California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

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Gray Davis
Governor

Date: December 5, 2001
File No. 1701.00 (SMM)

Mr. Stan Martinson, Chief
Division of Water Quality
1001 I Street, 15th Floor
Sacramento, CA 95814

Dear. Mr. Martinson:

Enclosed are recommended revisions to the 303(d) list for waters within the San Francisco Bay Region. On November 28, 2001, the Regional Board passed a resolution, attached, allowing the Executive Officer to transmit these recommendations to the State Water Resources Control Board for their use in compiling the revised 303(d) list for California.

As a result of staff review of readily available information, we are recommending additions of waterbodies and pollutants to the 303(d) list, and tentatively recommending that the State Board de-list copper and nickel for San Francisco Bay segments. As indicated in the attached staff report at page 31 and following, there are unfinished work products on copper and nickel at the time of this transmittal, and the Regional Board's recommendation to de-list copper and nickel for segments north of the Dumbarton Bridge is contingent on completion of key work products and commitments to pollution prevention for these pollutants. During the State Board's upcoming public process we will provide input as to the adequacy of these work products and commitments.

Additionally, our analysis recommends a preliminary or "watch" list for pollutants and waterbodies where data are inadequate to support a formal listing, but evidence suggests impairment and more assessment information are needed. This "watch" list is not part of the 303(d) list recommendations, but an assessment priority list that the Regional Board will use to generate and evaluate assessment information in the next listing cycle.

If you have any questions, please contact Steve Moore at (510) 622-2439 or smm@rb2.swrcb.ca.gov.

Sincerely,

Loretta K. Barsamian

Loretta Barsamian
Executive Officer

Enclosures
Resolution No. 01-147
Staff Report with attachments

cc: Alexis Strauss, USEPA
Diane Fleck, USEPA
Craig J. Wilson, SWRCB, DWQ
Diane Beaulaurier, SWRCB, DWQ

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESOLUTION NO. 01-147

TRANSMITTAL TO THE STATE WATER RESOURCES CONTROL BOARD

RECOMMENDING CHANGES TO THE LIST OF WATERBODIES AS REQUIRED IN SECTION 303(D) OF THE CLEAN WATER ACT

WHEREAS, Section 305(b) of the Federal Clean Water Act requires the State to prepare a biennial update of an assessment of the waters within the State; and

WHEREAS, Section 303(d) of the Federal Clean Water Act requires the State to provide an update of a list of the waters within the State for which existing limitations are not stringent enough to implement water quality standards applicable to such waters; and

WHEREAS, the Regional Water Quality Control Board (Regional Board) has been directed to review and revise the Water Quality Assessment and 303(d) list for waters within the Region for inclusion in the 2002 California Water Quality Assessment and California 305(b) Report on Water Quality; and

WHEREAS, the Regional Board solicited water quality information from the public on March 2, 2001, and received 17 responses with varying levels of information; and

WHEREAS, Regional Board staff considered all public responses to the Regional Board's solicitation of water quality information and circulated draft recommendations for public review and comment on August 27, 2001, and received 16 comment letters or email messages during a 45-day comment period; and

WHEREAS, Regional Board staff considered all public comments received and provided written responses and revised the draft report for the Regional Board's consideration; and

WHEREAS, on November 28, 2001 in Oakland, California, the Regional Board conducted a public hearing and considered all testimony and comments, both oral and written, regarding the 2002 Water Quality Assessment and 303(d) list for the San Francisco Bay Region;

THEREFORE, BE IT RESOLVED that the Regional Board concurs with the process being used by staff to recommend to the State Water Resources Control Board changes to the 303(d) list; and

BE IT FURTHER RESOLVED that the California Regional Water Quality Control Board, San Francisco Bay Region, in fulfillment of the requirements described in Sections 305(b) and 303(d) of the Clean Water Act, hereby authorizes the Executive

Officer to transmit recommended revisions to the 303(d) Priority List, as detailed in the attached Staff Report dated November 14, 2001, to the State Water Resources Control Board for inclusion in the 2002 California Water Quality Assessment and California 305(b) Report on Water Quality.

I, Loretta K. Barsamian, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on November 28, 2001.

Loretta K. Barsamian

Loretta K. Barsamian
Executive Officer

STAFF REPORT

PROPOSED REVISIONS TO SECTION 303(d) LIST AND PRIORITIES FOR DEVELOPMENT OF TOTAL MAXIMUM DAILY LOADS (TMDLs) FOR THE SAN FRANCISCO BAY REGION

November 14, 2001

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay St., Suite 1400
Oakland, CA 94612

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Introduction

Under Federal Clean Water Act regulations, every two years the State is required to report to the U.S. EPA on the status of water quality in the State (Section 305(b) water quality assessment), and provide a list of impaired water bodies (Section 303(d) list). Impaired water bodies are those where water quality standards are not expected to be met after implementation of best available technology controls, which include municipal wastewater treatment plants. Water quality standards include designated uses, any narrative or numeric water quality objectives, and antidegradation, or maintenance of ambient water quality. The 305(b) and 303(d) actions provide the Regional Board a planning tool to identify waters where regulatory programs are not addressing water quality issues of concern to the public.

Once the water bodies are 303(d) listed, the State is required to determine the amount that the pollutants of concern must be reduced to meet the applicable water quality standard and eliminate beneficial use impairment. This allocation of allowable pollutant discharge from various sources is called a *total maximum daily load*, or TMDL. U.S. EPA specifies in its 1991 guidance that a TMDL has essentially two meanings:

- The TMDL process is used for implementing state water quality standards – that is, it is a planning process that will lead to the goal of meeting the water quality standards; and
- The TMDL is a numerical quantity determining the present and near future maximum load of pollutants from point and nonpoint sources as well as from background sources, to receiving water bodies that will not violate the state water quality standards with an adequate margin of safety. The permissible load is then allocated by the state agency among point and nonpoint sources.

A priority ranking for listed waters is required by federal regulations to guide TMDL planning. Preparation of a TMDL is normally a major staff workload, but the TMDL process is the logical way of addressing problems where pollutants, such as mercury, come from many sources, including wastewater, urban runoff, air sources, and abandoned mines. In this sense, the TMDL process becomes part of watershed management.

