning sources of dioxin-like compounds sources. The relative importance of air deposition and water-borne sources is poorly understood. The actual levels of dioxin-like compounds in fish tissue which are associated with human health risk, and the relative importance of PCBs, furans, and dioxins in causing human health risk are also poorly understood. Additional information on levels of dioxin-like compounds in San Francisco Bay fish, local sources, and the relative importance of individual compounds in causing human health risk will be needed before a TMDL can be developed. The Regional Board has expressed concern about dioxin-like compounds, and it may be feasible to begin collection of needed information given the existing levels of State and public interest in this pollutant issue.

The listing record does not indicate the level of available information concerning dieldrin, chlordane, and DDT and San Francisco Bay. EPA expects that substantial information may be available concerning levels of the pollutants in at least some parts of the Bay.

Analysis of Priority Ranking for Dioxin-like Compounds

Factors which point toward a higher priority for TMDL development include:

- the importance of subsistence fish consumption to certain Bay Area populations,
- the potential degree of existing risk to those populations,
- the high degree of public concern, and
- the likelihood that additional data and information about dioxin-like compounds will be collected in the near future.

Factors which point to a lower priority for TMDL development include:

- the lack of conclusive evidence concerning the level of risk in the Bay associated with dioxin-like compounds,
- the prospective difficulty of developing TMDLs for these compounds which would have to account for air deposition and a poorly understood process for pollutant transport to Bay waters and food chain bioaccumulation, and
- the long expected timeframe for beneficial use recovery.

The primary purpose of the priority ranking is to help determine when TMDL development efforts will begin. EPA is proposing a high priority for development of TMDLs for dioxin-like compounds in order to address the high potential human health risk associated with these contaminants and encourage the collection of data and information needed to understand and reduce uncertainties about these risks. Because it may take a significant period of time to develop TMDLs for dioxin-like contaminants, it makes sense to begin that effort sooner rather than later.

Low priorities for TMDLs are being proposed for DDT, dieldrin, and chlordane based on the following considerations:

- The beneficial use affected by these pesticides is highly significant.
- The degree of use impairment is unknown, but the proportion of risk associated with these pesticides is believed to be relatively low.
- TMDLs for these pesticides would not clearly fit with any currently planned activities.
- Potential for beneficial use recovery through TMDL development appears to be low.
- Public concern over this issue was low.

4.3 Lake Merritt-- dissolved oxygen and floating material

No information concerning assessment of Lake Merritt was contained in the San Francisco Bay Regional Board's decision record. Lake Merritt Institute provided written comments to State Board, to which the State provided no response (Letter from Lake Merritt Institute to SWRCB, May 4, 1998 (SWRCB, 1998a, Letter Number 19, Attachment N). Therefore, EPA considered whether these comments provided data and information supporting 303(d) listing of Lake Merritt. Lake Merritt Institute provided specific data concerning dissolved oxygen levels in

Lake Merritt which exceed applicable numeric objectives. For example, data cited for one arm of Lake Merritt indicate that the average dissolved oxygen concentration was 2.9 mg/l in data reported in 1995, significantly below the standard of 5.0 mg/l. In addition, the Institute documented the removal of over 14 tons of floating debris from the Lake during the 1997 rain season, indicating that the applicable narrative standard for floating debris is being exceeded.

Less compelling information and data were provided concerning toxic pollutants in sediments, oil, and grease. See section 3.2.2 for a discussion of the State's rationale for not relying solely on the type of information provided by the commenter concerning toxic pollutant levels in sediment as the basis for new 303(d) listings. Although the State did not respond to this data in the context of Lake Merritt, the same rationale for not listing this waterbody for these pollutants applies here. In addition, no specific data or information was provided to support the assertion that oil is present at levels which violate the applicable narrative objective.

EPA finds the data and information provided by the commenter adequate to support a decision to disapprove the State's decision not to list Lake Merritt for dissolved oxygen and floating material. The State failed to provide a rationale for not using this data and information, as required by 40 CFR 130.6 (b)(6). Therefore, EPA is proposing Lake Merritt for inclusion on the 303(d) list for these pollutants.

EPA is proposing a low priority for TMDL development based on the following factors.

- Beneficial uses of Lake Merritt are of moderate importance (e.g., it is an important bird habitat area and receives extensive non-contact recreation use associated with its location in the middle of Oakland).
- The degree of impairment is moderate (e.g., there have not been extensive fish kills or algae blooms associated with low dissolved oxygen levels to our knowledge, impacts to birds and fish from floating debris are unknown, and recreational uses continue despite the unsightly appearance of floating debris).
- EPA is unaware of planned activities which would dovetail with TMDL development for Lake Merritt, although some opportunity for coordination with the NPDES stormwater permit renewal may be possible.
- Except for the commenter, no member of the public raised issues concerning Lake Merritt during the 303(d) listing cycle.
- The potential for beneficial use recovery through TMDL implementation is unknown.
- It appears that relatively little data are currently available.

4.4 San Francisco Bay Area Urban Streams-- diazinon

The San Francisco Bay RWQCB's analysis of data sources identified by San Francisco Bay Keeper during the State comment process was provided to EPA after the State had submitted its final listing package. The Regional Board concluded that the data sources identified by the commenter support a finding that diazinon is causing ambient toxicity in most if not all urban streams in the San Francisco Bay area and that major streams should be listed on the 303(d) list. (SFRWQCB 1998b). The Regional Board provided a list of 35 major streams which meet the listing requirements. Although this analysis was completed in response to comments, after the State had completed its 303(d) listing actions, the Regional Board did provide the information in response to EPA's comments to the State Board concerning the need to evaluate information sources listed by San Francisco BayKeeper. Therefore, EPA is disapproving the State's decision not to list 35 streams for diazinon and is proposing to list these streams on the 303(d) list for diazinon. EPA is proposing to list these streams as a low priority based on the following factors:

- Together, the beneficial uses impacted by pesticide toxicity are moderately significant.
- The degree of impairment appears to be moderate.
- Multiple activities to control diazinon runoff and water body contamination are currently underway under the auspices of the stormwater permit program and programs of the Department of Pesticide Regulation. No activities are underway or planned which would result in TMDL development.
- As diazinon is relatively short lived in the environment, the potential for beneficial use recovery is high.
- Degree of public concern is low to moderate.
- A moderately rich data base of urban stormwater runoff data including diazinon testing is available.

