



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

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JUN — 5 2003

Ms. Celeste Cantú
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Cantú:

Thank you for your efforts to develop the Section 303(d) water body list for 2002. I commend the State and Regional Boards for their diligent efforts to improve the water body assessment process that supported the 2002 listing decisions, and I am pleased that the State and EPA agreed on more than 99% of all assessment determinations. We received California's 2002 Section 303(d) submittal on March 3, 2003 and supporting documentation and information in several followup submittals. We carefully reviewed the State's listing decisions, assessment methodology, and supporting data and information. Based on this review, we have determined that California's 2002 list of 679 water quality limited segments still requiring TMDLs partially meets the requirements of Section 303(d) of the Clean Water and EPA's implementing regulations.

By this order, EPA hereby partially approves and partially disapproves California's 2002 Section 303(d) list. EPA approves the State's decision to list the 679 waters and associated pollutants identified at Tab 1 of the California listing report along with the State's priority rankings for these waters and pollutants. EPA disapproves the State's decision not to list 5 additional water bodies, and additional pollutants for 15 waters already listed by the State, as we find these waters and pollutants meet the federal requirements for listing under Section 303(d). The statutory and regulatory requirements, and a summary of our review of California's compliance with each requirement, are described in Enclosure 1.

We are identifying for inclusion on California's Section 303(d) list 5 waters and associated pollutants, and additional pollutants for 15 waters already listed by California. The specific waters and pollutants added, are identified in Table 1, which is enclosed with this letter. We will now open a public comment period to receive comments concerning our decision to add waters and pollutants to the State's Section 303(d) list.

EPA identified three situations in which waters and pollutants do not attain water quality standards but were not listed on the Section 303(d) list by the State:


1. Available data indicate that 14 waters substantially exceed the State's numeric water quality standards for dissolved oxygen, boron, and other pollutants.
2. Available fish tissue data for 3 waters exceed widely accepted tissue screening values used to assess potential water quality impairment and exceedances of narrative water quality standards.
3. The implementation programs relied upon by the State as the basis for removing 3 water body-pollutant combinations from the Section 303(d) list are not sufficiently likely to result in attainment of water quality standards for certain pollutants. As a result, EPA concludes that these waters and pollutants meet the listing requirements.

EPA's partial approval and partial disapproval of California's Section 303(d) list does not extend to any water bodies located within tribal lands, as defined in 18 U.S.C. Section 1151. EPA's decision to identify additional waters and pollutants for inclusion on the Section 303(d) list also does not apply to any waters located within tribal lands.

The public participation process sponsored by the State and Regional Boards included solicitations of public comment through newspaper advertisements, mailing lists, and several public hearings, and preparation of a responsiveness summary explaining how the State considered public comment in the final listing decisions. We find that the State's public participation activities were consistent with federal requirements.

If you have questions concerning this decision or on any of the supporting analysis, please call me at (415) 972-3572 or call David Smith at (415) 972-3416. We would be pleased to brief you and Board members, if you wish, on this matter.

Sincerely yours,


Alexis Strauss 5 June 2003
Associate Regional Administrator

Enclosures

cc: SWRCB Members

Table 1: Waters added to 303(d) list for California

Description of Table Columns:

“Water Body” column identifies the water bodies on the 303(d) list.

“Pollutants” column identifies the specific pollutants for which the water bodies were found to exceed water quality standards.

“Basis for Listing” column identifies the basis for individual listing decisions.

“Priority Ranking” column indicates the priority ranking for TMDL development associated with an individual listing decision (H = High; M = Medium; L = Low priority)

Water Body (Regional Board)	Pollutants	EPA basis for listing	Water already listed by State for other pollutants?	Priority Ranking
Humboldt Bay (1)	PCBs	fish tissue levels exceed maximum tissue residue levels in 80% of samples (n=5)	N	L
Laguna de Santa Rosa (1)	total nitrogen and total phosphorus	TN levels exceed EPA recommended criteria values in 93% of samples (n=323); TP levels exceed EPA recommended criteria values in 88% of samples (n=324)	Y	L
Lake Merced (2)	dissolved oxygen and pH	DO and pH levels exceed numeric objectives in 46-83% of samples (n=14)	N	L
Lake Merritt (2)	dissolved oxygen	DO levels exceed numeric objectives in 24% of samples (n=126); State provided inadequate basis for delisting from 1998 list	Y	L
San Francisco Bay segments: Sacramento/San Joaquin Delta Lower San Francisco Bay San Pablo Bay Suisun Bay (2)	nickel	Currently applicable basin plan objective for nickel exceeded 102 times since 1993	Y	L
Chumash Creek (3)	dissolved oxygen	DO levels exceed numeric objectives in 15% of samples (n=230)	Y	L
Llagas Creek (3)	dissolved oxygen	DO levels exceed numeric objectives in 18% of samples (n=90)	Y	L

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Los Osos Creek (3)	dissolved oxygen	DO levels exceed numeric objectives in 18% of samples (n=251)	Y	L
Orcutt Solomon Creek (3)	boron	Boron levels exceed numeric objectives in 15% of samples (n=34)	Y	L
San Antonio Creek (3)	boron	Boron levels exceed numeric objectives in 67% of samples (n=6)	Y	L
Calleguas Creek Reach 4 (4)	boron, sulfate, total dissolved solids	Pollutant levels exceed numeric beneficial use protection guidelines [boron, 85% of samples (n=13); sulfate, 93% of samples, n=15; TDS, 80% of samples, n=15]	Y	M
San Gabriel River Reach 1 San Gabriel River Reach 3 Coyote Creek (4)	toxicity	Data indicate very high current toxicity levels; submittal has not demonstrated that pending ammonia controls will result in attainment of toxicity water quality standards	Reach 1- Y Reach 3- N Coyote- Y	M
Bolsa Chica (8)	copper and nickel	Pollutant levels exceed numeric objectives for copper (100%, n=4) and nickel (100%, n=4)	N	L
Anaheim Bay (8)	copper, nickel, dieldrin, and PCBs	Pollutant levels exceed numeric objectives for copper (100%, n=4) and nickel (100%, n=4). Dieldrin and PCB levels exceeded maximum tissue residue levels in 100% of available samples (n=2).	N	L
Huntington Harbour (8)	copper, nickel, dieldrin, and PCBs	Pollutant levels exceed numeric objectives for copper (100%, n=4) and nickel (75%, n=4). Dieldrin and PCB levels exceeded maximum tissue residue levels in 100% of available samples (n=4).	Y	L

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Review of California's 2002 Section 303(d) Water body List

*Enclosure to letter from Alexis Strauss, EPA Region 9 to
Celeste Cantú, State Water Resources Control Board*

Date of Transmittal Letter From State: February 28, 2003

Date of Receipt by EPA: March 3, 2003

Dates of Supplemental Transmittals From State: March 10, 2003, March 11, 2003, April 10, 2003, April 14, 2003 and April 22, 2003

Purpose

The purpose of this review document is to describe the rationale for EPA's partial approval and partial disapproval of California's 2002 Section 303(d) water quality limited waters list. The following sections identify those key elements to be included in the list submittal based on the Clean Water Act and EPA regulations (see 40 C.F.R. §130.7). EPA reviewed the methodology used by the State in developing the 303(d) list and California's description of the data and information it considered. EPA's review of California's 303(d) list is based on EPA's analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

Statutory and Regulatory Background

Identification of WQLSs 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 federal, State or local authority, and (3) other pollution control requirements required by State, local, or federal authority. See 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. See 40 CFR 130.7(b)(5). In addition to these minimum categories, States are required to evaluate any other water quality-related 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 (see, EPA 1991, Appendix C). 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 use or not use 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 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. See 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. See 57 FR 33040, 33045 (July 24, 1992), and EPA 1991.

Analysis of California's Submission

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

EPA has reviewed the State's submission, and has concluded that the State developed its Section 303(d) list in partial compliance with Section 303(d) of the Act and 40 CFR 130.7. As California's submission does not include all waters that meet Section 303(d) listing requirements, its list is being partially approved and partially disapproved, and the additional waters and pollutants that meet the listing requirements are being added to the

State's 2002 list. EPA's review is based on its analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

California used its 1998 Section 303(d) list as its starting point for its 2002 list revision. The State based its 2002 Section 303(d) submittal on its analysis of readily available data and information to determine whether additions to or deletions from the 1998 list were necessary (listing report, pp. 2-3). The State determined that waters listed in 1998 should be retained on the Section 303(d) list unless (1) new data and information supported a finding that listing requirements are no longer met, (2) errors in the analysis supporting the 1998 listing were identified, (3) other enforceable control requirements would result in attainment of water quality standards, or (4) TMDLs had been completed by the State for a water-pollutant combination. As a result, many waters were retained on the 2002 Section 303(d) list without extensive analysis. EPA concludes that this incremental listing approach is consistent with federal requirements because the State is making the environmentally conservative assumption that previously listed waters are water quality limited segments (WQLSs) absent more recent data or information supporting a different finding.

Assembly of Data and Information

The State devoted considerable effort to assembling new data and information sources for the 2002 list revision (see listing report, pp. 3-15). Regional Board staff compiled data and information from multiple sources, including each of the data and information categories identified at 40 CFR 130.7(b)(5). The State also solicited data and information from the public beginning in March 2001 and ending in June 2002, and considered the voluminous material submitted by the public in response to the solicitation as part of the listing assessment. The solicitation was mailed to an extensive mailing list, advertised in newspapers, and posted on State and Regional Board web sites. The State considered some data and information submitted by the public after the June 2002 deadline, but in most cases limited its analysis to data and information obtained by June 2002. EPA finds that it was generally reasonable for the State to limit its analysis to data and information assembled or submitted during the data solicitation period because the State needed a reasonable amount of time to consider the large amount of data and information in the record and to develop listing recommendations. EPA concludes it was reasonable for the State to provide a 6-month period to assemble the listing proposal following the close of data and information solicitation period. Data and information sources assembled and considered by the State are specifically identified in each of the Regional Board staff reports, as well as the water body fact sheets and reference lists included in Volume II of the list submission.