Federal regulations at 40 CFR 130.7(a)(5) specify that States must "evaluate all existing and readily available water quality-related data and information" when developing the 303(d) list. This requirement provides organizations and the public-at-large the opportunity to suggest changes to the 303(d) list based on recent physical, chemical, and biological data or information. Changes to the 303(d) list may include: (1) adding water bodies and pollutants to the list; (2) de-listing, or removing water bodies and pollutants from the list; or (3) refining the list, using recent data to indicate specific pollutants instead of pollutant classes (e.g., mercury in lieu of metals). This year's public solicitation set forth the definition of what data and information are considered readily available by the Regional Board, listed in Appendix A.

Listing Process

For the State Board's 2002 303(d) list update, the Regional Board solicited information from the public to consider for the 303(d) list (Attachment A), to be provided by May 15, 2001. In that solicitation, the Board specified that only information generated since the last listing cycle (as early as July 1997) will be considered, unless such information had not been previously brought to the Board's attention in the preparation of the 1998 303(d) list. Beyond this general solicitation, agencies such as California Department of Fish and Game and the National Marine Fisheries Service were actively solicited for any new information to refine or augment the existing 303(d) list based on any new studies (none were identified). Various water districts with watershed monitoring programs were solicited for readily available information on water quality. The Department of Health Services was interviewed and sanitary surveys in its offices reviewed to identify any persistent surface water quality problems for drinking water supply sources (none were identified).

This unprecedented public solicitation resulted in 17 individual submittals by agencies and private organizations. Some of the submittals were technical reports focused on watershed assessment, such as fisheries habitat on a watershed scale or geomorphic assessment, some were raw data from water district or U.S. Geological Survey monitoring, and some were brief letters that referred to other studies as a basis for listing or de-listing. The submittals varied widely in content and magnitude, with the Waterkeepers of Northern California submitting the largest amount of technical reports and requests to list water bodies and pollutants/stressors. In total, the submittals included requests to list new water bodies and pollutants, to de-list water bodies and pollutants, and many submittals were simply spreadsheets with water quality data – some without any documentation of quality assurance and quality control (e.g., personnel training, confirmation analyses, or standard analytical or sampling procedures).

In California, it is important to recognize that all water monitoring and assessment is conducted in a decentralized manner. Only since 1990 has ambient monitoring received emphasis by the Regional Boards and U.S. EPA; effluent monitoring has been the programmatic focus since the Clean Water Act of 1972. In 1989 the California State Legislature added to and modified the California Water Code to establish the Bay Protection and Toxic Cleanup Program (BPTCP), which led to identification and characterization of "toxic hotspots" in the San Francisco Bay-Delta Estuary and plans for cleanup or other remedial or mitigation actions. The BPTCP final report in 1998 assessed the relationship between toxic pollutants in sediment and biological effects.

In the San Francisco Bay Region, dischargers to the San Francisco Bay-Delta Estuary contribute ambient monitoring funding to the San Francisco Estuary Regional Monitoring Program (RMP), which provides high quality data (i.e. well documented QA/QC and analytical protocols) on trace substances and various special studies. In 1998, the Regional Board used data from the RMP, initiated in 1993, to change the 303(d) list. No comparable effort exists in the watersheds of the San Francisco Bay Region, so

information on water bodies and water quality data collection designed for 305(b) water body assessment and 303(d) listing is extremely limited outside the estuary.

Indeed, ongoing watershed and beach monitoring by public agencies for assessment purposes is limited to drinking water reservoir areas (for public health, taste, and odor management) and bacterial monitoring of major water contact recreation areas. The Regional Board, municipal stormwater agencies, and some local watershed councils are working on development of watershed monitoring and assessment programs, but most are in early stages and do not have adequate funding to provide monitoring data at a spatial and temporal scale necessary for rigorous assessment. The quality and magnitude of the assessment of water quality information conducted for this 303(d) list update must be considered in the context of this loosely connected fabric of multiple monitoring efforts with multiple, site-specific assessment objectives.

The Regional Boards have been requested to provide recommendations to the State Board in Fall 2001 on the condition of Regional waters. The State Board will consider all Regional Boards' recommendations regarding the conditions of the Region's waters when formulating the 303(d) submission to U.S. EPA. The State's submission revising the list of impaired waters will be considered by the State Board in a public process to be conducted in early 2002. Opportunities for review of the State Board's proposed submission and public comment on the submission will be announced at a later date.

Approach to Listing Waters

The general factors used by the Regional Board staff to recommend changes to the 303(d) list for surface waters within the San Francisco Bay Region are summarized below. These listing considerations have been developed by representatives of different Regional Boards, State Board, and the U.S. EPA based on listing criteria recommended by U.S. EPA and used by numerous states, including Oregon, Washington, Nevada, and Arizona.

The Regional Board exercises caution in its decisions to recommend water bodies and pollutants/stressors on the 303(d) list, recognizing the context of the original statute. The Clean Water Act defines impaired water bodies as those navigable waters where water quality standards are not expected to be met after implementation of best available technology controls. The issues considered by the Regional Board consequently include (1) spatial and temporal extent of impairment; (2) consideration of tributaries or embayments; (3) seasonality of beneficial uses; and (4) whether technology has been implemented, especially with respect to nonpoint sources of pollutants or pollution, since point source control technology has been implemented in the San Francisco Bay Region. Some believe that municipal stormwater programs, in existence for 5 to 11 years, have had enough time to implement best management practices (BMPs) and that these controls are "in place" due to the regulatory program and any observed impairments should trigger immediate listing. Others, particularly municipalities, believe that the water quality benefits of urban runoff control technology and BMPs have yet to be realized and that listings should be delayed. Regional Board staff and legal counsel generally

advocate the former position, that conclusive evidence of impairment should trigger listing in 2002.