4.5 Santa Clara River Reaches 7 and 8-- chlorides

The Los Angeles RWQCB listed Santa Clara River Reaches 7 and 8 for chlorides. The State Board subsequently removed the chloride listing for these reaches. The rationale provided by the State Board for removing chloride for the Santa Clara River, Reaches 7 and 8 from the 1998 303(d) list adopted by the Los Angeles Regional Board was that the "chloride objective was considered to be too stringent" (SWRCB, 1998a, pg. 9). The information presented to the State Board, including testimony by a representative from the Los Angeles Regional Water Quality Control Board, indicated that the chloride objective currently in effect for the Santa Clara River is being exceeded (SWRCB, 1998b). Furthermore, no indication was given that effluent limits or other pollution control requirements would result in attainment of water quality standards. A State decision to decline a waterbody listing based on concerns about the appropriateness of the applicable water quality standard is inconsistent with the regulatory requirement to apply applicable standards in the listing process. Therefore, the EPA has determined that the State inappropriately failed to identify the Santa Clara River, Reaches 7 and 8 as a water quality limited segment for chloride as required by 40 CFR 130.7(b). The EPA is disapproving the State's

decision not to list these reaches of the Santa Clara River for chlorides and is proposing to add chlorides for the Santa Clara River, Reaches 7 and 8 to the State's 303(d) list.

EPA is proposing a medium priority for TMDL development based on the following factors:

- The beneficial uses impacted by chlorides are moderately significant (some irrigated agricultural uses).
- The degree of impairment appears to be low to moderate.
- The Regional Board is currently conducting studies in cooperation with local stakeholders to reevaluate the chloride standards and assess sources. These activities could set the stage for modification of the standards (which could obviate the need for TMDLs), or provide the information needed to complete the TMDLs. These studies are scheduled for completion over the next 2-4 years.
- Additional chloride reductions are likely to be difficult to achieve as a main source of chloride inputs appears to be drinking water imported into the basin. The potential for beneficial use recovery is moderate.
- Degree of public concern is low to moderate.
- A moderately rich data base exists, and more waterbody and source analysis is being conducted as part of the study mentioned above.

4.6 Stockton Ship Channel-- dioxins and PCBs

During testimony to the State Board on the 303(d) list, the DeltaKeeper commented that the California Department of Health Services (DHS) issued a fish consumption advisory for Stockton Deep Water Channel due to elevated dioxin and PCB levels found in fish tissue samples collected at various locations in this waterbody. (DHS, 1998). The State did not respond to this comment. EPA evaluated this advisory and the risk analysis underlying it, and concludes that this data and information was existing and readily available, and provides support for listing the Stockton Deep Water Channel for dioxins and PCBs. The State did not provide a rationale for not using this data and information as required by 40 CFR 130.7(b)(6). Therefore, EPA is disapproving the State's decision not to list Stockton Deep Water Channel for dioxins and PCBs and is identifying this waterbody for inclusion on the 303(d) list for dioxins and PCBs.

EPA is identifying a medium priority for TMDL development based on the following factors:

- Sportfishing and subsistence fishing are believed to be significant waterbody uses in this area.
- The degree of impairment appears to be moderate to high.

- Activities to address the sources of these pollutant discharges are underway (e.g., toxic site cleanups). These activities may adequately address PCB and dioxin sources, rendering a TMDL unnecessary. EPA is unaware of other activities which are underway or planned in the near future which would provide the basis for TMDL development.
- The potential for beneficial use recovery is unknown, but PCBs and dioxins tend to be long-lasting pollutants which remain in the foodchain for long periods of time. There may be significant lag time between the elimination of terrestrial sources of these pollutants and substantial reductions in fish tissue contamination.
- Degree of public concern is unknown, but only one comment was made about this issue during the 303(d) listing process.
- Some information is available about PCB and dioxin levels in fish in this waterbody as well as potential sources of concern. More information would need to be collected prior to TMDL development if the site cleanups do not fully address the problem.

4.7 Next Steps

EPA will provide opportunities for public review and comment on its identification of additional waters and pollutants for inclusion on the 303(d) list, as identified in table 4.1, along with priority rankings. Because TMDL development schedules are not a required element of the State 303(d) list, EPA is proposing no TMDL development schedules for these waters.

EPA is also providing the opportunity for the public to review the State's listing of Coyote Creek in the Los Angeles Region for toxicity because the State did not provide the opportunity for public review of its decision to list this waterbody for toxicity.

EPA's decisions to partially approve California's 303(d) list and associated priority rankings is a final decision which is not subject to further public review because the State provided ample opportunity for review of the State listing decisions.

All the reference materials cited in this report along with the State's submittal record are available in EPA's administrative record and are available for public review in EPA's San Francisco office. EPA will consider all written comments received concerning the proposed waterbody and pollutant additions to the list, and associated priority rankings, prior to reaching its final decisions, and will notify interested parties of the final results.

EPA is inviting comments on its identification of the waters/pollutants identified in table 4.1 for inclusion on the 303(d) list. In particular, EPA invites additional data and information on any of these waterbodies which was not available to the State or EPA during the listing cycle. EPA also invites public comment concerning EPA's evaluation of available data and information and of the State's analysis of available data and information concerning these waterbodies.

EPA is also inviting public comment on the priority rankings identified for each waterbody EPA has identified for inclusion on the 303(d) list, including comments on EPA's analysis of

ranking factors applied in the ranking decisions.

5. References

Note: These are the primary documents relied upon by EPA in its decision, but may not comprise the entire administrative record.

North Coast RWQCB (Region 1)

NCRWQCB, 1997a. Letter from Benjamin Kor to David Smith, USEPA concerning Stemple Creek Watershed TMDLs. December 19, 1997.

NCRWQCB, 1997b. Executive Officer's Summary Report. Item 6. Public Hearing to Consider Adoption of the 1998 Water Quality Assessment and Revisions to the Clean Water Act Section 303(d) List of Waterbodies for the North Coast Region., November 10, 1997. With Attachments.