The State generally focused on data that became available after 1997 because the 1998 listing analysis focused on data and information that were available before 1997. In some cases, the State considered older data as part of its 2002 listing assessments, depending upon the pollutants at issue, the types of data (e.g., sediment vs. water column data), and the availability of more recent data and information. EPA finds it reasonable for the State to make its assessment based on water quality data generally collected during this timeframe because the more recent ambient water quality data are more likely to be representative and indicative of current water quality conditions. EPA notes, however, that it may be reasonable

to consider sediment and tissue data that are older than five years in age because these media usually are longer-term indicators of chemical contamination than are ambient water column data, and provide reliable information for assessing water quality conditions for a longer period of time.

The State developed several hundred water body fact sheets for waters and pollutants for which new data and information were assembled for the 2002 list review. These fact sheets summarized the applicable standards, the available data and information, the basis for the State's assessment of the available data and information, and the listing recommendation. These fact sheets provided a good summary of the listing assessment in most cases. The State's responses to comments concerning several of these assessments provide supplemental information explaining the basis for the State's conclusions. In a few cases, EPA requested and received additional explanations of State listing decisions and/or the underlying data summarized in the fact sheets. EPA reviewed these data as necessary to ensure the basis for each water body assessment was sufficiently clear.

The State's listing decisions are consistent with the conclusions of the most recent Section 305(b) report submitted in 2000 because the State conducted one integrated analysis to support preparation of the Section 305(b) Report and Section 303(d) List. The 2002 Section 305(b) report had not been completed at the time of the final Section 303(d) listing submittal. The State has not updated its Section 319 assessment in several years, and EPA found in its review of the 1998 Section 303(d) list that that listing decision was consistent with or had superseded the most recent Section 319 assessment. As the State used the 1998 list as the basis for the 2002 list, the Section 303(d) listing decisions remain consistent with, or reasonably supersede, the assessment conclusions of the now-outdated Section 319 assessment.

Listing Methodology

The list submittal summarizes the listing methodology used by California to update the 2002 list. The State did not develop and apply a standardized listing methodology that specified firm rules for determining whether waters should be listed under section 303(d) or placed on the State's monitoring list or enforceable programs list. Instead, the State applied a weight-of-evidence approach through which the State assessed the unique data and information profile available for each water-pollutant combination in comparison with applicable water quality standards. This approach enabled the State to consider how different lines of evidence and levels of data quantity and quality combine to support an assessment of whether different waters exceed water quality standards. This approach also:

- requires more detailed and laborious documentation (on a water-by-water basis) than might be needed if a more standardized methodology were applied,
- requires more attention to ensure there are valid reasons for making different assessment determinations for different waters in similar factual situations, and
- was more difficult for EPA to review and analyze.

Although the State did not apply strict decision rules in making 2002 listing decisions, it applied several general assessment factors to help ensure consistency in listing assessments. These factors are discussed in detail in the listing report (listing report, pp. 4-15) and include:

- waterbody identification information,
- pollutant or stressor type,
- applicable water quality standards/beneficial use information,
- data quality,
- linkage between measurements and applicable standards,
- utility of available measurements for judging standards attainment,
- availability of data and information,
- considerations in analysing data and information (e.g. sample size),
- temporal and spatial representation of available data,
- use of standard analytical methods for data analysis,
- pollutant source(s), and
- the availability of an alternative enforceable program to address the impairment.

Although the state did not require minimum sample sizes in order to assess water quality conditions, the State was more likely to list waters with larger data sets and in cases where data quality was clearly documented. In general, more data and higher exceedance frequencies were expected before listing conventional pollutants on the Section 303(d) list. Less data and lower exceedance frequencies were expected to support listings of toxic pollutants. Particularly in the case of toxic pollutants, the State carefully considered, and was willing to list based on, contaminated sediment and fish tissue data. The State applied generally accepted screening guidelines developed by agencies in California or elsewhere in considering these other data types and evaluating narrative standards exceedances. These approaches are generally consistent with EPA's technical assessment guidance documents (EPA 1997 and EPA 2001).

EPA concludes that the State's weight-of-evidence approach, backed by the preparation of detailed fact sheets and responses to comments, is consistent with the federal requirement that the State specify its listing methodologies as part of the listing decision.

EPA carefully reviewed the State's individual water body assessments for consistency with federal listing requirements. EPA found that the State's assessments were consistent with federal requirements and State water quality standards in more than 99% of the individual water body cases. The data and information available for most waters clearly supported conclusions that water quality standards were or were not exceeded. There were several dozen waters for which it was less clear that the available evidence supported conclusions that water quality standards were not exceeded. EPA identified most of these waters in its comments to the State during the public comment period and requested that the State clarify the data and information available for these waters and its rationale for not listing them. EPA also identified a few waters based on its review of the final list submission and responsiveness summary for which there was some evidence of potential standards exceedances, but the State had not provided a clear rationale for not listing them. EPA requested that the State also clarify the data and information available for these waters and its rationale for not listing them.

The State did a good job of responding to these requests. Based on its reviews of the supplemental data and information provided by the State and its reviews of information in the State's listing record for certain waters, EPA concluded that the vast majority of State listing

decisions were consistent with federal listing requirements. In a few cases, discussed in more detail below, EPA concluded that the State had not provided a reasonable explanation for not listing these waters and that the available data and information instead supported a conclusion that these waters meet federal listing requirements.

EPA identified several concerns about California's proposed listing decisions during the list development process. EPA worked closely with the State during the listing process and was able to resolve most of these issues. As a result, EPA is able to approve all of California's decisions to list waters and pollutants, and almost all its decisions not to list other waters and pollutants. The attached "Summary of Resolution of Issues Raised by EPA Concerning California's Draft 2002 303(d) List" discusses the issues raised by EPA and the eventual resolution of these issues. The basis for EPA's decisions to add several waters is discussed in greater detail in the following section.

In summary, EPA has reviewed California's description of the data and information it considered, its methodology for identifying waters, and the State's responsive summary. EPA concludes that the State's decisions to list the waters and pollutants identified in Table 27 of its listing submittal are consistent with federal listing requirements. EPA's decision to approve these listings does not mean that EPA concurs with or is taking any action with respect to the State's listing methodology. EPA considered the State methodology in its decision to approve the waters and pollutants listed by the State. However, EPA also reviewed the data and information provided by the State as part of its listing submittal to determine whether the State listed all waters or pollutants that do not attain State water quality standards and meet federal listing requirements. EPA concludes that the State's decision not to list several waters and pollutants is inconsistent with federal listing requirements. As discussed below, the available data and information are sufficient to support a conclusion that these waters are water quality limited and need to be listed pursuant to Section 303(d).

The State properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and EPA guidance. Section 303(d) lists are to include all water quality limited segments (WQLSs) still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. In *Pronsolino v. Marcus*, the District Court for the Northern District of California held that section 303(d) of the Clean Water Act (CWA) authorizes EPA to identify and establish total maximum daily loads (TMDLs) for waters impaired by nonpoint sources. *Pronsolino et al. v. Marcus et al.*, 91 F.Supp.2d 1337, 1347 (N.D.Ca. 2000), *aff'd*, *Pronsolino v. Nastro*, 291 F.3d 1123 (9th Cir 2002). See also EPA's 1991 Guidance and National Clarifying Guidance for 1998 Section 303(d) Lists, Aug. 27, 1997.

Rationale for Adding Waters to California's List

This section describes the basis for EPA's decisions to (1) disapprove the State's decision to not list several water bodies and/or pollutants for currently listed water bodies, and (2) identify these water bodies for inclusion on the final 2002 Section 303(d) list with associated priority rankings. EPA analyzed the State's water body assessments and

supporting rationales to determine whether the State's decisions not to list the waters were consistent with federal listing requirements and the provisions of state water quality standards. EPA generally applied the listing criteria contained in EPA's water quality assessment guidance documents in determining whether waters are water quality limited (EPA, 1997 and EPA, 2001). These guidance documents generally provide that waters should be listed due to potential aquatic life use impairments in cases where toxic pollutant standards are exceeded in 2 or more samples in a three-year period, and conventional pollutant standards are exceeded in more than 10% of available samples. Where necessary, EPA has interpreted narrative standards to evaluate pollutants for which numeric standards are not in place. For fish tissue analysis, EPA has considered the same screening guidelines applied by the State (e.g., maximum tissue residue levels (MTRs) for fish). For nutrients, EPA reviewed available guidance concerning protective nutrient levels, as discussed under the individual water body discussions below.

EPA will solicit public comments on these additions to California's list, and, following consideration of any comments received, will transmit the final list to California for incorporation in the State's water quality management plan. The basis for adding individual waters and pollutants and the basis for the priority rankings are discussed for each water and pollutant to be added to the list.