Implicit in a decision to list (or de-list) is a review of the persistence of impairing conditions across the water body in space and time. In the case of water contact use, spatial coverage may be limited to areas of public access, and temporal coverage limited to the dry season when the use exists and bacterial measurements are more representative of exposure. Environmental indicators such as dissolved oxygen, pH, fecal coliform, or metals in water provide measures of impairment where thresholds are specified in the Basin Plan or the California Toxics Rule. Watershed sediment or fisheries habitat studies provide measures of impairment when these studies demonstrate a departure from expected conditions for beneficial use support. Photo documentation of erosion, siltation, or trash is information the Regional Board can consider in an overall weight of evidence. The Regional Board will not list a water body based on a single or episodic event such as a spill or illicit discharge. There are other regulatory mechanisms to deal with these types of less persistent water quality problems, such as waste discharge requirements, cleanup and abatement orders, or general permits for construction or industrial stormwater discharges.

In instances where a mainstem water body in a watershed is listed for a pollutant/stressor, the tributaries are assumed to be impaired as well and would be analyzed eventually with respect to potential sources of pollutants in a TMDL. As such, it is redundant to list tributary water bodies, if the mainstem water body is already listed. The mainstem listing approach also provides a structure to address non-navigable portions of the water body system in a watershed, and prevents the unnecessary proliferation of TMDL processes that are obviously interrelated. This scenario applies to embayments, sloughs, channels, and lagoons within the larger estuary as well. The majority of requests for listing by environmental groups received during the public solicitation fall into this category. The Regional Board did not ignore the data submitted for consideration, but rather found that most of these waterbodies were already technically listed. Examples include bay toxic hotspots with elevated sediment concentrations of PCBs, mercury, and chlorinated pesticides, which are already listed, or similarly siltation and nutrient impairment evidence in tributaries of already-listed mainstems like the Petaluma River. The tributary-based listing approach does <u>not</u> apply to freshwater tributaries of estuarine or marine water bodies.

Beneficial uses of water bodies sometimes have an inherent seasonality, and this aspect is taken into account in the listing recommendations. For instance, there are different temperature sensitivities of various life stages of steelhead, such that a single year-round temperature threshold to assess cold freshwater habitat (or preservation of rare and endangered species) does not exist. Lakes and reservoirs that are mesotrophic and eutrophic, which is the case in the San Francisco Bay Region, stratify in the dry season, with less dense warm water (epilimnion) lying above colder water (hypolimnion). The line between these layers is known as the thermocline, which normally disappears in the wet season when the epilimnion cools and the lake mixes or "turns over." During the dry season, mesotrophic and eutrophic lakes and reservoirs exhibit low dissolved oxygen

(DO) in the hypolimnion due to decaying planktonic matter (Goldman and Horne, 1983). Therefore only epilimnion DO is considered during the dry season. Similarly, water contact recreation (swimming or wading) for the majority of the public occurs during the dry season, with a few minor exceptions such as some specific portions of the ocean. In addition, bacterial indicators often lead to "false positives" due to naturally occurring non-pathogenic bacteria during the wet season, with soil or wildlife sources, and for these reasons dry season monitoring forms the basis of the most of the assessment for 303(d) purposes.

The Clean Water Act (CWA) also specifies that impairment determinations for water bodies occur after technology has been implemented, in the form of effluent limitations, to control pollutants. Before listing a water body and pollutant/stressor, the Regional Board must consider whether control measures specified under the CWA have been implemented, prior to determining if a water body is not attaining applicable standards (uses, objectives, and antidegradation). Since the original technology-based standards for point sources are based on technology, and are not water quality-based, the 303(d) list provides a mechanism to either improve point source controls further or identify and address the nonpoint sources that contribute to any water quality excursions.

Review of NPDES permitted discharges from industry and publicly-owned treatment works (POTWs) can be a straightforward exercise due to availability of effluent data, but review of the question of whether technology has been implemented to control urban runoff and nonpoint sources is more complex. This is complicated by a number of factors that are directly related to the nature of urban runoff and nonpoint source discharges. These include the nature of effective controls and the large area over which any controls must be implemented to be effective. NPDES permits have been in place for municipal stormwater programs of the San Francisco Bay Region for as long as 11 years. Therefore at this stage it is difficult to make a case that technology to control pollutants in urban runoff, best management practices (BMPs), has not been implemented. For this year's 303(d) recommendations, including a preliminary list recommended by the National Research Council (NRC, 2001), the Regional Board is weighing these issues in a case-by-case manner.

A. Listing Factors

Water bodies and associated pollutants will be recommended for addition to the 303(d) list if any one of these factors is met:

1. Effluent limitations or other pollution control requirements [e.g., Best Management Practices (BMPs)] are not stringent enough to assure protection of beneficial uses and attainment of SWRCB and RWQCB objectives, including those implementing SWRCB Resolution Number 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California" [see also 40 CFR 130.7(b)(1)]. This does not apply to non-attainment related solely to discharge in violation of existing WDR's or NPDES permit.

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

3. Beneficial uses are impaired or are expected to be impaired within the listing cycle (i.e. in next four years). Impairment is based upon evaluation of chemical, physical, or biological integrity. Impairment will be determined by "qualitative assessment", physical/ chemical monitoring, bioassay tests, and/or other biological monitoring. Applicable Federal criteria and the Regional Board's Basin Plan water quality objectives determine the basis for impairment status.

4. The water body is on the previous 303(d) list and either: (a) monitoring continues to demonstrate a violation of objective(s) or (b) monitoring has not been performed or is not of adequate quality or quantity to demonstrate that the impairment has been removed.

5. Data indicate tissue concentrations in consumable body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Criteria or guidelines related to protection of human and wildlife consumption include, but are not limited to, U.S. Food and Drug Administration Action Levels, National Academy of Sciences Guidelines, U.S. Environmental Protection Agency tissue criteria.

B. Delisting Factors

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

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

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

3. Faulty data led to the initial listing. Faulty data include, but are not limited to, typographical errors, improper quality assurance/quality control (QA/QC) procedures, or limitations related to the analytical methods that would lead to improper conclusions regarding the water quality status of the water body.