NCRWQCB, 1998a. Clean Water Act Section 303(d) Package. Memorandum from Bruce Gwynne to Nancy Richard, SWRCB, March 9, 1998. With Attachments.

San Francisco Bay RWQCB (Region 2)

SFRWQCB, 1998a. Section 303(d) List of Impaired Water Bodies and Priorities for Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region. Memorandum from Loretta K. Barsamian to Walt Pettit, SWRCB, March 9, 1998.

SFRWQCB, 1998b. Letter from Loretta Barsamian to Alexis Strauss, USEPA providing supplemental responses to public comments, July 14, 1998.

SFRWQCB, 1998c. Transcript of Hearing, March 9, 1998.

Central Coast RWQCB (Region 3)

CCRWQCB (California Regional Water Quality Control Board, Central Coast Region), 1997a - Memo to Interested Parties from Roger Briggs, Executive Officer, California Regional Water Quality Control Board, Central Coast Region; Subject: Public Comment for Updates to the Regional Water Quality Assessment (305(b) report) and List of Impaired Water Bodies (303(d) list); October 14, 1997.

CCRWQCB, 1997b - Staff Report for Regular Meeting of January 30, 1998; Prepared December 10, 1997; Item: 19; Subject: 303(d) List of Impaired Water Bodies.

CCRWQCB, 1998a - Notice of Public Comment Period Regarding the Clean Water Act Section 303(d) List of Impaired Waterbodies within the Central Coast Region and Schedules for Development of Total Maximum Daily Loads (TMDLs); Roger Briggs, Executive Officer; March 2, 1998.

CCRWQCB, 1998b - Supplemental Sheet for Regular Meeting of January 30, 1998; Prepared January 21, 1998; Item: 19; Subject: Changes to 303(d) List of Impaired Water Bodies.

CCRWQCB, 1998c - Letter to Joseph Karkoski, US EPA from Roger Briggs, Executive Officer, California Regional Water Quality Control Board, Central Coast Region; Subject: Clarification of the Central Coast Regional Board's 1998 303(d) List Submittal; July 21, 1998.

CCRWQCB, 1998d - Minutes of Regular Meeting; Friday, January 30, 1998; Regional Water Quality Control Board.

CCRWQCB, 1998e - Memo from Roger Briggs, Executive Officer to Jesse Diaz, Chief, Division of Water Quality, State Water Resources Control Board; March 24, 1998; Subject: 303(d) List Submittal.

CCRWQCB, 1998f - Memo from Roger Briggs, Executive Officer to Jesse Diaz, Chief, Division of Water Quality, State Water Resources Control Board; April 15, 1998; Subject: Public Comments Regarding February 10, 1998 303(d) List.

CCRWQCB, 1998g - Staff Report for Regular Meeting of May 28 and 29; Prepared on April 28, 1998; Item: 23; Subject: Changes to the 303(d) List of Impaired Water Bodies.

CCRWQCB, 1998h - Minutes of Regular Meeting; May 28-29, 1998; Regional Water Quality Control Board, pg. 14.

CCRWQCB, 1998i - Letter to Joseph Karkoski, US EPA from Roger Briggs, Executive Officer, California Regional Water Quality Control Board, Central Coast Region; Subject: Clarification of Carpinteria Marsh Listing; July 23, 1998.

Los Angeles RWQCB (Region 4)

LARWQCB, 1998a. The 303(d) Impaired Waters List Documentation. Memorandum from Mark Smythe to Nancy Richard, SWRCB, April 24, 1998. With attachments.

LARWQCB, 1998b. Transcript of Regional Board Hearing, April 24, 1998.

Central Valley RWQCB (Region 5)

CVRWQCB (California Regional Water Quality Control Board, Central Valley Region), 1997 - Letter to Interested Parties from Jerrold A. Bruns, Chief, Standards, Policies, and Special Studies Section; Solicitation of Information for the Development of the 1998 Section 303(d) List and TMDL Priority for the Central Valley Regional Board; November 17, 1997.

CVRWQCB, 1998a - Letter to Interested Parties from Jerrold A. Bruns, Chief, Standards, Policies, and Special Studies Section; Development of the 1998 Section 303(d) List and TMDL Priority for the Central Valley Regional Board; January 5, 1998.

Attachment 1 - Buff Sheet (Item 12; 1998 Clean Water Act Section 303(d) List for Impaired Water Bodies and the Total Maximum Daily Load (TMDL) Priority List for Impaired Water Bodies - *Consideration for Approval*; Central Valley Regional Water Quality Control Board 1998 Clean Water Act Section 303(d) List

Attachment 2 - 1998 Clean Water Act (CWA) Section 303(d) Listing Guidelines for California (August 11, 1997)

Attachment 3 - Explanation of Recommended Changes for 1998 Clean Water Act Section 303(d) List

CVRWQCB, 1998b - Letter to Interested Parties from Jerrold A. Bruns, Chief, Standards, Policies, and Special Studies Section; Responsiveness Summaries for the 1998 Section 303(d) List and TMDL Priority for the Central Valley; March 13, 1998.

Attachment 1 - Central Valley Regional Water Quality Control Board 1998 Clean Water Act Section 303(d) List

Attachment 2 - Meeting Agenda; Central Valley Regional Water Quality Control Board; Friday, 23 January 1998

Attachment 3 - Late Changes to the 1998 CWA Section 303(d) List

Attachment 4 - Responsiveness Summary for the Central Valley RWQCB's Adoption of the CWA Section 303(d) List and TMDL Priorities

Attachment 5 - Responsiveness Summary (2) for the Central Valley RWQCB's Adoption of the CWA Section 303(d) List and TMDL Priorities

CVRWQCB, 1998c - Letter from Sue Yee, Associate Water Resources Control Engineer, Planning Section to Joe Karkoski, California TMDL Coordinator; Subject: Clarification of the Central Valley Regional Board's 1998 303(d) List Submittal; July 21, 1998.

CVRWQCB, 1998d - State of California, California RWQCB, Central Valley Region, Minutes, 416th Regular meeting, 23 January, 1998.