Humboldt Bay PCBs (RB 1)

The North Coast Basin Plan contains a narrative water quality standard that prohibits pollutants at levels toxic to aquatic life or human health (North Coast RWQCB, 1993, pp. 3-4.00). The State used maximum tissue residue levels (MTRs) as a screening method to evaluate whether pollutant levels in fish exceeded safe levels, and EPA concurs that MTRs are appropriately used for this purpose. EPA's review of available fish tissue data for Humboldt Bay found that MTRs for PCBs were exceeded in 4 out of 5 samples. Available data and MTRs were not divided by individual PCB compound, therefore this analysis focuses on PCBs as a group. We note the State listing methodology suggests that "for measurements that integrate environmental conditions (like measurements of contaminants in fish tissue) at least two samples were usually sufficient (to support an assessment)" (listing report, p. 7). EPA concludes that these data provide a sufficient basis for concluding that the narrative water quality standard for toxicity contained in the North Coast Region Basin Plan is exceeded.¹ The State provided an insufficient rationale to support its conclusion that inadequate data were available to support a listing. EPA is establishing a low priority ranking for this listing based on the judgement that there is no direct evidence of beneficial use impacts in the record at this time and additional monitoring and assessment are appropriate to verify this listing before developing a TMDL.

Laguna de Santa Rosa Total Nitrogen and Total Phosphorus (RB1)

EPA is identifying Laguna de Santa Rosa for inclusion on the 303(d) list for total nitrogen and total phosphorus based on the very high nutrient levels observed in available samples. EPA concludes that the nitrogen and phosphorus levels found in the Laguna far

¹ California's Basin Plans refer to narrative and numeric water quality standards as "objectives".

exceed the levels associated with excessive aquatic growths that can adversely affect beneficial uses, and that the Basin Plan narrative water quality standard for biostimulatory substances is violated (see North Coast RWQCB, 1993, p. 3-3.00). EPA also notes that the high nutrient levels likely contribute to the very low DO levels observed by the State, which resulted in the State's listing of the Laguna for DO. The State's rationale for not listing the water for nutrients because there are no numeric water quality objectives in place is inconsistent with the requirement of 40 CFR 130.7(b)(3), which requires States to evaluate potential violations of narrative standards in developing the Section 303(d) list.

EPA understands that it is difficult to determine the exact nutrient levels that would be protective of the receiving water. In the absence of a numeric water quality standard in the North Coast Basin Plan, EPA judged that it would be reasonable to apply (for screening purposes) the numeric total nitrogen objective of 1.0 mg/L found in the San Diego Regional Basin Plan, which is generally consistent with protective nitrogen levels identified in the literature and applied in recent nutrient TMDLs for coastal streams in California (e.g., Dodds and Welch, 2000, EPA 2003). Our review found that nitrogen levels in the Laguna exceeded the 1.0 mg/L screening value in 93% of available samples, usually by a wide margin (n=323).

For total phosphorus, EPA applied for screening purposes the 0.1 mg/L value applied by the Regional Board staff and used in recent phosphorus TMDLs for coastal California Streams (EPA, 2003). The Regional Board staff's analysis contained in its staff report found that phosphorous levels exceeded the 0.1 mg/L screening value in 88% of samples, usually by a very wide margin (n=324). We also note that Regional Board staff recommended listing the Laguna for nitrogen and phosphorous, and found no analysis in the State Board decision to refute the Regional Board staff assessment.

We note the Laguna is also listed for DO and believe it will be feasible to develop TMDLs that simultaneously address the DO, nitrogen, and phosphorous listings. As the DO TMDL was given a low priority ranking by the State, we are setting a low priority for the nitrogen and phosphorus TMDLs as well.

Lake Merced Dissolved Oxygen and pH (RB 2)

The San Francisco Bay Basin Plan includes numeric standards for dissolved oxygen and pH that are applicable to this water (San Francisco Bay RWQCB, 1995, p. 3-3). EPA's analysis of available data in the State's record found that 46-83% of available samples exceed the existing numeric water quality standards for DO and pH in Lake Merced, depending upon the monitoring station (n=14). The State has not provided a sound rationale for concluding that the water quality standards for pH and DO are not exceeded. The stated rationale that the available data may not be representative is unpersuasive. Data were collected at several locations over a recent multi-year time frame. The rationale that samples taken at depth should not be considered and that analysis only of surface samples demonstrates attainment is also unpersuasive because the Basin Plan includes no provisions indicating that these standards are to be applied only at the surface. EPA concludes that absent Basin Plan language to the contrary, these standards apply at all water depths. Based on these considerations, EPA has determined that this water should be identified for inclusion on the list for pH and DO. EPA is establishing a low priority for this listing based on the

considerations that no specific beneficial use impairments have been associated with DO and pH problems in the Lake, and that additional monitoring is warranted to verify these listings prior to developing TMDLs.

Lake Merritt Dissolved Oxygen (RB 2)

The San Francisco Bay Basin Plan includes numeric standards for dissolved oxygen that are applicable to this water (San Francisco Bay RWQCB, 1995, p. 3-3). EPA's analysis of available data in the State's record found that 24% of available samples exceed the existing numeric water quality standards for DO in Lake Merritt (n=126). The State has not provided a sound rationale for concluding that the water quality standards for DO are not exceeded. EPA notes that Lake Merritt was listed in 1998 for DO, and the State has provided no analysis showing that the basis for the previous listing was in error. In its other listing decisions, the State retained on its 2002 list waters listed in 1998 unless there was a sound basis for determining that the water now meets standards or that the prior listing was in error.

The State has not determined that the available data are insufficient to support an assessment. The rationale that samples taken at depth should not be considered and that analysis only of surface samples demonstrates attainment is also unpersuasive because the Basin Plan contains no provisions indicating that the DO standard does not apply at all water depths. Based on these considerations, EPA has determined that this water should be identified for inclusion on the list for DO. EPA is establishing a low priority for this listing based on the considerations that the other State listing for Lake Merritt was assigned a low priority and that additional monitoring may be warranted regarding the DO listing prior to developing TMDLs.

San Francisco Bay Nickel North of South San Francisco Bay (RB 2)

The currently applicable Basin Plan chronic water quality standard for nickel San Francisco Bay north of the South San Francisco Bay segment is 7.1 mg/L total recoverable nickel (San Francisco Bay RWQCB, 1995, p. 3-9). The State's analysis of available data found that this standard has been exceeded 102 times since 1993 (Regional Board staff report, cited in Fleck, 2003). The State erroneously applied the CTR dissolved nickel criterion in assessing the data, and reached the conclusion that the Bay meets the nickel standards based on the application of an inapplicable standard. EPA is identifying the following segments for inclusion on the Section 303(d) list based on the State's analysis of available nickel data in comparison with the applicable Basin Plan objective:

- Sacramento San Joaquin Delta (portion in San Francisco Bay Region),
- Lower San Francisco Bay,
- San Pablo Bay, and
- Suisun Bay.

EPA is establishing a low priority ranking for this listing as the State is in the process of developing site specific water quality standards for nickel that will likely be attained. Therefore, it is most reasonable to proceed with water quality standards modification that will likely obviate the need to complete a nickel TMDL for the Bay.

Chumash Creek Dissolved Oxygen (RB 3)

The Central Coast Basin Plan includes a numeric water quality standard for dissolved oxygen that is applicable to this water (Central Coast RWQCB, 1995, p. III-4). The fact sheet indicates that the standard was exceeded in 15% of samples (n=230). These data provide sufficient evidence that the water is impaired and should be listed, consistent with EPA's 1997 water quality assessment guidance. The fact sheet developed by the State for this water concludes that there is a high confidence that DO standards were exceeded. The State has not provided a sound rationale for concluding that the water quality standards for DO are not exceeded. Accordingly, EPA is identifying this water for inclusion on the list for DO. EPA is establishing a low priority ranking for this listing based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDL.

Llagas Creek Dissolved Oxygen (RB 3)

The Central Coast Basin Plan includes a numeric water quality standard for DO that is applicable to this water (Central Coast RWQCB, 1995, p. III-4). The fact sheet developed by the State for this water reports that the DO standard was exceeded in 18% of samples (n=90). This data provides sufficient evidence that the water is impaired and should be listed, consistent with EPA's 1997 water quality assessment guidance. The State has not provided a sound rationale for concluding that the water quality standards for DO are not exceeded. Accordingly, EPA is identifying this water for inclusion on the list for DO. EPA is establishing a low priority ranking for this listing based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDL.

Los Osos Creek Dissolved Oxygen (RB 3)

The Central Coast Basin Plan includes a numeric water quality standard for DO that is applicable to this water (Central Coast RWQCB, 1995, p. III-4). The fact sheet developed by the State for this water reports that the DO standard was exceeded in 18% of samples (n=251). This data provides sufficient evidence that the water is impaired and should be listed, consistent with EPA's 1997 water quality assessment guidance. The State has not provided a sound rationale for concluding that the water quality standards for DO are not exceeded. Accordingly, EPA is identifying this water for inclusion on the list for DO. EPA is establishing a low priority ranking for this listing based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDL.

Orcutt Solomon Creek Boron (RB 3)

The Central Coast Basin Plan includes a numeric water quality standard for boron that is applicable to this water (Central Coast RWQCB, 1995, p. III-9). The fact sheet developed by the State for this water reports that the boron standard was exceeded in 15% of samples

(n=34). This data provide sufficient evidence that the water is impaired and should be listed, consistent with EPA's 1997 water quality assessment guidance. The State has not provided a sound rationale for concluding that the water quality standards for boron are not exceeded. Accordingly, EPA is identifying this water for inclusion on the list for boron. EPA is establishing a low priority ranking for this listing based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDL.