4. It has been documented that the objectives are being met and beneficial uses are not impaired based upon an evaluation of available monitoring data. This evaluation should discuss foreseeable changes in hydrology, land use, or product use and describe why such changes should not lead to future exceedance.

C. Evaluation Criteria

In general, the following hierarchy will be used in evaluating data relative to applicable water quality objectives:

1. Applicable numeric water quality objectives (contained in the San Francisco Bay Basin Plan) or water quality standards (contained in the federal California and National Toxics Rules). Both the Basin Plan and federal rules governing a specific parameter should be read carefully, since there can be site-specific applications or exceptions. For instance, many numeric objectives in the Basin Plan are oriented toward discharges (e.g., the temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F above natural receiving water temperature). Also, numeric criteria often include a time element, such as duration of exposure (e.g., 4-day average for chronic metals concentrations) or number of samples within a given time period (5-sample geometric mean taken over 30 days for fecal coliform).

2. Criteria developed by the U.S. Environmental Protection Agency, California Department of Fish, and the California Department of Health Services and other applicable criteria developed by government agencies. Such criteria will be used to interpret narrative water quality objectives.

3. Guidance or guidelines developed by agencies/entities such as the U.S. Food and Drug Administration, National Academy of Sciences, and the Agency for Toxic Substances and Disease Registry and the California Department of Health Services. Guidelines developed by other agencies should be thoroughly reviewed before applied, since the assumptions and risk factors considered may not be consistent with Regional Board water quality objectives.

4. Criteria or standards developed in other states, regions, or countries. Such criteria should be used with caution. The environmental setting, assumptions, and risk factors considered may not be consistent with Regional Board water quality objectives.

5. Findings in peer-reviewed literature, listing decisions made in similar settings within the State, and/or "weight of evidence" based on information and evaluations performed by outside agencies or groups. Generally, a more extensive description will be needed to justify the impairment (or lack of impairment) determination. Clear links should be described between the literature, findings in similar settings, or outside evaluations and the non-attainment of water quality objectives.

There are no specific minimum data requirements or a specific frequency of exceedance for making a finding that water quality objectives are not attained. In general, more data are needed to interpret environmental results that are very specific to time and geography. Less data would be needed to make a determination based on environmental results that

serve as integrators over space or time. So more water column chemistry data would generally be needed to determine impairment than fish tissue chemistry data. Also less water column chemistry data may be needed to make an impairment determination (or lack of impairment determination) if there is other information to support the findings from the water column chemistry (e.g. correlations could be made between pesticide use patterns and the presence of pesticides in surface water).

D. Data Quality Evaluation

In order for any data to be evaluated against Basin Plan, California Toxics Rule, or other criteria, it must be of adequate quality and quantity to be representative of water quality standard attainment or impairment. Data quality evaluation is based on U.S. EPA Guidelines for preparation of 305(b) water quality assessment reports and the latest draft guidance from the Consolidated Assessment and Listing Methodology (CALM) (USEPA, 1996; USEPA, 2001).

These federal guidelines recommend a hierarchy of water quality data levels for evaluation of beneficial use attainment, particularly for aquatic life uses. The data hierarchy addresses data quality considerations such as (1) sample collection and analytical technique (grab, composite, series of grabs, or continuous), (2) spatial representativeness (locations in the watershed or water body), (3) temporal representativeness (frequency of sampling, number of seasons or years), and (4) quality assurance procedures (documentation of protocols, metadata, confirmation analyses, training). The data are rated according to "Level of Information" based on these considerations, which refers to the rigor of sampling and analysis, where 1 = Lowest, and 4 = Highest. However, even a short period of record can indicate a high confidence of impairment based on well-documented chemical data. Three years of data are not required to demonstrate impairment, for instance where high bacterial counts are recorded in areas of significant public water recreation during the dry season. All data reviewed for consideration for the 2002 303(d) list were ranked according to these recommended criteria, and only data of higher overall level of information were used to make 303(d) listings or de-listings. If data of lower level of information (1 to 2) suggested impairment, the water body/pollutant combination was recommended for the "preliminary" list, triggering more data or information collection for the subsequent listing cycle. In some cases, high quality data did not lead to listing due to lack of enforceable water quality objectives (i.e., sediment concentrations or biodiversity of macroinvertebrates).

E. Priority Ranking

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

- water body significance (such as importance and extent of beneficial uses, threatened and endangered species concerns and size of water body)
- degree of impairment or threat (such as number of pollutants/stressors of concern, and number of beneficial uses impaired)
- conformity with related activities in the watershed (such as existence of watershed assessment, planning, pollution control, and remediation, or restoration efforts in the area)
- potential for beneficial use protection or recovery
- degree of public concern and involvement
- availability of funding and information to address the water quality problem
- overall need for an adequate pace of TMDL development for all listed waters
- other water bodies and pollutants have become a higher priority

It should be noted that the criteria could be applied in different ways to different water bodies and pollutants. For example, a water body may be severely impaired, but if there is little likelihood of beneficial use recovery than a lower priority might be given. Staff also considered the overall need for an adequate pace of TMDL development for all listed waters, and if other water bodies and pollutants have become a higher priority. New listings were given a lower priority for TMDL development, to allow for early implementation actions already underway.

Schedules for TMDL development after the first two years should be regarded as very tentative. Completion will depend significantly upon the availability of funding, availability of staff, on watershed stakeholder group priorities, and RWQCB Basin Plan amendment priority. The schedules will also depend on further evaluation of the need for and feasibility of TMDLs. If additional water bodies and pollutants are listed in 2002 or subsequent 303(d) listing cycles these schedules will also need to be revised.

Information Received and Analyzed

Appendix A contains a summary of studies and data submitted to the Regional Board for consideration in the 303(d) listing process. Appendix A contains two tables: (1) a general summary of entities submitting information and the water bodies and parameters analyzed; and (2) a summary of data quality evaluation performed by Regional Board staff based on U.S. EPA guidance. As described above, the public solicitation process yielded a wide range of information, including many requests to list water bodies and pollutants, a few requests to de-list water bodies and pollutants, and a number of raw data sets without any request to list or de-list.