CVRWQCB, 1998e - Electronic Mail from Sue Yee to Joe Karkoski, USEPA. Subject: 303(d) List, August 3, 1998.

Lahontan RWQCB (Region 6)

LRWQCB (California Regional Water Quality Control Board, Lahontan Region), 1997a - Staff Report; Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the Lahontan Region; November 1997.

LRWQCB, 1997b - Letter to Water Quality Assessment Mailing List from Ranjit Gill, Chief, Planning and Toxics Section; Transmittal of Recommended Changes to Section 303(d) List and TMDL Priorities for the Lahontan Region; November 26, 1997.

LRWQCB, 1998a - Letter to Joe Karkoski from Harold Singer, LRWQCB. Information to Supplement the Record of the LRWQCB's 1998 Section 303(d) List Update, October 5, 1998.

LRWQCB, 1998b - Summary of Public Participation and Response to Public Comments; 1997-1998 Update of the Lahontan Region's Section 303(d) List and Priorities for Developing Total Maximum Daily Loads; March 1998.

LRWQCB, 1998c- Memo from Ranjit Gill to Nancy Richard, SWRCB. Transmittal of Administrative Record for Region 6 Section 303(d) List and TMDL Priority List Update, March 25, 1998.

LRWQCB, 1998d- Memo from Ranjit Gill to Nancy Richard, SWRCB. Addendum to Administrative Record for Region 6 Section 303(d) List and TMDL Priority List Update, April 8, 1998.

Natural Resources Defense Council (NRDC, 1997) - Letter from David S. Beckman, Esq., Natural Resources Defense Council to the Executive Officers of the Regional Water Quality Control Boards and the Executive Director of the State Water Resources Control Board; Re: Impaired and Threatened Water Bodies; Clean Water Act Section 303(d) List; Clean Water Act Section 303(e); Clean Water Act Section 305(b) List; Total Maximum Daily Loads; November 25, 1997.

Colorado River RWQCB (Region 7)

CRBRWQCB (California Regional Water Quality Control Board, Colorado River Basin Region), 1997 - Letter from Phil Gruenberg, Executive Officer, California Regional Water Quality Control Board, Colorado River Basin Region to Interested Parties; Re: Notice of Public Hearing for Update of the 303(d) List of Impaired Water Bodies within the Colorado River Basin Region of California; November 24, 1997.

Attachment 1 - Notice of Application and Public Hearing for the Update of the 303(d) List of Impaired Water Bodies within the Colorado River Basin Region of California

Attachment 2 - Regional Board Staff Report on the Proposed Listing of Water Bodies within the Colorado River Basin Region on the 303(d) List of Impaired Water Bodies

CRBRWQCB, 1998a - Memo from Ray Lukens, California Regional Water Quality Control Board, Colorado River Basin Region to Nancy Richard, Division of Water Quality, State Water Resources Control Board; Subject: 1998 303(d) List of Impaired Waters; February 26, 1998.

Attachment 1 - Resolution No. 98-006; Approval of the 1998 303(d) List of Impaired Water Bodies for the Colorado River Basin Region.

Attachment 2 - See CRBRWQCB, 1997; Letters to local Newspapers and local Postmasters regarding notice of public hearing.
Attachment 3 - Comment letters received.

CRBRWQCB, 1998b - Memo from Ray Lukens, California Regional Water Quality Control Board, Colorado River Basin Region to Nancy Richard, Division of Water Quality, State Water Resources Control Board; Subject: 1998 303(d) List of Impaired Waters; April 9, 1998.

Attachment 1 - Response letters to Imperial Irrigation District and the Natural Resources Defense Council

Attachment 2 - Notice of Public Review of the Updated 1998 303(d) List of Impaired Water Bodies within the Colorado River Basin Region of California

Attachment 3 - 1998 Proposed Listing of Water Bodies within the Colorado River Basin Region on the 303(d) List of Impaired Water Bodies

CRBRWQCB, 1998c - Letter from Liann Chavez to Joe Karkoski, USEPA. Regional Board's Staff Response to EPA's Request for Clarification of CRRWQCB 1998 CWA Section 303(d) List Submittal, July 28, 1998.

Santa Ana RWQCB (Region 8)

SARWQCB (California Regional Water Quality Control Board, Santa Ana Region), 1998a - Memo dated May 19, 1998 from Gerard Thibeault, Executive Officer of the SARWQCB to Walt Pettit, Executive Director of the State Board; Subject: Response to Comments from USEPA on 303(d) List.

SARWQCB, 1998b - Memo from Hope Smythe, Chief, Planning Section, California Regional Water Quality Control Board, Santa Ana Region to Nancy Richard, Technical Support Unit, DWQ, State Water Resources Control Board; Subject: Transmittal of the 1998 Water Quality Assessment and Clean Water Act Section 303(d) List; March 16, 1998.

Attachment 1 - 303(d) list of impaired waterbodies including TMDL priority ranking and schedule, identified pollutant and pollutant sources, and extent of impairment

Attachment 2 - Water Quality Assessment

Attachment 3 - list of watersheds and waterbodies which were assessed in the current cycle. Schedule for update and review of watersheds not assessed during the 1998 update

Attachment 4 - criteria used to list or delist waterbodies as contained in the August 11, 1997 Listing Guidance Document developed by the Regional Boards, State Board and USEPA.

Attachment 5 - TMDL Documentation

Attachment 5.1 - Criteria used to prioritize TMDL Development and develop TMDL schedules. (excerpt from discussion in the March 6, 1998 Staff Report).