San Antonio Creek Boron (RB 3)

The Central Coast Basin Plan includes a numeric water quality standard for boron that is applicable to this water. The fact sheet developed by the State for this water reports that the boron standard was exceeded in 67% of samples (n=6). This data provide sufficient evidence that the water is impaired and should be listed for this toxic pollutant, consistent with EPA's 1997 water quality assessment guidance. The State has not provided a sound rationale for concluding that the water quality standards for boron are not exceeded. Accordingly, EPA is identifying this water for inclusion on the list for boron. EPA is establishing a low priority ranking for this listing based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDL.

Calleguas Creek Reach 4 Boron, Sulfate, Total Dissolved Solids (RB 4)

The Los Angeles Region Basin Plan does not contain specific numeric water quality standards for boron, sulfate, or TDS for Calleguas Creek Reach 4 (also known as Revolon Slough Main Channel). The State's rationale for not listing—that there are no water body specific numeric standards in the Basin Plan for these pollutants—is invalid. Federal regulations at 40 CFR 130.7(b) require States to apply narrative water quality standards. The State should have applied the Basin Plan narrative standard for chemical constituent(s) to assess these pollutants. The Basin Plan includes numeric guidelines for these pollutants that are "necessary to protect different categories of beneficial uses", including the beneficial uses designated for Calleguas Creek Reach 4 (Basin Plan, pp. 2-8 and 3-14). EPA concludes that it is appropriate to apply these numeric guidelines to evaluate potential exceedances of the narrative water quality standard for chemical constituents. Based on our review of data assembled by the State, EPA found that Reach 4 water exceeds the appropriate boron guideline in 11/13 samples, the total dissolved solids guideline in 13/15 samples, and sulfate guideline in 14/15 samples. EPA concludes that these data are sufficient to support a finding that the narrative water quality objective is not attained for these pollutants, and EPA is identifying them for inclusion on the Section 303(d) list. EPA is establishing a medium priority for this listing to coincide with the State's schedule for developing other TMDLs for listed pollutants in the Calleguas Creek basin.

San Gabriel River Reaches 1 and 3 and Coyote Creek Toxicity (RB 4)

The Los Angeles Region Basin Plan includes water quality standards for toxicity (Los Angeles RWQCB, 1994, pp. 3-16 – 3-17). As explained in EPA's comments to the State concerning its draft list, States are required to list waters that exceed a toxicity standard

unless the State can demonstrate that the presence of pollutants does not cause or contribute to the observed toxicity exceedances. The State found that these segments are impaired due to toxicity and had included them on the 1998 Section 303(d) list. The State did not include them on the 2002 Section 303(d) list based on reliance on an alternative control program that the State asserted would result in attainment of the toxicity water quality standards. The State was asserting that listing of this impaired water was not required pursuant to 40 CFR 130.7(b)(1). In response to EPA's request, the State provided a supplemental explanation of the basis for its conclusion that the alternative control program would result in attainment of several applicable standards, including toxicity. EPA found that the State's basis for not listing ammonia and the nutrient compounds is reasonable, and we are approving those listing decisions.

The State concluded that pending treatment plant upgrades at several water reclamation plants would also result in attainment of toxicity standards. To support this contention, the State relied upon the results of a toxicity identification evaluation (TIE) study conducted by the Los Angeles County Sanitation Districts, which was provided for EPA review. Our review of this TIE study found that the TIE was of uncertain reliability based on the summary description provided. The TIE study concluded that ammonia was a principal but not the sole cause of toxicity in Coyote Creek, and that some toxicity was associated with exposures to organophosphate pesticides and perhaps other organic chemicals. Toxicity was observed both upstream and downstream from the treatment plant discharge point. TIE results were not submitted for San Gabriel River Reaches 1 or 3. EPA notes that the numeric effluent limitations for toxicity in the permits for the Long Beach and Los Coyotes water reclamation plants that discharge to the Coyote Creek and San Gabriel River are currently being appealed before the State Water Resources Control Board; therefore, it is uncertain whether enforceable controls will continue be in place for toxicity in the future for these facilities.

EPA concludes that the analysis provided by the State does not support a conclusion that implementation of the enforceable program to address ammonia impairments will, with a high degree of certainty, result in attainment of the water quality standards for toxicity. Therefore, the State's decision not to list these segments based on the provisions of 40 CFR 130.7(b)(1) is invalid. EPA is identifying San Gabriel River Reach 1 and Reach 3, and Coyote Creek for inclusion on the Section 303(d) list for toxicity based on these findings. EPA is establishing a medium priority for these listings to coincide with the State's TMDL development schedules for other pollutants in the San Gabriel River basin, including the TMDL for toxicity for Walnut Creek in the San Gabriel Basin. It would be appropriate to reevaluate ambient receiving water toxicity following implementation of the treatment plant upgrades later in 2003 to determine whether these segments exhibit continued toxicity.

Bolsa Chica Copper and Nickel (RB 8)

The California Toxics Rule contains numeric water quality standards for copper and nickel that are applicable to this water (65 FR No. 97, pp. 31,681-31,719). The fact sheet indicates that available copper and nickel samples exceeded the applicable numeric standards in 100% of available samples (n=4) for each pollutant. This data provides a sufficient basis for concluding that applicable numeric water quality standards are not attained, and EPA is

identifying this water for inclusion on the Section 303(d) list for copper and nickel. EPA is setting a low priority for these listings as there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDLs.

Anaheim Bay Copper, Nickel, Dieldrin, and PCBs (RB 8)

The California Toxics Rule contains numeric water quality standards for copper and nickel that are applicable to this water (65 FR No. 97, pp. 31,681-31,719). The Basin Plan also contains narrative toxicity water quality standards that address potential fish tissue contamination by pesticides and PCBs (Santa Ana RWQCB, 1995, p. 4-11). EPA reviewed the data compiled by the State for Anaheim Bay and found that ambient water standards objectives for copper and nickel were exceeded in 100% of available samples for each pollutant (n=4), and that MTRs (fish tissue screening levels) were exceeded for dieldrin and PCBs in 2 out of 2 available samples for each pollutant. The State's listing methodology indicated that in general, at least 2 samples are sufficient to support an assessment based on fish tissue data (listing report, p. 7). EPA notes that the Bay was listed in 1998 for metals and pesticides. The State generally retained on the 2002 list waters and pollutants that were included on the 1998 list unless available data and information were sufficient to support a finding that the water now meets standards or that the basis for the prior listing was flawed. EPA notes that the Regional Board staff apparently intended that this listing be continued in 2002 and stated that its delisting was an oversight (email from RWQCB to EPA, March 20, 2003). Based on these considerations, EPA concludes that the State has not shown good cause for not listing Anaheim Bay for copper, nickel, dieldrin, and PCBs. EPA is identifying this water and these pollutants on the Section 303(d) list. EPA is setting a low priority for these listings based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDLs.

Huntington Harbor Copper, Nickel, Dieldrin, and PCBs (RB 8)

The California Toxics Rule contains numeric water quality standards for copper and nickel that are applicable to this water (65 FR No. 97, pp. 31,681-31,719). The Basin Plan also contains narrative toxicity water quality standards that address potential fish tissue contamination by pesticides and PCBs (Santa Ana RWQCB, 1995, p. 4-11). EPA reviewed the data compiled by the State for Huntington Harbor and found that ambient water quality standards for copper were exceeded in 100% of available samples (n=4). Applicable objectives for nickel were exceeded in 75% of available samples (n=4). EPA also found that MTRs (fish tissue screening levels) were exceeded for dieldrin and PCBs in 4 out of 4 available samples for each pollutant. The State's listing methodology indicated that in general, at least 2 samples are sufficient to support an assessment based on fish tissue data (listing report, p. 7). EPA notes that Huntington Harbor was listed in 1998 for metals and pesticides. The State generally retained on the 2002 list waters and pollutants that were included on the 1998 list unless available data and information were sufficient to support a finding that the water now meets standards or that the basis for the prior listing was flawed. EPA notes that the Regional Board staff apparently intended that this listing be continued in 2002 and stated that its delisting was an oversight (email from RWQCB to EPA, March 20,

2003). Based on these considerations, EPA concludes that the State has not shown good cause for not listing Huntington Harbor for copper, nickel, dieldrin, and PCBs. EPA is identifying these pollutants on the Section 303(d) list. EPA is setting a low priority for these listings based on the considerations that there is no current evidence of beneficial use impairments associated with this pollutant, and that additional monitoring may be warranted regarding the listing prior to developing the TMDLs.

Good Cause for Delisting

California did not include on its 2002 Section 303(d) list several waters included on the 1998 list, and EPA asked the State to provide rationales for its decisions not to list several previously listed waters. With the few exceptions discussed above with respect to waters being added to the list by EPA, the State has demonstrated, to EPA's satisfaction, good cause for not listing these waters, as provided in 40 CFR 130.7(b)(6)(iv). California's basis for delisting these waters is that new data and information support a conclusion that water quality standards are not exceeded. EPA carefully reviewed each of these delisting decisions and finds that the State's conclusions are consistent with federal listing requirements.

In addition to the new Section 303(d) list, California's list submission includes a monitoring list, TMDLs completed list, and enforceable programs list. The monitoring list is comparable to Part 3 in EPA's recommended Integrated Report framework (EPA, 2001). The TMDLs completed list is comparable to part 4A in the Integrated Report Framework. The enforceable programs list is comparable to part 4 B in the Integrated Report Framework. The State submitted a separate section 305(b) report to ensure compliance with its submittal requirement.

As discussed above and in the EPA staff report entitled "Summary of Resolution of Issues Raised by EPA Concerning California's Draft 2002 303(d) List" (Smith, 2003), EPA raised and California largely addressed numerous issues and questions concerning the proposed list and listing methodology.