The public solicitation required staff to review all levels of information from approximately 90 water bodies throughout the region. Classes of pollutants and stressors considered included general water quality parameters such as dissolved oxygen, pH and temperature; metals; persistent organic pollutants (PCB's, PAH's, etc.); sedimentation/siltation; pathogen indicators; nutrients (nitrates, phosphates, and ammonia); total dissolved solids; chlorides; pesticides (diazinon and chlorpyrifos); lack of flow; habitat degradation (as indicated by macroinvertebrate surveys particularly in Marin County); trash including floatables; and radioactivity.

Assessment Methodology

Raw data were analyzed with respect to applicable water quality objectives in the Basin Plan or California Toxics Rule (CTR) for beneficial uses where they are either explicitly designated or otherwise where they unquestionably exist based on eyewitness accounts and other factors such as unrestricted public access. For impairment categories not easily quantified, such as sedimentation and trash, , a weight-of-evidence approach is used, as discussed below. Other considerations include fishing advisories issued since 1997 and effects-based listings associated with the Bay Protection and Toxic Cleanup Program (BPTCP) and associated remedial plans, mandated by the state legislature and completed in 1999.

Basin Plan and California Toxics Rule Criteria

The Basin Plan and the CTR contain certain numeric thresholds for some of the above-listed pollutants or stressors. Numeric thresholds include dissolved oxygen (DO), pH, ammonia, total coliform, fecal coliform, E. coli, enterococcus, and metals and organics in the CTR. Also, a number of parameters have thresholds for drinking water source protection, such as nitrate. Nitrate is an example of a pollutant that has an incomplete number of thresholds in the Basin Plan for all the beneficial uses it can affect. Even though excessive nitrate can cause impairment related to aquatic life or recreational uses associated with algal blooms and toxicity to aquatic life, the only threshold in the Basin Plan for nitrate is 10 mg/l as nitrogen to protect drinking water sources. Detailed site-specific information is necessary to assess whether nitrate is impairing recreation or aquatic life, and no such information is readily available in the San Francisco Bay Region.

The Basin Plan establishes a number of narrative objectives for surface waters for several parameters and categories of stressors, which essentially state that such parameters and stressors shall not cause nuisance conditions nor adversely affect beneficial uses. These parameters and categories of stressors include temperature, suspended and settleable material, oil and grease, biostimulatory substances, color, taste and odor, floating material, turbidity, sediment, sulfide, salinity, and population and community ecology. These parameters are typically evaluated under permitting or enforcement programs with respect to discharges, such as upstream and downstream, or pre- and post-project. Interpreting these narrative objectives for 305(b) and 303(d) assessment and listing

purposes is possible only if raw water quality data, photographs, or other information are accompanied by information that explains how the water quality information has departed from that expected to support beneficial uses.

Bay Protection and Toxic Cleanup Program

The BPTCP, authorized by the State Legislature in 1989, was an assessment and remedial program focused on sediment quality and biological effects in bays and estuaries throughout the state. It was a statewide program that sunset in 1999 after each Regional Board published final reports. The statewide information on bays and estuaries provides a robust context for evaluating impacts on beneficial uses in absence of formal sediment quality objectives. The weight-of-evidence approach employed by the BPTCP is explained in detail in the Final Technical Report (BPTCP, 1998). Portions of waterbodies identified in the BPTCP as toxic hotspots are classified as impaired based on severity of biological effects. The level of effort implementing remedial plans at the nine toxic hotspots is uneven – some are under the Regional Board's regulatory orders that may lead to abatement of the impairment by the next listing cycle, while any remedial action at others is uncertain. Since causal determinations of impairment due to specific chemicals cannot be made without regulatory sediment quality objectives, 303(d) listing recommendations are effects-based.

Fishing Advisories

As discussed above under listing criteria, the Regional Board considers fishing advisories as a basis for 303(d) listing recommendations. In previous listing cycles, several pollutants have been added for the San Francisco Bay segments due in part to fishing advisories (e.g., mercury, PCBs, DDT, dieldrin, etc.), and Tomales Bay pathogens due to periodic shellfish harvesting closures related to high coliform counts and documented viral outbreaks.

Sediment

Sediment impairment assessment (impacts of sedimentation, siltation on beneficial uses) is much more complex than the standard comparison of water column measurements of turbidity or total suspended solids to numeric thresholds. A number of factors have to be assessed including predominant watershed geology, dynamics of sediment delivery to the stream, and beneficial uses sensitive to siltation, such as steelhead spawning (RARE, SPWN, COLD). Regional Board resources for sediment impairment assessment of streams, through the most recent listing, have not been sufficient. Therefore current listings are conservative with regard to resource protection, usually based on professional judgment, and strategic from the standpoint of bioregional conservation priorities.

Basis for Sediment Listings:

1. Consensus of professional scientists familiar with listed watersheds. Additionally, in Walker Creek and Lagunitas Creek, detailed scientific investigations have been performed (Haible, 1980; Hecht, 1992). In those cases, sediment listing is supported.

2. Listed basins suspected to be regionally significant from a conservation biology standpoint: critical habitat for native stream-riparian species assemblages.

3. Decline of threatened or endangered stream-riparian species is linked to habitat degradation.

4. Changes in sediment supply or transport capability are typically a component in habitat degradation.

5. Studies throughout northwestern California have document human-induced sedimentation and linkage to habitat degradation.

6. Precautionary principle: consequences of inaction, waiting to list until definitive data are available, are substantial. Political and economic consequences of false positive- listed and not impaired - are reasonable because: a) our technical approach emphasizes holistic aquatic species limiting factors assessment, as a first step in the TMDL, to insure that we focus on biologically significant watershed management problems; and b) state and federal resources are now available to develop quantitative limiting factors studies.