Attachment 5.2 - Estimate of the resource needs for TMDL development for high priority waterbodies

Attachment 6 - documentation of the public participation which includes the following:

Attachment 6.1 - Solicitation of Information Request (To: All Interested Parties from Gerard Thibeault, Executive Officer; Request for Information for the Development of the 1998 Section 303(d) List for the Santa Ana Region; October 28, 1997)

Attachment 6.2 - Public Notices

Attachment 6.2.1 - Legal Notices to Newspapers dated 12/11/97

Attachment 6.2.2 - Notice of Public Hearing to Consider Adoption of the Clean Water Act Section 305(b) Report and the Clean Water Act Section 303(d) List of Impaired Waterbodies within the Santa Ana Region; 12/10/97

Attachment 6.2.3 - Notice of Public Comment Period Regarding the Clean Water Act Section 303(d) List of Impaired Waterbodies within the Santa Ana Region and Schedules for Development of Total Maximum Daily Loads (TMDLs); 1/27/98

Attachment 6.3 - Staff Reports

Attachment 6.3.1 - Staff Report on the Regional Water Quality Assessment, Clean Water Act 305(b) Report, and 303(d) List Update; Item: 20; January 23, 1998

Attachment 6.3.2 - Staff Report on the Update of the Water Quality Assessment and Clean Water Act Section 303(d) List of Impaired Waterbodies within the Santa Ana Region; Item: 17; March 6, 1998

Attachment 6.4 - Responsiveness Summaries

Attachment 6.4.1 - Memo from Hope Smythe, Chief, Planning Section, California Regional Water Quality Control Board, Santa Ana Region to Interested Parties; Subject: Santa Ana Region Water Quality Assessment /303(d) List, Response to Comments; January 20, 1998.

Attachment 6.4.2 - Memo from Hope Smythe, Chief, Planning Section, California Regional Water Quality Control Board, Santa Ana Region to Interested Parties; Subject: Santa Ana Region Water Quality Assessment /303(d) List, Response to Comments; February 24, 1998.

Attachment 7 - list of Regional Board files which contain the respective water quality data used to update the 303(d) list.

Attachment 8 - certified copy of Resolution No. 98-33 adopting the updated WQA and 303(d) list.

SARWQCB, 1998e - Letter from Hope Smythe to Joe Karkoski, USEPA. Response to Comments from USEPA on 303(d) List, July 22, 1998.

San Diego RWQCB (Region 9)

SDRWQCB, 1998a. San Diego Region's 1998 Clean Water Act Section 303(d) List and 305(b) Report. Memorandum from Linda Pardy to Nancy Richard, SWRCB., March 17, 1998. With attachments.

State Water Resources Control Board

SWRCB (California State Water Resources Control Board), 1997a - Attachment 3 of September 13, 1997 memo from Jesse Diaz, Chief, Division of Water Quality, State Water Resources Control Board to All Regional Water Quality Control Board Executive Officers; 1998 CLEAN WATER ACT (CWA) SECTION 303(d) LISTING GUIDELINES FOR CALIFORNIA; August 11, 1997

SWRCB, 1997b - Toxic Substances Monitoring Program 1994-95 Data Report, October, 1997.

SWRCB, 1998a - California Report on Impaired Surface Waters; Prepared as Required by the Federal Clean Water Act Section 303(d); June, 1998.

SWRCB, 1998b - Tape of May 14, 1998 State Water Resources Control Board Workshop; Consideration of California's List of Impaired Surface Waters Pursuant to Federal Clean Water Act Section 303(d).

SWRCB, 1998c - Notice of Public Workshop; Consideration of California's List of Impaired Surface Waters Pursuant to Federal Clean Water Act Section 303(d); Thursday, May 14, 1998; Notice Date - April 14, 1998.

SWRCB, 1998d - State Water Resources Control Board Meeting Agenda; Wednesday, May 27, 1998; Agenda Item 18.

SWRCB, 1998e - Letter from Walt Pettit, Executive Director, State Water Resources Control Board to David S. Beckman, Natural Resources Defense Council; Re: Impaired and Threatened Water Bodies; Clean Water Act Section 303(d) List; Clean Water Act Section 303(e); Clean Water Act Section 305(b) List; Total Maximum Daily Loads; March 23, 1998.

SWRCB, 1998f - Letter from Stan Martinson to Janet Hashimoto (need date).

SWRCB, 1998g - Memo from Michael Perrone to David Smith, USEPA, October 2, 1998 clarifying content of 303(d) list.

SWRCB, 1996 - Letter from Jesse Diaz to Alexis Strauss, USEPA. Transmittal of 1996 303(d) List Submission, May 16, 1998.

California Department of Health Services. Health Advisory for Stockton Ship Channel, June, 1998.

U.S. Environmental Protection Agency

US EPA, 1991 - Guidance for Water Quality-based Decisions: The TMDL Process; EPA 440/4-

91-001; April, 1991.

US EPA, 1995 - Guidelines for Preparation of the 1996 State Water Quality Assessments ("305(b) Reports"), EPA 841 B-95-001, May 1995.

USEPA, 1995.- Letter from Alexis Strauss to Benjamin Kor, NCRWQCB approving TMDLs for Laguna de Santa Rosa, May 4, 1998.

USEPA, 1997a. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, vol. 2, Second Edition. EPA 823-B-97-009, July, 1997.

USEPA, 1997b. August 27, 1997 memorandum from Robert H. Wayland III, Director, Office Wetlands, Oceans, and Watershed, Office of Water, EPA Headquarters, to Water Division Directors, Regions I - X, and Directors, Great Water Body Programs, and Water Quality Branch chiefs, Regions I - X, regarding "National Clarifying Guidance For 1998 State and Territory Section 303(d) Listing Decisions."

US EPA, Region 9, 1997c -September 11, 1997 letter to Jesse Diaz, Chief, Division of Water Quality, State Water Resources Control Board.

USEPA, 1997d. Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule, June 1997.

US EPA, Region 9, 1998a - Letter from Alexis Strauss, Acting Director, Water Division, US EPA, Region 9 to Roger Briggs, Executive Officer, California Regional Water Quality Control Board, Central Coast Region; March 13, 1998.

US EPA, Region 9, 1998b - Letter from Joe Karkoski, U.S. EPA, Region 9 to Angela Carpenter, California Regional Water Quality Control Board, Central Coast Region; Subject: Clarification of the Central Coast Regional Board's 1998 303(d) List Submittal; July 9, 1998.

US EPA, Region 9, 1998c - Letter from Joe Karkoski, U.S. EPA, Region 9 to Sue Yee, California Regional Water Quality Control Board, Central Valley Region; Subject: Clarification of the Central Valley Regional Board's 1998 303(d) List Submittal; July 9, 1998.