Public Comments

EPA carefully reviewed the State's detailed responses to several thousand comments received from the public during the list development process. EPA commends the State for its intensive effort to involve the public in Section 303(d) list decision-making. EPA found the State's responses to almost all public comments reasonable and in accordance with federal listing requirements. The EPA staff report entitled "Summary of Resolution of Issues Raised by EPA Concerning California's Draft 2002 303(d) List" (Smith, 2003) discusses cases in which EPA disagreed with the State's consideration of some EPA comments. EPA also identified some waters for inclusion on the list based, in part, on data and information raised by commenters. In general, we conclude the State did an excellent job in soliciting and responding to public comments on the Section 303(d) list.

A few specific public comment issues were of interest to EPA. First, EPA reviewed the many comments concerning the addition of temperature listings for several North Coast Rivers. EPA reviewed the technical basis for the State's decision and concluded that the

State's conclusion that these waters are impaired due to excessive temperature is technically and legally valid. Second, we found that the State articulated a valid basis for taking an incremental approach to list revision, and that the State's decision not to reassess every water included on the Section 303(d) list was valid.

Priority Ranking and Targeting

EPA reviewed California's priority ranking of listed waters for TMDL development, and concludes the State properly took into account appropriate ranking factors to make its determination, including the factors required to be considered by 40 CFR 130.7(b)(4) (listing report, p. 14-15). The State's straightforward decision process for ranking the listed waters was based on Regional Board staff recommendations that were endorsed (and in one case, adjusted) by the State Board. EPA concludes that the State properly considered those factors required to be considered by Section 303(d) and applied a reasonable set of additional ranking factors, consistent with the priority ranking provisions of 40 CFR 130.7(b). In our review of the comment responsiveness summary, we found that the State provided reasonable responses to the few public comments that questioned priority ranking decisions.

EPA reviewed the State's identification of 440 water quality limited segments targeted for TMDL development in the next two years and concludes that the targeted waters (high priority) are appropriate for TMDL development in this time frame (see listing report, p. 15). Targeted waters are listed in Table 4 of the listing report. The State has targeted an appropriate mix of complex and relatively simple TMDLs addressing both point and nonpoint sources.

For those waters and pollutants added to the list by EPA, priority rankings are provided in Table 1 and described above. In general, EPA utilized the same ranking factors applied by California in making ranking decisions and also considered the fit of newly listed segments and pollutants with the priorities already set by the State for TMDLs in the vicinity of the newly listed segments.

Administrative Record Supporting This Action

In support of this decision to partially approve and partially disapprove the California's listing decisions, EPA carefully reviewed the materials submitted by California with its 303(d) listing decision and supplemental data and information provided at EPA's request. The administrative record supporting EPA's decision is comprised of the materials submitted by the State, copies of Section 303(d), associated federal regulations, supporting EPA staff memoranda, EPA guidance concerning preparation of Section 303(d) lists, EPA's past comments on California's listing methodology and draft list, and this decision letter and supporting report. EPA determined that the materials provided by the State with its submittal generally provided sufficient documentation to support our analysis and findings that the State listing decisions meet the requirements of the Clean Water Act and associated federal regulations. As necessary, EPA obtained background data and information from the State to assist in our analysis of listing decisions for several specific waters. These additional data and information sources are included in our record. We are aware that the State compiled and considered additional materials (e.g. raw data and water quality analysis reports) as part

of its list development process that were not included in the materials submitted to EPA. EPA did not consider all of these additional materials as part of its review of the listing submission. It was unnecessary for EPA to consider all of the materials considered by the State in order to determine that, based on the materials submitted to EPA by the State, the State complied with the applicable federal listing requirements. Moreover, federal regulations do not require the State to submit all data and information considered as part of the listing submission.

References

Documents provided by the State

California State Water Resources Control Board (CSWRCB). Transmittal of the 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments. Letter to Catherine Kuhlman, USEPA and two binders of supporting materials, including the staff listing report, fact sheets, and responsiveness summary.

CSWRCB, Letter to David Smith with enclosures, March 10, 2003.

CSWRCB, Email to David Smith, April 10, 2003.

CSWRCB, Email to David Smith, April 11, 2003.

CSWRCB, Letter to David Smith with enclosures, April 22, 2003.

San Francisco RWQCB. Fax to David Smith, February 14, 2003.

Santa Ana RWQCB. Fax to David Smith, February 19, 2003.

Santa Ana RWQCB. Email to Craig J. Wilson with copy to David Smith, March 20, 2003.

CSWRCB, 2000. California Section 305(b) Report for 2000.

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San Francisco Bay RWQCB, 1995. Water Quality Control Plan, 1995.

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Los Angeles RWQCB, 1994. Water Quality Control Plan. 1994.

Santa Ana RWQCB, 1995. Water Quality Control Plan, 1995.

Other Documents

Dodds and Welch, 2000. Establishing Nutrient Criteria in Streams. J.N. Am. Benthol. Soc., 2000, 19(1): 186-196.

EPA, 2003. Total Maximum Daily Loads for Nutrients, Malibu Creek Watershed, March 2003.

EPA, 2002. Consolidated Assessment and Listing Methodology, EPA Office of Water, July 2002.

EPA, 2001. November 19, 2001 memorandum from EPA Office of Water regarding 2002

Integrated Water Quality Monitoring and Assessment Report Guidance.

EPA 2000. Guidance: Use of Fish and Shellfish Advisories and Classifications in 303(d) and 305(b) Listing Decisions - Geoffrey H. Grubbs and Robert H. Wayland III -- Oct. 24, 2000

EPA 2000. Ambient Water Quality Criteria Recommendations- Information Supporting the Development of State and Tribal Nutrient Criteria. Nutrient Criteria in Ecoregion III. EPA Office of Water, EPA 822-B-00-016, December 2000.

EPA, 2000. Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California. 65 FR 97, p. 31681 et. seq., May 18, 2000.

EPA 1997. 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."

EPA 1997. 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

EPA 1993. 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."

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

EPA 1992. 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."

EPA 1992. 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."

EPA 1991. *Guidance for Water Quality Based Decisions: The TMDL Process*. EPA 440/4-91-001 U.S. Environmental Protection Agency, Office of Water, Washington, DC.

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

EPA 1978. 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.

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Fleck, Diane, 2003. California 303(d) List- Nickel Analysis. April 25, 2003.

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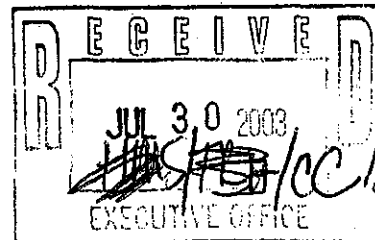
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

#14005

JUL 25 2003



Ms. Celeste Cantú
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 94912-0100

DWQ Received
Chief's Office

AUG 5 2003

KAH

Dear Ms. Cantú:

On June 5, 2003, EPA partially approved and partially disapproved California's 2002 §303(d) list. Specifically, EPA approved the State's decision to list the 679 waters and associated pollutants identified at Tab 1 of the California listing report along with the State's priority rankings for these waters and pollutants. EPA disapproved the State's decision not to list 5 additional water bodies and additional pollutants for 15 waters already listed by the State. EPA further identified these additional water bodies and pollutants with appropriate priority rankings for inclusion on the 2002 §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 July 8, 2003. EPA has carefully reviewed the 20 written comments received from the State and other commenters, most of which focused on the Laguna de Santa Rosa. We concluded that none of the comments warrants modifying the list of additional waters and pollutants identified by EPA.

Pursuant to the requirements of federal regulations at 40 CFR 130.7, I am hereby transmitting to you the final 2002 §303(d) list for California which includes the additional waters and additional pollutants for several waters already listed by the State, in addition to the waters listed by the State.¹ 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).

We look forward to working with the State during the 2004 listing process. If you have questions on any aspect of this final listing decision, feel free to give me a call at (415) 972-3435 or call David Smith of my staff at (415) 972-3416.

Sincerely,

Catherine Kuhman

for

Alexis Strauss
Director
Water Division

Enclosures

¹ As explained in my letter to you dated June 18, 2003, EPA is deferring final action on the State's listing decision concerning South San Francisco Bay copper and nickel. EPA expects to approve the State's decision not to include copper and nickel on the §303(d) list following final depromulgation of the federal criteria for these pollutants, which is expected in the near future.

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Enclosure 1: Waters added to 303(d) list for California

Description of Table Columns:

"Water Body" column identifies the water bodies on the 303(d) list.

"Pollutants" column identifies the specific pollutants for which the water bodies were found to exceed water quality standards.

"Basis for Listing" column identifies the basis for individual listing decisions.

"Priority Ranking" column indicates the priority ranking for TMDL development associated with an individual listing decision (H = High; M = Medium; L = Low priority)

Water Body (Regional Board)	Pollutants	Water already listed by State for other pollutants?	Priority Ranking
Humboldt Bay (1)	PCBs	N	L
Laguna de Santa Rosa (1)	total nitrogen and total phosphorus	Y	L
Lake Merced (2)	dissolved oxygen and pH	N	L
Lake Merritt (2)	dissolved oxygen	Y	L
San Francisco Bay segments: Sacramento/San Joaquin Delta Lower San Francisco Bay San Pablo Bay Suisun Bay (2)	nickel	Y	L
Chumash Creek (3)	dissolved oxygen	Y	L
Llagas Creek (3)	dissolved oxygen	Y	L
Los Osos Creek (3)	dissolved oxygen	Y	L
Orcutt Solomon Creek (3)	boron	Y	L
San Antonio Creek (3)	boron	Y	L
Calleguas Creek Reach 4 (4)	boron, sulfate, total dissolved solids	Y	M
San Gabriel River Reach 1 San Gabriel River Reach 3 Coyote Creek (4)	toxicity	Reach 1- Y Reach 3- N Coyote- Y	M
Bolsa Chica (8)	copper and nickel	N	L
Anaheim Bay (8)	copper, nickel, dieldrin, and PCBs	N	L
Huntington Harbour (8)	copper, nickel, dieldrin, and PCBs	Y	L

Enclosure 2:
Responsiveness Summary
EPA Decision Concerning California's 2002 CWA Section 303(d) List

Introduction

EPA partially approved and partially disapproved California's Section 303(d) list on June 5, 2003. EPA published a public notice of availability of its listing decision in the Federal Register on June 5, 2003 (68 FR p. 33693). EPA invited public comment on its decisions to disapprove California's decisions not to list certain waters and pollutants and identify these waters and pollutants for inclusion on California's list. EPA did not invite comment on its decisions to approve the State's decision to list waters and pollutants identified in the State listing submittal. EPA also posted the notice of availability and decision documents on its Region 9 web site. Decision documents were also available upon request to staff at Region 9.