All larger streams in the San Francisco Bay Region, without exception, have sediment-related impacts such as downcutting, bank erosion, and sediment delivery from the hillslopes, due to over 150 years of intensive urban and agricultural land use. Historic human activities such as grazing, road construction, and agricultural clearing contribute fine sediments to channels throughout the region. The conclusions of sediment studies that more sediment is entering streams than pre-European settlement does not warrant a regulatory finding of impairment and sediment TMDL process – there must be an analysis that demonstrates a departure from an expected condition for beneficial use support. Regional Board staff acknowledges that urban streams throughout the region exhibit characteristics of entrenchment and bank erosion associated with increased imperviousness, and both urban and rural steams suffer other forms of habitat degradation associated with siltation of the bed. A regulatory impairment finding is not warranted based on the mere presence of sediment-related impacts, but rather in cases where significant sediment discharges threaten sensitive or important aquatic life resources. For instance, the conclusions of a recent Corte Madera Creek geomorphic report were that more sediment could be controlled than present (about 20%), but that control of these sources could lead to bed coarsening that would threaten beneficial uses (Smeltzer et al., 2000). Without a link to beneficial use protection, impairment findings cannot be made based on geomorphic studies alone.

A few streams not already on the 303(d) list were identified during the public solicitation process as potentially impaired due to sediment. These streams include Corte Madera Creek (Marin Bayside), Pilarcitos Creek (San Mateo Coastal), San Pedro Creek (San Mateo Coastal) and Novato Creek (Marin Bayside). After review of technical reports and consultation with sediment experts, only Novato Creek and Pilarcitos Creek warrant

consideration for 303(d) listing, considering the factors above, and is discussed below under "Threatened Impairments to Water Quality."

Trash

The Regional Board has expressed in its Basin Plan that trash is a pollutant of concern. In Table 4-1, No. 7, the Basin Plan explicitly prohibits discharges of "rubbish, refuse, bark, sawdust or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas." Additionally, the narrative objective for floating material states that "waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." As such, trash is a pollutant whose discharge to surface waters should be eliminated consistent with the Basin Plan and state and federal laws and regulations. Observations made by members of the public and Regional Board staff since 1997 indicate a preponderance of trash in, on and near water bodies, particularly in urban portions of streams, lakes, and coastlines throughout the San Francisco Bay Region. Thousands of tons of trash are removed from the Region's water bodies by volunteers annually during Coastal Cleanup Day, organized by the California Coastal Commission.

Impacts of Trash on Beneficial Uses

Beneficial uses impaired by trash in urban streams, lakes, and coastlines include water contact recreation (REC1), non-contact water recreation (REC2), warm freshwater habitat (WARM), wildlife habitat (WILD), estuarine habitat (EST), marine habitat (MAR), rare threatened or endangered species (RARE), migration of aquatic organisms (MIGR), reproduction and early development of fish (SPWN), commercial and sport fishing (COMM), shellfish harvesting (SHELL), wetland habitat (WET), and cold freshwater habitat (COLD).

These beneficial uses throughout urban portions of the Region are affected by large accumulations of suspended and settled debris. The problem is more acute in bottom portions of watersheds and along the bay and ocean where debris flushed from upper reaches deposits and collects. Common items that have been observed by Regional Board staff include plastic bags, Styrofoam food/drink containers and packing materials, glass and plastic bottles, toys, balls, cans, cigarettes, plastic pellets, motor oil containers, antifreeze containers, construction materials, furniture, appliances, and Christmas trees.

Trash in water bodies causes significant water quality problems, and includes debris that floats and debris that settles. Small and large floatables can inhibit growth of aquatic vegetation, decreasing spawning areas and habitats for fish and other organisms. Floatable debris causes problems in the coastal watershed because it can easily come into contact with aquatic animals, people, boats, fishing nets, and other objects. Thousands of aquatic animals are caught in and strangled by floatable debris each year, and ingestion of various debris, especially plastics, commonly leads to malnutrition and starvation. Coastal communities also lose money when littered beaches must be closed or cleaned up, and the fishing industry and recreational and commercial boaters must spend

thousands of dollars annually for the repair of vessels damaged by floatable debris (U.S. EPA, 2001b).

Common settled debris includes glass, cigarettes, rubber, construction debris and more. Settleables are a problem for bottom feeders and dwellers and can contribute to sediment contamination. Some debris such as diapers, medical and household waste and chemicals, are a source of bacteria, viruses, and toxic substances. Floating debris that is not trapped and removed will eventually end up on the beaches or in the open ocean, repelling visitors and residents from the beaches and degrading coastal waters.

Wildlife impacts due to trash occur in creeks, lakes, estuaries, and ultimately the ocean. The two primary problems that trash poses to wildlife are entanglement and ingestion. Marine mammals, turtles, birds, fish, and crustaceans all have been affected by entanglement in or ingestion of floatable debris. Many of the species most vulnerable to the problems of floatable debris are endangered or threatened.
Entanglement results when an animal becomes encircled or ensnared by debris. It can occur accidentally or when the animal is attracted to the debris as part of its normal behavior or out of curiosity. Entanglement is harmful to wildlife for several reasons. Not only can it cause wounds that can lead to infections or loss of limbs, but it can also cause strangulation or suffocation. In addition, entanglement can impair an animal's ability to swim, which can result in drowning or difficulty in moving about, finding food, and escaping predators (U.S. EPA, 2001b).

Ingestion occurs when an animal swallows floatable debris. It sometimes occurs accidentally, but usually animals feed on debris because it looks like food, for instance plastic bags appearing like jellyfish, a prey item of sea turtles. Ingestion can lead to starvation or malnutrition if the ingested items block the intestinal tract, preventing digestion, or accumulate in the digestive tract, making the animal feel "full" and lessening its desire to feed. Ingestion of sharp objects can damage the mouth, digestive tract and/or stomach lining and cause infection or pain. Ingested items can also block air passages and prevent breathing, thereby causing death (U.S. EPA, 2001b).