US EPA, Region 9, 1998d - Letter from Joe Karkoski, U.S. EPA, Region 9 to Judith Unsicker, California Regional Water Quality Control Board, Lahontan Region; Subject: Clarification of the Lahontan Regional Board's 1998 303(d) List Submittal; July 9, 1998.

US EPA, Region 9, 1998e - Letter from Joe Karkoski, U.S. EPA, Region 9 to Liann Chavez, California Regional Water Quality Control Board, Colorado River Basin Region; Subject: Clarification of the Colorado River Basin Regional Board's 1998 303(d) List Submittal; July 10, 1998.

US EPA, Region 9, 1998f - Letter from Joe Karkoski, U.S. EPA, Region 9 to Hope Smythe, California Regional Water Quality Control Board, Santa Ana Region; Subject: Clarification of the Santa Ana Regional Board's 1998 303(d) List Submittal; July 10, 1998.

USEPA, Region 9, 1998g- Dioxin Risk. Memo from Henry Lee, USEPA Region 9 to David W. Smith, USEPA Region 9, September 24, 1998 (with Lotus spreadsheet attached).

USEPA, Region 9, 1998h- Telephone call with Ranjit Gill, Lahontan RWQCB and David Smith, USEPA. Clarification of Review of Readily Available Information and Hearing Tape, August 20, 1998.

USEPA, Region 9, 1998i - Telephone calls with Mark Smythe, Wendy Phillips, and Shirley Birosek, Los Angeles RWQCB. Clarification of 303(d) List Comment Responses. September, 1998.

USEPA, Region 9, 1998j - Letter from Janet Hashimoto to Stan Martinson, SWRCB, September, 1998.

USEPA, Region 9, 1998k- Responsiveness Summary, Comments to SWRCB, October 19, 1998

USEPA, Region 9, 1998l- Telephone call with Bruce Gywnne, September 3, 1998.

USEPA, Region 9, 1998m- Record of communication with Catherine Kuhlman and Arnold Den, September, 1998.

Other USEPA Documents

December 28, 1978 Federal Register Notice, *Total Maximum Daily Loads Under Clean Water Act*, finalizing EPA's identification of pollutants suitable for TMDL calculations, 43 Fed. Reg. 60662.

January 11, 1985 Federal Register Notice, *40 CFR Parts 35 and 130, Water Quality Planning and Management: Final Rule*, 50 Fed. Reg. 1774

July 24, 1992 Federal Register Notice, *40 CFR Parts 122, 123, 130*, revision of regulation, 57 Fed. Reg. 33040

August 13, 1992 memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to EPA Water Quality Branch Chiefs, Regions I - X and TMDL Coordinators, Regions I - X, regarding "Supplemental Guidance on Section 303(d) Implementation."

October 30, 1992 memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to Water Quality Branch Chiefs, Regions I - X, regarding "Approval of 303(d) Lists, Promulgation Schedules/Procedures, Public Participation."

40 CFR Part 130 Water Quality Planning and Management

November 26, 1993 memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to Water Quality Branch Chiefs, Regions I - X, and TMDL Coordinators, Regions I - X, regarding "Guidance for 1994 Section 303(d) Lists."

September, 1997 guidance from Office of Water, Headquarters, US EPA regarding Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement, EPA-841-B-97-002B

May 12, 1999

Mr. Walt Pettit
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Dear Mr. Pettit:

On November 3, 1998, EPA partially approved and partially disapproved California's 1998 §303(d) list. Specifically, EPA approved the State's decisions to list 472 waters and associated pollutants and set priority rankings for these waters. EPA disapproved the State's decisions not to list 37 waterbodies and not to list additional pollutants for 12 waters already listed by the State for other pollutants. EPA further identified these additional waterbodies and pollutants with appropriate priority rankings for inclusion on the 1998 §303(d) list.

EPA provided public notice and solicited public comment on its identification of additional waters and pollutants for inclusion on California's list. The comment period closed December 3, 1998. EPA has carefully reviewed the written comments received from the State and other commenters. Pursuant to the requirements of federal regulations at 40 CFR 130.7, I am hereby transmitting to you the final 1998 §303(d) list for California which includes additional waters and additional pollutants for several waters already listed by the State, in addition to the 472 waters listed by the State. The additional waters and pollutants included on the final list are listed in Enclosure 1 to this letter. A detailed responsiveness summary explaining public comments received and EPA's responses is also enclosed (Enclosure 2).

With three exceptions, the additional waters and pollutants added to the list are identical to those identified for listing by EPA on November 3, 1998. The first difference is that in place of the term "dioxin-like compounds" used in EPA's November 3rd list to summarize the specific dioxin, furan, and PCB compounds, the final list uses more specific pollutant categories "dioxins," "furans," and "dioxin-like PCBs." This change was made because several commenters believed the term "dioxin-like compounds" was confusing. The use of the more specific summary categories is intended to identify the pollutants at issue more precisely. Second, the dioxin compound OCDD was inadvertently omitted from the list of specific compounds identified for listing on November 3, 1998, and is included in today's final listing decision. Third, furans are added to the pollutants for which Stockton Deep Water Channel is being listed because the health risk assessment on which this listing is based identified dioxins, furans, and PCBs as responsible for the water quality impairment.

EPA received 36 comment letters which included over 200 individual comments. Most of the comments focused on the listing of San Francisco Bay for dioxins, furans, and dioxin-like PCBs. Other public comments addressed individual waterbody listings or expressed concern about EPA's decision to add any additional waters to the list. We concluded that none of the comments warrants modifying the list of additional waters and pollutants identified by EPA, except for the modifications discussed above. I would like to clarify several aspects of the decision to list additional waters and pollutants which were of concern to commenters. The responsiveness summary provides more detailed responses to individual comments.

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San Francisco Bay

EPA reviewed the entire listing record, and found that available information supports the conclusion that the Bay is water quality-limited due to dioxins, furans, DDT, dieldrin, and chlordane and required to be listed by the Clean Water Act and EPA regulations. EPA's analysis was described in the November 3, 1998 Staff Report. Fourteen commenters supported the listing decisions, while 14 commenters opposed these decisions. Several aspects of EPA's analysis were addressed by commenters and are discussed below.