EPA received comments from 20 parties in response to the public notice. Written comments were received from the following parties concerning the issues identified in parentheses:

1. City of Santa Rosa (Laguna de Santa Rosa)
2. State Water Resources Control Board (Laguna de Santa Rosa)
3. Brenda Adelman (Laguna de Santa Rosa)
4. WaterKeepers Northern California (multiple issues)
5. Campbell Timberland Management (North Coast temperature)
6. Ann Hernday (Laguna de Santa Rosa)
7. Jenny Blaker (Laguna de Santa Rosa)
8. Wendy Krupnick (Laguna de Santa Rosa)
9. Western Sonoma County Rural Alliance (Laguna de Santa Rosa)
10. Diane McColley (Laguna de Santa Rosa)
11. Western States Petroleum Association (multiple issues)
12. Russian Riverkeeper (Laguna de Santa Rosa)
13. Lynn Newton (Laguna de Santa Rosa)
14. San Francisco Public Utilities Commission (Lake Merced)
15. California Association of Sanitation Agencies and Tri-TAC (multiple issues)
16. The Ocean Conservancy (multiple issues)
17. California Forestry Association (North Coast temperature)
18. Sanitation Districts of Los Angeles County (San Gabriel River basin)
19. Russian River Watershed Council- Environmental Caucus (Laguna de Santa Rosa)
20. Audubon California, Mayacamas Mountains Audubon Sanctuary (Laguna de Santa Rosa)

This responsiveness summary contains summaries of comments received and EPA's responses to these comments. Because similar comments were made by many commenters, the responsiveness summary groups the comments and provides summary responses. Cross-cutting, general comments are addressed first, followed by comments concerning specific water body listings.

EPA is making no changes in its listing decisions based on comments received during the comment period. The final list being transmitted to California contains each of the waters and pollutants identified for listing by EPA on June 5, 2003.

General Comments and Responses

1. EPA should not approve California's list because:

- the State failed to include invasive species as required,
- the State illegally removed waters from prior 303(d) lists
- the State failed to list San Francisco Bay for copper,
- the State improperly lowered the priority ranking for San Francisco Bay dioxin TMDL development,
- the State failed to list several Central Valley waters for temperature,
- the State failed to list Smith Canal for PCBs
- the State's placement of waters on alternative lists is contrary to Clean Water Act requirements,
- the State delisted portions of waters by redefining their sizes without providing adequate opportunities for public review and comment
- the State improperly listed several North Coast rivers due to temperature impairment.

Response: The comments address EPA's June 5, 2003 decision to partially approve California's listing submissions. EPA's partial approval decision was final on June 5, 2003, 2002, and we were not inviting public comment concerning that decision because the State had already provided opportunities for public review and comment on its listing decisions. EPA was inviting comment only on its decisions to disapprove California's failure to list specific waters and pollutants, and to identify those additional waters and pollutants for inclusion on the final 2002 Section 303(d) list. No response to the comments concerning the specific State listing decisions of concern to the commenters is necessary because those listing decisions were previously made and are not currently under consideration by EPA.

2. The commenters support EPA's additions to the list (comments 4 and 16).

Response: We appreciate the comment.

3. The State's decision to include Humboldt Bay, Lake Merced, Chumash Creek, Llagas Creek, Los Osos Creek, Orcutt Solomon Creek, San Antonio Creek, Anaheim Bay, and Huntington Harbor on a monitoring list instead of the 303(d) list was reasonable and should be approved by EPA because EPA recognized the need to conduct additional monitoring of these waters prior to developing TMDLs. (comment 11)

Response: The commenter provided no specific analysis supporting a conclusion that these waters attain applicable water quality standards for the pollutants listed by EPA. EPA's

recommendation that additional monitoring is warranted prior to TMDL development was not intended to suggest that insufficient data were available to support EPA's decisions to add these waters and pollutants to the 303(d) list. To the contrary, EPA added these waters to the list because we determined that the existing and readily available data demonstrated exceedance of the applicable water quality standards. EPA notes that additional monitoring is often needed to better characterize water quality conditions prior to developing TMDLs for listed waters.

4. We support EPA's approval of the State's development of a monitoring list.

Response: EPA took no action on the State's decision to identify waters on a monitoring list, and EPA did add to the Section 303(d) list several waters and pollutants that the State had instead included on a monitoring list.

5. EPA should not list under Section 303(d) any waters that do not clearly require TMDLs because (1) the list determines where TMDLs will be developed and resources expended over the next several years and (2) inclusion on the list affects NPDES permitting decisions during the interim period between listing and TMDL development.

Response: EPA added only those waters and pollutants for which available data and information support a determination that applicable water quality standards are not implemented. This is consistent with Section 303(d) of the Clean Water Act and the implementing regulations, which generally require the listing of waters that exceed applicable water quality standards. As noted above, in some situations, additional data or information may be needed subsequent to listing to confirm with certainty that a TMDL is required and/or to establish the needed TMDL. We note that EPA added a very small number of waters and pollutants to the State's list (26 new listings by EPA in comparison with 1855 listings made by the State). We also note that almost all the new EPA listings are ranked as low priorities for TMDL development. We disagree that the new EPA listing decisions will have a substantial impact on the State's investments in TMDL development over the next several years.

Section 303(d) listing decisions do not directly affect any discharger's rights or responsibilities and do not directly create substantial financial or social impacts. Inclusion of a water body on the Section 303(d) list indicates that existing and readily available data and information demonstrate that the water does not meet applicable water quality standards and that a TMDL must be developed for the water body in the future (unless it is later determined that the water meets water quality standards and no longer needs to be listed, or that another required pollutant control will result in timely attainment of water quality standards (see 40 CFR 130.7(b)(1))). But the listing of a water in and of itself does not adversely impact a discharger to that water. See, *Missouri Soybean Association v. U.S. EPA*, 289 F.3d 509, 512-13 (8th Cir., 2002) (challenge to EPA's approval of State's 303(d) list dismissed as not ripe; "MSA's complaint focuses on potential harm to its members resulting from stricter controls of the use of the challenged waters. More stringent controls on water use, however, will not occur until after TMDLs are developed and implemented. Even then, it remains uncertain whether TMDL development or regulatory implementation will adversely impact MSA's members." "We agree with the district court that

until objectionable TMDLs are developed and implemented, 'MSA's claims of harm are too remote to be anything other than speculative' and are not ripe for judicial resolution.")

To the extent NPDES permits are considered for issuance in situations where a discharge to an impaired water is involved, federal regulations governing the NPDES permitting process (e.g. 40 CFR 122.4(i) and 122.44(d) establish specific requirements with regard to discharges to impaired waters. These requirements operate independent of the Section 303(d) listing status of a particular receiving water and require the permitting authority to consider a receiving water's attainment or nonattainment of water quality standards as part of the permit proceeding. The fact that a water body is listed pursuant to Section 303(d) does not supplant these regulatory requirements of the NPDES permitting process.

6. EPA should not list Humboldt Bay, Laguna de Santa Rosa, Calleguas Creek, Anaheim Bay, or Huntington Harbor based on interpretations of narrative water quality standards and application of non regulatory advisory criteria.

Response: EPA disagrees. Federal regulations require that "For the purposes of listing waters under Section 130.7(b), the terms "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements." (40 CFR 130.7(b)(3), emphasis added). The federal regulations clearly require States to identify waters on the Section 303(d) list if any component of the applicable water quality standards, including narrative criteria are not being implemented. The Supreme Court has recognized that a water quality standard includes the water's uses that are to be protected, and not only the criteria necessary to protect the uses. See: CWA, sec. 302(c)(2)(A); *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700 (1994) ("Section 303 of the Clean Water Act requires ... that such standards 'consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses.'" (emphasis added)); 40 CFR 130.7(c)(1) ("TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards" (emphasis added); and EPA, Notice of Final Rule, 54 Fed. Reg. 23868, 23875, 23876, 23882 (June 2, 1989) ("State narrative water quality criteria must be attained and maintained in the same way as all water quality criteria. Narrative water quality criteria have the same force of law as other water quality criteria"; "Narrative water quality criteria apply to all designated uses at all flows unless specified otherwise in a state's water quality standards."; and, with respect to narrative criteria's continuing force after numeric criteria are adopted, "EPA reiterates that section 301(b)(1)(C) requires that NPDES permits contain effluent limits that achieve narrative water quality criteria. This obligation applies regardless of whether or not a state has adopted a numeric water quality criterion for a pollutant of concern." (emphasis added)).