Some elements of trash are more harmful to beneficial uses than others. Small pieces of plastic called "nurdles" may be among the most harmful floating material in aquatic systems. Nurdles are pre-production virgin material from plastic parts manufacturers, as well as post-production discards that are occasionally recycled. They float at various depths in the ocean and affect organisms at all levels of the food chain. As sunlight and UV radiation render plastic brittle, wave energy pulverizes the brittle material, with a subsequent chain of harmful effects on the various filter-feeding organisms found near the ocean's surface. Studies in the North Pacific Ocean indicate that both large floating plastic and smaller fragments are increasing. As a result of increased reports of resin pellet ingestion by aquatic wildlife and evidence that the ingested pellets are harming wildlife, the Interagency Task Force on Persistent Marine Debris (ITF) identified resin pellets, also known as plastic pellets, as a debris of special concern (USEPA, 1992). When released into the environment, these pellets either float on or near the water surface, become suspended at mid-depths, or may sink to the bottom of a water body.

Whether a specific pellet floats or sinks depends on the specific type of polymer used to create the pellet, additives to modify the characteristics of the resin, and the density of the receiving water.

Global scale impacts of discharges of plastic are just beginning to be understood. A 1999 study of marine debris in the mid-Pacific Ocean found that the mass of plastic particles collected was six times higher than the mass of plankton, although the number of planktonic organisms was five times higher than the number of plastic pieces. The even distribution of sampling points in the study design allows for an extrapolation to the breadth of the mid-Pacific Ocean. The number of plastic particles did not increase in successively smaller size classes as expected, indicating that there may be non-selective removal by mucus web-feeding jellies and salp. In this study, the most common type of identifiable particle, thin plastic film, accounted for 29% of the total. Birds, fish and marine mammals ingest the non-nutritive plastic, leading to untold numbers of starvation-related fatalities (Moore, 1999; Moore et al. 2000).

Trash in Waters of the San Francisco Bay Region

There are excessive levels of trash in virtually all urbanized waterways of the San Francisco Bay Region. Photo and video documentation on the status of trash levels for specific water bodies was submitted for the Regional Board's consideration during the public solicitation. The specific water bodies include Guadalupe River, Guadalupe Creek, Coyote Creek, and Silver Creek in Santa Clara County; San Leandro Creek, Glen Echo Creek, and Lake Merritt in Alameda County. Regional Board staff has noted trash in water bodies during initial field reconnaissance activities associated with the Surface Waters Ambient Monitoring Program (SWAMP) in March 2001, documented in field reconnaissance worksheets. The specific water bodies include the urban portions of San Pablo Creek, Wildcat Creek, Arroyo Las Positas, and San Leandro Creek (and all associated tributaries). Sometimes trash occurs in rural waterways, particularly in public access and recreation areas, but not in heavy accumulations such as those found at the bottom of urbanized watersheds. Notably, all information reviewed by Regional Board staff, including staff's field worksheets, is "snapshot" information, inadequate to make an assessment of trash occurrence in waterbodies over space and time, and therefore questionable as a basis for a regulatory impairment finding.

Regional Board staff reviewed site-specific data generated for Coastal Cleanup Day from Santa Clara, Alameda, Marin, Contra Costa, and Sonoma counties to evaluate whether such quantified information could yield a regional assessment of relative trash levels, as indicated by tons of trash removed, number of volunteers, and approximate upstream urban drainage area. Such a relative assessment could potentially yield a list of trash hot spots, but the data did not yield such a list. Review of this extensive amount of information showed that all urban areas have a substantial accumulation of trash and recyclable material, but that such data is not useful to perform regulatory assessments, since the amount of trash that is specifically detrimental to beneficial uses (such as plastic "nurdles") is not quantified, and the amount removed depends on so many factors (the productivity of each volunteer, the types of trash that volunteers select for removal, etc.). Observations, photo and video documentations, and Coastal Cleanup Day data together

provide a weight of evidence that not enough is currently being done to comply with the Basin Plan's Discharge Prohibition No. 7 (Table 4-1 of the Basin Plan).

Board staff believes there are three options for addressing trash in the 2002 303(d) listing process. First, the creeks for which data or information have been submitted could be listed. Second, all urban creeks could be listed based on the weight of evidence above. Third, given the "snapshot" characteristics of the information reviewed, the Regional Board could make a finding that trash threatens to impair water quality in all urban creeks, lakes, and shorelines, consistent with the recommendations for a preliminary list (NRC, 2001), and review actions of municipalities during the subsequent 303(d) listing cycle, according to conditions described below. Part of the challenge of carrying forward a listing recommendation this year is the lack of a consistent assessment methodology for trash "impairment," which requires some description of how beneficial uses are impaired, such as specific risks of wildlife ingestion and harm, or a linkage to aesthetic impact, and data are not currently collected this way on a water body basis. Additionally, not all trash is equally harmful to human health and aquatic life, and in urban environments where natural complexity of habitat has been removed for purposes such as flood control (e.g. woody debris), some elements of trash, while aesthetically unacceptable, actually benefit aquatic life by providing areas of slow velocity and cover (e.g., shopping carts). The U.S. EPA has released draft guidance for assessment of trash impacts (U.S. EPA, 2001b), which could provide a basis for trash impairment assessment activities carried out by the Regional Board and municipalities prior to the next 303(d) listing cycle.

Regional Board staff favor the third option, making a finding that trash threatens to impair water quality in all urban creeks, lakes, and shorelines, with conditions placed on municipalities to prioritize the implementation of the trash performance standard in the next two years. In this way, the municipalities that are diligently implementing trash discharge control, and therefore have relevant assessment information, will have the opportunity to demonstrate attainment of the water quality standard over space and time, and the 303(d) listings will be limited to areas where such control programs are either absent or deficient. This recommendation and its implications for the Regional Board and municipalities are described in more detail, below, under "Threatened Impairments to Water Quality."

Decisions to Not List

A large amount of water quality information reviewed by Regional Board staff did not lead to listing recommendations. In some cases, our data quality evaluation found a high "level of information," and yet did not recommend an impairment listing. Below are general rationales that explain the basis of these decisions to not list specific waterbodies and pollutants or stressors.