Existing, Readily Available Information: EPA regulations at 40 CFR 130.7 require that States evaluate all existing and readily available information in developing their §303(d) lists, and that they provide to EPA a rationale for any decision to not use existing and readily available information. EPA has found that when the State decided not to list San Francisco Bay for dioxins, furans, DDT, dieldrin, and chlordane, it did not consider several information sources, did not provide a reasonable rationale for not considering these sources, and did not adequately justify its conclusions that other information sources in the record did not support the listing decisions.

For example, the 1997 EPA assessment of health risks to San Francisco Bay anglers concluded that angler cancer risks were elevated due to likely exposures to these chemicals through consumption of fish from San Francisco Bay. EPA concluded that this risk assessment provides credible information to support the listing decisions because it was developed using methods consistent with EPA's risk assessment guidelines and was based on the best information available to EPA and its contractors at the time the risk assessment was developed in 1997. This information was existing and readily available when the State developed its list. However, the State submittal does not indicate that it considered this information, nor does it provide a rationale for not using it as required by federal regulations (40 CFR 130.7(b)). Therefore, EPA analyzed this information, and for the reasons discussed in the Staff Report, concludes that it supports listing San Francisco Bay for these pollutants.

The State also did not provide an adequate analysis of available fish tissue data to support its conclusions concerning the existing interim fish consumption advisory for San Francisco Bay (OEHHA, 1994). The State concluded that this advisory did not provide credible evidence that the Bay is water quality limited due to dioxins, furans, DDT, dieldrin, and chlordane in Bay fish tissue. However, the State did not provide a detailed rationale supporting this conclusion. As part of its review of the State's §303(d) list submittal, EPA evaluated the fish tissue data used by the State to develop its fish consumption advisory in 1994. EPA's review focused on dioxins, furans, and dioxin-like PCBs, concluding that these pollutants were present at levels of concern with respect to health risk from fish consumption.

For these reasons, and as described more fully in the EPA Staff Report, we find that the State's conclusion that dioxins, furans, dieldrin, chlordane, and DDT should not be included on the §303(d) list was not supported by a complete analysis of the record before the State at the time of its decision.

Applicable Water Quality Standards: Based primarily on the existence of a fish consumption advisory, EPA concluded that the COMM beneficial use ("uses of water for commercial or recreational collection of fish ... including ... uses involving organisms intended for human consumption") is not being attained due to fish contamination by pollutants listed in the advisory (dioxins, furans, DDT, dieldrin, chlordane, and DDT, along with mercury and PCBs already listed by the State). EPA further concluded that the narrative bioaccumulation objective ("controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in ... aquatic life) is not being met due to these pollutants. In the Staff Report explaining the basis for EPA's November 3, 1998 listing decision, EPA stated that "narrative standards which prohibit the discharge of toxic pollutants in amounts which adversely affect beneficial uses are not being met." Specifically,

EPA was evaluating whether the narrative bioaccumulation objective was being met. We determined that it was not being met based on the fish consumption advisory, the 1997 EPA assessment of health risk to San Francisco Bay anglers, and EPA's September 24, 1998 reevaluation of the 1994 fish tissue data.

National "Background" Levels of Dioxins and Furans: The issue of how dioxin and furan levels in Bay fish compares with levels found at other monitoring sites in the country warrants further discussion in response to comments received. Several commenters asserted that dioxin and furan levels in Bay fish were below levels measured at other allegedly uncontaminated sites around the country (referred to by commenters as "national background levels"). On the other hand, one commenter submitted recent fish tissue data for two California reservoirs which indicated that dioxin/furan levels at a California reservoir with no known local discharge sources may be much lower than levels found in San Francisco Bay or cited as uncontaminated "background" levels by other commenters.

EPA understands that there are national policy issues with respect to health risks associated with dioxins and furans and the appropriate response to this problem. EPA is addressing these issues in several forums including the Persistent and Bioaccumulative Toxic Pollutants (PBT) Initiative and National Dioxin Reassessment. Meanwhile, the listing decision for California must be made based on information concerning attainment of water quality standards for California waters. As discussed in the November 3, 1998 Staff Report, comparisons with "national background levels" are not relevant to the issue of whether an individual waterbody is water quality limited. EPA's decision to consider health risks to consumers of large amounts of Bay fish as part of the listing analysis is also consistent with national EPA policies to address environmental impacts on high-end exposed and sensitive subpopulations (e.g., people who consume large amounts of fish).

Basis for Priority Rankings and Effect on State Listing of PCBs: In its 1998 listing submission, the State listed PCBs for San Francisco Bay as a medium priority. In its listing decisions of November 3, 1998, EPA approved the medium priority for PCBs but proposed a high priority ranking for a category of pollutants which includes 12 dioxin-like PCBs. Some commenters were confused by this decision. Today, EPA is establishing a final high priority ranking for 7 dioxins, 10 furans, and 12 dioxin-like PCBs for San Francisco Bay because the listing record indicates that these compounds are most responsible for increases in human cancer risk due to consumption of contaminated fish from the Bay. The effect of this decision is to sustain the medium priority ranking for other PCBs listed by the State. However, EPA urges the State to initiate development of TMDLs for all PCBs for San Francisco Bay as soon as is practicable.

Future TMDL Development: EPA's listing of dioxins, furans, and dioxin-like PCBs as high priority for TMDL development is not intended to result in redirection of State resources from current development of TMDLs for exotic species, mercury, or PCBs in favor of work on TMDLs for dioxins or furans. EPA strongly supports the State's emphasis on protecting the Bay ecosystem from the effects of exotic species, and on protecting public health through mitigation and cleanup of methyl mercury and PCBs. As discussed above, EPA is establishing a high priority ranking for dioxin-like PCBs, which appear responsible for most of the increased cancer risk associated with consumption of Bay fish.

We understand that development of TMDLs for dioxins, furans, and dioxin-like PCBs will require substantial effort to conduct additional monitoring, characterize sources including air sources, and identify control strategies. These TMDLs may take several years to complete. EPA is willing to work in collaboration with State agencies, local agencies, and local groups to conduct the monitoring necessary to develop TMDLs for these pollutants. EPA's decision to establish high priorities for dioxins, furans and dioxin-like PCBs is intended to focus attention on an urgent human health risk issue and help initiate needed monitoring and assessment activities. These efforts should begin now.