Numeric water quality standards supplement but do not replace narrative water quality standards, particularly in cases in which designated use impairments are associated with the presence of pollutants in other water body media (e.g. aquatic sediments and fish tissue) in addition to the

water column. In these cases, limiting the assessment of water quality standards attainment to the analysis of water column pollutant concentrations could result in failure to identify waters that do not attain their uses due to pollutant accumulation in sediments or fish tissue. PCBs and chlorinated pesticides, the pollutants that are the subject of several of the listings of concern to the commenter, tend to accumulate in sediments and fish tissue and are often not detected at levels that exceed numeric water quality standards for water column concentrations despite their presence in sediment and tissue at levels which cause use impairment to the aquatic life or fish consumption beneficial uses.

EPA's approval of numeric water quality standards for these pollutants does not mean that the narrative water quality standards no longer apply to them. When EPA approved these numeric standards, EPA was concluding that the combination of beneficial use designations, numeric criteria, narrative criteria, and antidegradation provisions represented in the State's water quality standards were sufficient to protect the uses of the State's waters. See, 40 CFR 131.5 and 131.6.

EPA regulations and guidance encourage States to adopt numeric water quality standards but do not state that these numeric standards would replace or supercede other aspects of a State's standards.

7. EPA's decision to list waters due to toxic pollutants in the absence of formally adopted translator mechanisms violates federal regulations at 40 CFR 131.11(a)(2), as acknowledged by EPA in other contexts.

EPA disagrees. EPA regulations and guidance encourage States to adopt translator mechanisms to assist in implementing narrative standards but do not require the adoption of such translator mechanisms as a precondition to applying narrative standards in the Section 303(d) listing process as suggested by the commenter. EPA's decision documents explain the basis for EPA's interpretation of narrative water quality standards and EPA provided opportunities for public review of the methods used to apply the narrative standards for Section 303(d) assessments. As discussed above, federal regulations require that "For the purposes of listing waters under Section 130.7(b), the terms "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody uses, and antidegradation requirements." (40 CFR 130.7(b)(3) (emphasis added)). The federal regulations do not authorize States to decline to apply narrative standards in the Section 303(d) assessment process until translator mechanisms are adopted. Section 303(d) listing decisions do not regulate point source discharges; they simply identify waters that do not meet any applicable water quality standard and require development of TMDLs in the future.

The commenter cites a letter from EPA to the State Water Resources Control Board (February 15, 2002) as support for the assertion that EPA has acknowledged that it is invalid to list waters based on narrative criteria in the absence of adopted translators. The February 15, 2002 letter specifically states that:

“Because the requirements of 40 CFR 131.11(a)(2) are only triggered for the regulation of point sources discharges of priority toxic pollutants on water quality limited segments, the narrative criterion would be applicable for any other purpose.” (p. 4)

Because Section 303(d) listing is not an action that regulates point source discharges, EPA’s application of narrative standards for this purpose is clearly consistent with EPA’s February 15, 2002 letter and the requirements of 40 CFR 131.11(a)(2).

8. **The commenter questions the validity of EPA’s decisions to list Humboldt Bay, San Antonio Creek, Bolsa Chica, Anaheim Bay, and Huntington Harbor because it was inappropriate for EPA to “second-guess” the State’s finding that insufficient data were available to support the listing assessments. Consistent with EPA’s 1997 guidance, EPA should have considered the magnitude of exceedances and variability of the contaminant.**

Response: EPA concludes that it is inconsistent with federal listing requirements for the State to dismiss a water from further consideration in the Section 303(d) listing process simply because a minimum sample size threshold was not met for a particular water body. This is particularly true here, where the impairments are caused by toxic pollutants. As discussed in EPA’s June 5, 2003 decision, the State did not provide specific or clear analysis to support its general assertion that insufficient data were available to support listing assessments for these waters.

The key consideration in EPA’s decision to list several California waters and pollutants was the fact that for each of these waters, a very high percentage of available samples (from 67-100% of available samples depending upon the water and pollutant in question) did not meet the State’s preferred screening criteria for application of its narrative water quality standards. EPA’s decision to list these waters is consistent with EPA’s 1997 and 2002 technical guidance documents, which recommend listing of toxic pollutants in cases where standards are exceeded more than once in any three year period. EPA concluded that the very high exceedance rates provided sufficient evidence to support the listing decisions.

EPA guidance recommends that states develop monitoring and assessment programs that enable states to base assessment determinations on larger sample sizes in order to improve the analytical rigor of listing decisions. However, EPA guidance does not recommend that states decline to assess waters for which smaller sample sizes are available. EPA guidance recognizes that it is possible to determine with reasonable certainty that water quality standards are exceeded even in cases where sample sizes are relatively small (see, e.g., EPA, 2002). The high frequency of exceedances observed for the waters added to California’s Section 303(d) list clearly supports a conclusion that the exceedances are pervasive and that water quality standards are exceeded.

EPA’s 1997 guidance cited by the commenter states that:

“If fewer than 10 samples are available, the State should use discretion and consider other factors such as the number of pollutants having a single violation and the magnitude of the exceedances.” (p. 3-18)

The commenter implies that this guidance recommends against identifying waters as impaired based on small sample sizes unless these other factors are considered. We believe the guidance actually recommends the opposite approach—that States should consider identifying impaired waters even if sample sizes are very small—if the limited data indicate probable exceedances. For example, the guidance contemplates that it might be appropriate in some circumstances to identify an impaired water based on a single, high magnitude exceedance. EPA judged that the number of exceedances and frequency of exceedances observed for the waters and pollutants added to California’s list provided sufficient evidence that the applicable standards are not attained and that it was unnecessary to further examine magnitude of exceedances or the characteristics of these toxic pollutants.

9. Fairness requires that EPA reevaluate all existing State listings to determine if sufficient valid data were available to support the original listings. EPA’s approach appears to be to add water/pollutants to the State’s list but never to remove any listings, regardless of their validity.

Response: See response to comment 1.

10. Several waters should not be listed because EPA has not demonstrated that beneficial uses are impaired as required to determine that the applicable water quality standards are exceeded.

Response: Federal regulations do not require EPA to demonstrate beneficial use impairment in order to determine that a water exceeds applicable water quality standards. EPA disagrees with the inference that it would be necessary to determine both that beneficial uses are actually impaired and that narrative or numeric water quality objectives are exceeded in order to conclude that a water quality standard is not being implemented.

We would like to clarify the statements in EPA’s June 5, 2003 decision document that there was no current evidence of beneficial use impairment for some waters and pollutants being listed by EPA. We meant to indicate, in the context of a priority ranking discussion, that there was no direct evidence of beneficial use impairment (e.g., information concerning fish kills, adverse ecosystem impacts, or reports of human health impacts specific to the individual waters and pollutants under discussion), and that lower priority ranking factors were warranted as a result. However, the fact that these waters exceeded numeric or narrative water quality objectives for the listed pollutants provides strong indirect evidence of potential beneficial use impacts.

11. The proposed listing decisions are inconsistent with EPA’s draft 2004 Assessment Guidance. All the waters proposed for listing would fit into categories 2-4 and not into Category 5.

Response: EPA reviewed California's 2002 list based on the Clean Water Act, EPA's implementing regulations, and final applicable EPA guidance. The 2004 listing guidance was not complete when EPA reviewed the California list and is not applicable to establishment and review of the 2002 list. In any case, none of the EPA decisions to add waters and pollutants to California's 2002 Section 303(d) list are inconsistent with any provisions of the proposed (and now final) 2004 EPA Assessment Guidance cited by the commenter.

Water Body-Specific Comments

Laguna de Santa Rosa

12. The Laguna de Santa Rosa should not be listed for total phosphorus because:

- phosphorus is not the "limiting nutrient" in the Laguna affecting dissolved oxygen levels (based on analysis of bioavailable N:P ratios),
- listing phosphorous would divert limited resources away from real water quality issues and would not enhance efforts to protect beneficial uses,
- the cause of low dissolved oxygen levels in the Laguna is not certain,
- more study is needed to determine whether elevated phosphorous in the Laguna is the cause of low dissolved oxygen,
- not listing phosphorus will not delay the development of phosphorous TMDLs if necessary,
- there is no evidence of excess aquatic growths in the Laguna,
- EPA's screening level applied to evaluate total phosphorus data should not be applied to the Laguna because it is unreliable.
- it would be more appropriate to derive phosphorus assessment criteria based on region-specific information.

Response: EPA concludes that the extraordinarily high phosphorus levels in the Laguna de Santa Rosa likely contribute to dissolved oxygen and algae problems in the Laguna. EPA does not agree that the available data supports the commenters' contrary assertion. The commenters provide no analysis or supporting references or documentation to support their assertion that the nitrogen-to-phosphorus ratios measured in the Laguna prove that phosphorus does not cause or contribute to excess algae growth. The actual data analysis supporting the summary chart in the City of Santa Rosa's comments was not provided to EPA or the State in the City's comments. The commenters concede that the causes of low dissolved oxygen levels in the Laguna are poorly understood. The N:P ratio argument offered by the commenters does not appear to be based on any local studies of the actual nutrient dynamics or of limiting factors influencing dissolved oxygen levels and algae growth in the Laguna. If local studies served as the basis for the conclusions, they were not provided to support the comment conclusions. Instead, the commenters appear to be relying upon generalized results from academic studies (that are not clearly referenced in the comments) that suggest that at low concentrations, either nitrogen or phosphorous may be the nutrient limiting the level of algal productivity in certain water body types.