Lake Merritt, Stockton Deep Water Channel, and San Francisco Bay Urban Streams

EPA is adding Lake Merritt, Stockton Deep Water Channel, and several San Francisco Bay urban streams to the final §303(d) list based on information which the State failed to consider during the State's public participation process. As described in the EPA Staff Report, this information supports the conclusion that these waters are water quality limited. The San Francisco Bay RWQCB provided supplemental responses to comments to EPA after the State had submitted its listing package. Although the Regional Board recommended the listings of 35 San Francisco area urban streams for diazinon based on its own analysis, the State did not revise its listing submission to incorporate this change. EPA appreciates the Regional Board's assistance in reviewing these public comments, and EPA based its decision to list 35 urban streams for diazinon on the analysis provided by the Regional Board in the supplemental response to comments. The State's supplemental responses to comments did not address comments concerning Lake Merritt and Stockton Deep Water Channel.

Stemple Creek, Estero de San Antonio, Santa Clara River Reaches 7 and 8, and Coyote Creek

EPA is adding Stemple Creek, Estero de San Antonio, and an additional pollutant for two reaches of Santa Clara River to the final §303(d) list because available information indicated that they are water quality limited segments requiring TMDLs. The State's decisions not to list them were inconsistent with federal listing requirements identified in 40 CFR 130.7(b)(1) and (3). The State delisted Stemple Creek and Estero de San Antonio because the North Coast Regional Board had adopted TMDLs for these waters. However, the TMDLs have not been fully approved by the State and have not been submitted to EPA for approval. These waterbodies must be listed because they remain water-quality limited and TMDLs have not yet been approved or established for them. I would like to discuss with you and Lee Michlin the option of EPA establishing the Stemple Creek watershed TMDLs based on the TMDLs developed by the North Coast RWQCB.

Santa Clara River Reaches 7 and 9 were listed for chlorides by the Los Angeles Regional Board, but the State Board reversed this listing decision on the grounds that the water quality standard is currently being reviewed and may soon be revised. These reaches of Santa Clara River are being listed by EPA for chlorides because they exceed the existing applicable water quality standard. If the water quality standards are revised in the future, the State could delist these segments when new water quality standards are met.

Coyote Creek in the Los Angeles Region was listed by the Regional Board, but was inadvertently dropped from the draft list public noticed by the State Board. EPA invited comment on the Coyote Creek listing, and hereby approves the State's listing of that waterbody after considering public comments submitted to EPA.

Conclusion

I would like to request that the State develop and submit to EPA schedules for adopting and submitting TMDLs for each of the additional waters and pollutants included in the final 1998 §303(d) list. EPA's national policy states that States should establish TMDL development schedules not to exceed 8-13 years for each waterbody and pollutant combination on the §303(d) list. I would appreciate receiving California's TMDL development schedule for the additional waters and pollutants within 90 days.

We wish to continue our support in your efforts to develop TMDLs for the waters identified on the list. If you have questions on any of the above information, feel free to give me a call at (415) 744-1860 or call David Smith of my staff at (415) 744-2012.

Sincerely,

22757

Alexis Strauss
Acting Director
Water Division

Enclosures (2)

Enclosure 1: List of Waters and Pollutants Added to Final 1998 California Section 303(d) List

Regional Board	Waterbody	Pollutant(s)	Priority Ranking
North Coast (1)	Stemple Creek Estero de San Antonio	nutrients	low

<p>San Francisco (2)</p>	<p><u>San Francisco Bay:</u> - Central S.F. Bay - Lower S.F. Bay - South S.F. Bay - Carquinez Strait - Richardson Bay - San Pablo Bay - Suisun Bay - Sacramento-San Joaquin Delta (portion in Region 2)</p>	<p><u>Dioxins</u> 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD</p> <p><u>Furans</u> 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2',3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF</p> <p><u>Dioxin-like PCBs</u> Note: Although the State already listed these pollutants, they are included here because EPA is setting a higher priority ranking for these types of PCBs than the State set in its listing action. 3,4,4',5-TCB (81) 3,3',3,3'-TCB (77) 3,3',4,4',5-PeCB (126) 3,3',4,4',4,4'-HxCB (169) 2,3,3',4,4'-PeCB (105) 2,3,4,4',5-PeCB (114) 2,3',4,4',5-PeCB (118) 2',3,4,4',5-PeCB (123) 2,3,3',4,4',5-HxCB (156) 2,3,3',4,4',5'-HxCB (157) 2,3',4,4',5,5'-HxCB (167) 2,3,3',4,4',5,5'-HpCB (189)</p> <p>DDT chlordane dieldrin</p>	<p>high</p> <p>high</p> <p>high</p> <p>low</p> <p>low</p> <p>low</p>
<p>San Francisco (2)</p>	<p>Lake Merritt</p>	<p>dissolved oxygen floating material</p>	<p>low low</p>

San Francisco (2)	<p><u>San Francisco Urban Streams:</u> Mt. Diablo Creek, Pine Creek, Pinole Creek, Rodeo Creek, San Pablo Creek, Walnut Creek, Wildcat Creek, Laurel Creek, Ledgewood Creek, Suisun Slough, Arroyo Corte Madera del Presidio, Corte Madera Creek, Coyote Creek (Marin County), Gallinas Creek, Miller Creek, Novato Creek, San Antonio Creek, San Rafael Creek, San Mateo Creek, Calabazas Creek, Coyote Creek (Santa Clara County), Guadalupe River, Los Gatos Creek, Matadero Creek, Permanente Creek, San Felipe Creek, San Francisquito Ck., Saratoga Creek, Stevens Creek, Alameda Creek, Arroyo de la Laguna, Arroyo Del Valle, Arroyo Hondo, San Leandro Creek, San Lorenzo Creek</p>	diazinon	low
Los Angeles (4)	Santa Clara River, Reaches 7 and 8	chlorides	medium
Central Valley (5)	Stockton Deep Water Channel	dioxins furans PCBs (Note: specific congeners are not listed for this water because available sources in the listing record did not provide this information.)	medium

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