EPA questions whether a nutrient ratio argument even makes conceptual sense in the case of the Laguna for several reasons. First, nutrient ratios are most useful for indicating whether blue-green algae blooms are a potential problem-- if the ratio (by weight) is below 10, then dominance by blue-green algae is increasingly likely (Gerritsen, 2003 citing Smith, 1998 and Smith et al., 1999). Blue green algae, which have cause frequent algae blooms in Laguna de Santa Rosa, are able to fix needed nitrogen from atmosphere; therefore it is unlikely that nitrogen control will be effective in eliminating such algae blooms and associated adverse impacts on dissolved oxygen levels. Second, it is not clear why a nutrient ratio argument makes sense in situations where both nitrogen and phosphorus are present at very high levels. In the Laguna, the observed nitrogen and phosphorus levels are approximately an order of magnitude higher than both the simple screening values used by EPA in its June 5, 2003 report analysis and EPA's specific nitrogen and phosphorus criteria values recommended for the nutrient ecoregion III in which the Laguna is located (see EPA, 2000). EPA notes that no commenters appear to disagree with EPA's finding that the levels of both nitrogen and phosphorus in the Laguna are extraordinarily high. Third, the nutrient ratio argument depends upon measurements of nitrogen in the water column. Because aquatic plants quickly consume available nitrogen in the water column, dissolved nitrogen levels (and nutrient ratios based on dissolved nitrogen measurements) may not provide discriminating indicators of nutrient-algae growth dynamics or the potential for algal growth (see EPA, 2003). Finally, EPA's contractor reviewed studies of nutrient effects in freshwater lakes and streams and found that all studies reviewed indicated that algal biomass in freshwater streams is controlled by either phosphorus or both nitrogen and phosphorus. No studies were found that claimed algae control by nitrogen alone (Gerritsen, 2003).

Even if the nutrient ratio argument was reliable in this case, it would not compel a finding that phosphorus does not cause or contribute to a water quality standards exceedance. Rather, the nutrient ratio argument appears to suggest that it would be more cost effective to address nutrient-related problems through nitrogen control than through phosphorous control. As discussed above, the actual levels of nitrogen and phosphorus measured in the Laguna are high enough to be associated with excessive algal growth and associated dissolved oxygen problems. It would be inappropriate to refuse to list one pollutant for which there are data and information showing it contributes to a water quality standards exceedance (dissolved oxygen in this case) based on an assertion that it is more cost effective to address that exceedance through control of a different pollutant. It may be appropriate to address the issue of the most cost effective way to address dissolved oxygen exceedances at the time the TMDL analysis is conducted.

Commenters questioned EPA's reliance on the 0.1 mg/L screening level for total phosphorus and 1.0 mg/L for total nitrogen, recommending that it would be more appropriate to base phosphorus analysis on more locally-derived data. EPA has published recommended nitrogen and phosphorus criteria based on local reference stream data for different nutrient ecoregions around the country (EPA, 2000). Laguna de Santa Rosa is located within the "Southern and Central California Chaparral and Oak Woodlands" sub-ecoregion within the "Xeric West" aggregate ecoregion. The recommended criteria values for this sub-ecoregion are 0.03 mg/L for total phosphorus and 0.5 mg/L for total nitrogen. In addition, EPA's contractor found that several stream studies from different parts of the world have arrived at similar ranges of targets for

nutrient reduction in streams to control algal biomass: total N in the range of 0.75-1.5 mg/L and total P in the range of 0.01-0.04 mg/L (Gerritsen, 2003). These values are approximately an order of magnitude lower than the values measured in the Laguna de Santa Rosa, and virtually every sample collected between 1997-2000 exceeds each of these recommended criteria values and the range of target values discussed in other stream studies. Although EPA acknowledges that there is some uncertainty as to whether these recommended criteria values would accurately discriminate between streams that are nutrient limited and those which are not, the fact that Laguna nitrogen and phosphorous levels are far above any recommended screening values strongly supports EPA's conclusion that total nitrogen and total phosphorus must be included on the Section 303(d) list for the Laguna.

EPA's experience supports the conclusion that, with respect to freshwater streams, nitrogen control alone is unlikely to result in attainment of all applicable water quality standards associated with dissolved oxygen and algae growth, especially during the periods in which algae growth is most likely to be a problem (see, for example, TMDLs for Malibu Creek, CA (EPA, 1993), Clark Fork, MT (Ingman, 1992), EPA, 1999, EPA, 2000). Excessive algae growth (especially of nitrogen-fixing algae) and associated dissolved oxygen problems will likely occur in the system even if nitrogen levels were substantially reduced. EPA notes that adoption and implementation of TMDLs for nitrogen compounds in the Laguna de Santa Rosa in 1995 was designed to address excessive algae growth and depressed dissolved oxygen levels, but has not eliminated the frequent dissolved oxygen exceedances based on review of data summarized in the comments submitted to EPA. EPA also notes that the administrative record before the State contains evidence that algae levels in the Laguna are high enough to cause or contribute to low dissolved oxygen levels, and that algae levels are more closely correlated with phosphorus levels than with nitrogen levels (Wickham and Rawson, 2000, in State Board administrative record reference # 19).

EPA disagrees that phosphorous listings would necessarily divert attention or resources from other assessment and control priorities in the Laguna basin. On the one hand, the commenters appear to assert that future planned studies designed to address the dissolved oxygen listings will necessarily address phosphorus as well as nitrogen and other potential limiting factors. On the other hand, the commenters assert with great confidence that phosphorus is not a limiting factor for algal growth or for dissolved oxygen. Therefore, it is uncertain whether future studies will actually address the role of phosphorus in Laguna algal and dissolved oxygen dynamics. EPA believes the individual nitrogen and phosphorus listings will help ensure that future studies address both nutrients.

13. Commenters support listing the Laguna de Santa Rosa for total nitrogen and phosphorus.

Response: We appreciate the comments.

San Francisco Bay Nickel

14. San Francisco Bay should not be listed for nickel because the State is in the process of revising the applicable water quality standards for nickel and the Bay will meet the revised standards.

Response: As the commenter acknowledges, the San Francisco Bay Basin Plan has a total nickel water quality objective that is the numeric water quality standard currently in effect for San Francisco Bay. No State or Federal action to revise this standard has been completed. Federal regulations require the States or EPA to apply the currently applicable water quality standards for purposes of developing the Section 303(d) list (see 40 CFR 130.7(b)(3)). The commenter does not appear to claim that the Bay currently meets the currently applicable standard and has therefore provided no valid basis for EPA to change its decision to list the specified Bay segments for nickel.

Lake Merced

15. Lake Merced should not be listed for dissolved oxygen and pH because low DO and pH excursions are characteristics of many lakes, and there are no documented impairments of beneficial uses. The listing would likely prevent management options that would improve lake water quality.

Response: As discussed in the listing decision, the State water quality standards provide no exemption from applying the DO and pH standards at all lake depths and at all times. The commenter has provided no analysis demonstrating attainment of the DO and pH standards. Regarding the comment concerning impacts of listing on management options, see the response to comment 5.

San Gabriel River Basin

16. San Gabriel River and Coyote Creek should not be listed for toxicity because toxicity is not a pollutant suitable for TMDL calculation.

Response: EPA interprets the Section 303(d) regulations to require States to list waters that are impaired due to pollutant characteristics including toxicity as well as waters impaired due to pollutants. EPA recently clarified its position by explaining that "When existing and readily available data and information (biological, chemical or physical) are sufficient to determine that a pollutant has caused, is suspected of causing, or is projected to cause the impairment, the AU should be listed [on the Section 303(d) list]" (Memorandum from Robert Wayland III to EPA Regions and State Directors, March 26, 2002). The information in the administrative record for San Gabriel River and Coyote Creek suggests that several pollutants cause or contribute to the toxicity observed in these segments.

EPA has consistently interpreted Section 303(d) listing regulations as requiring listing of waters impaired by pollutants or characteristics of pollutants. For example, in 1978 EPA stated that "the determination of TMDLs for parameters which indicate the presence of pollutants... can be useful in certain situations and should not be excluded from consideration." (43 FR 60662, December 28, 1978). When EPA amended and clarified the existing regulation in 1992, we restated the regulatory requirement of 40CFR 130.7(b)(4) and explained that:

"To identify water quality-limited waters that still require TMDLs, the particular pollutant causing the problem will usually be known. However, pollutants include both individual chemicals and characteristics such as nutrients, BOD, or toxicity. Moreover, many waters do not meet standards due to non-chemical problems such as siltation." (57 FR 33045 (July 24, 1992)).

Finally, the currently applicable federal regulatory definition of TMDL provides that "TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure." (40 CFR 130.2(i) (emphasis added)). In recognizing that TMDLs themselves can be expressed in terms of toxicity, EPA was clearly assuming that waters can be listed under Section 303(d) for toxicity.

17. EPA did not comply with the Basin Plan implementation procedures to implement the toxicity objective.

Response: The Basin Plan implementation provisions discuss procedures for interpreting toxicity testing results to identify chronic or acute toxicity. EPA relied upon toxicity testing results conducted by the commenter and provided to the State in support of the State's listing decisions. EPA carefully reviewed these toxicity testing results and has concluded that they are consistent with Basin Plan toxicity testing protocols. Therefore, EPA disagrees that the toxicity listing decisions are inconsistent with the Basin Plan toxicity implementation provisions.

18. We agree that it is important to re-evaluate the toxicity listings in the future.

Response: We appreciate the comment.

19. The commenter disagrees with EPA's statement that it is uncertain whether enforceable toxicity controls will be in place in the future for the water reclamation plants.

Response: Until final NPDES permits for these facilities are in place that contain clearly enforceable toxicity limitations, EPA will continue to conclude that it is uncertain whether enforceable toxicity controls are in place.