Urban Runoff Monitoring Data Analysis, 1988-1995

The Bay Area Stormwater Management Agencies Association (BASMAA) had a report prepared in 1996 summarizing several years of water quality data collected during storms in urban creeks of the region. For the 1998 303(d) list, the San Francisco BayKeeper petitioned the Board to list various urban creeks for copper, lead, mercury, nickel and

zinc, based on that report, and this year basically reiterated that 1998 request. At that time, the Board found that the data were inadequate and incomplete to support a finding of impairment, based on the following rationale, which is reiterated to clarify why the Board staff considers these "old data" that has already been considered in the past listing decision. The public solicitation in March 2001 was very clear about limiting this year's review to consideration of data generated on or after July 1997, unless it was not previously brought to the Board's attention.

Currently there are no water quality criteria that are specifically developed to address impacts of wet weather flows in urban creeks. Storm water samples were collected and reported as event mean concentrations and represent flow-weighted concentrations generally collected over a 6 to 36 hour period. Due to this short exposure period, comparison with the acute water quality criteria are the most appropriate indication of the potential for impairment of urban creeks from urban stormwater runoff.

Comparison of the dissolved metals concentrations (total concentration for mercury) in storm water runoff samples with the acute criteria is summarized below in Table 1. The comparison includes data collected during runoff events in twelve representative urban creeks over five years.

TABLE 1

COMPARISON OF SAN FRANCISCO BAY AREA URBAN RUNOFF WITH CALIFORNIA TOXICS RULE OBJECTIVES FOR SELECTED METALS

Metal	Number of Samples	No. of Samples Higher than Dissolved Acute Criteria[1]	Percentage of Samples Higher than Acute Dissolved Criteria	Average Ratio of Sample to Criteria for Samples Above Criteria
Copper	**150**	**6**	**4.0**	**1.9**
Lead	**157**	**0**	**0**	**0**
Mercury	**54**	**0**	**0**	**0**
Nickel	**35**	**0**	**0**	**0**
Zinc	**155**	**7**	**4.5**	**1.7**

This comparison shows that none of the samples had lead, mercury, or nickel that were higher than the acute criteria. For copper and zinc, about four percent of the samples collected over six years of storm events had dissolved concentrations that were higher than the acute criteria. Examination of these individual samples indicated samples that are higher than the criteria are only slightly above the criteria. Moreover, in almost every case, the samples with elevated concentrations were collected in the initial phases of the

[1] Dissolved criteria for all metals except Mercury, which is evaluated using total concentrations, consistent with the California Toxics Rule.

monitoring program and may not represent current conditions. Samples collected in the latter part of the monitoring program were consistently below acute criteria.

The fact that exceedances of the acute criteria occur in storm events is cause for future monitoring to be integrated into urban runoff monitoring programs, particularly for copper (already on preliminary or "watch" list for the bay) and zinc, and particularly during non-storm events to document representative chronic exposures. Therefore, although ambient values are close to thresholds of concern, the board does not believe the data support a listing of specific urban creeks as impaired due to metals measured during storm events between 1989 and 1995.

Macroinvertebrate Data

The Regional Board, along with other Regional Boards, the State Board, and California Department of Fish and Game, is very interested in promoting the use of rapid bioassessment for evaluating whether waterbodies are impaired. To use macroinvertebrate or other bioassessment data, biocriteria must be developed according to state and federal water quality standard guidelines. There are presently no biocriteria for California that would enable this process. The Regional Board staff participates in the long-standing California Bioassessment Workgroup (CABW). Staff has initiated a watershed bioassessment monitoring program under SWAMP in 2001, and is coordinating with other local agencies in forming a Bay Area Bioassessment Workgroup to analyze the recently collected data in a regional context. This workgroup, which would report to the California workgroup at least annually, would facilitate the eventual development of biocriteria in the San Francisco Bay Region. Since we are in the beginning of this process it is premature to make impairment findings based on the Marin County data alone, as has been requested.

Bay Protection and Toxic Cleanup Program

Requests to list the toxic hotspot sites from the BPTCP were focused on the pollutants in the sediment matrix that exceeded screening guidelines, which are not formal sediment quality objectives, and therefore legally indefensible as a basis for impairment listings (i.e., they are not a numeric part of the water quality standard). Nonetheless, a concern remains about the elevated pollutants in these areas of the bay. Fortunately, the chemicals often exceeding non-regulatory NOAA screening levels in the sediments of the toxic hotspots are also frequently listed as impairing the segments of the San Francisco Bay Estuary, for instance mercury, PCBs, dioxins, furans, dieldrin, chlordane, and DDT, or on the "watch" list in the case of PAHs. Therefore the possible contribution of these chemicals to the impairment of the Bay by toxic hotspots, Department of Defense, and other industrial sites around the Bay such as PG&E sites, will not be overlooked in the current or upcoming TMDL processes for these listed chemicals.

In the meantime, it appears the most defensible finding of impairment that can be made at the nine toxic hotspots are effects-based, including "sediment toxicity" based on amphipod survival and sea urchin development tests and "benthic community effects," as documented by the benthic community analyses that showed reduced diversity and increased pollution tolerance in the organisms inhabiting these sites. In order to be

"impaired," both toxicity and benthic effects need to be documented because sediment toxicity alone, without toxicity identification evaluations that link to chemistry, is inadequate for definitive findings of impairment, due to common false positives attributable to naturally occurring sediment chemicals such as ammonia.

Proposed Changes to the 303(d) List

Proposed Listings

The recommended changes to the 1998 303(d) List are shown in Attachment B. Additions are shown in **bold, highlighted format** and deletions are shown in ~~strikethrough format~~.

More information about proposed new listings is shown in Attachment C. This table explains which criteria, data, number of samples, and period of monitoring were used to determine that a water body is impaired due to a specific parameter or pollutant.

The proposed listings include:

Petaluma River Listings

Petaluma River for diazinon, based on new monitoring information in the watershed that yielded toxicity endpoints consistent with other listed urban creeks in the San Francisco Bay Region (Petaluma Tree Planters, 1999).

Petaluma River for copper and nickel, based on RMP and new monitoring from the Bay Area Clean Water Association (BACWA) special TMDL study (Grovhoug and Salvia, 2000). Only the tidal portion of the mouth of the Petaluma River is specified in this listing, conducted concurrent with a proposed de-listing of the rest of the estuary for copper and nickel, where shoal and channel monitoring indicate consistent compliance with the California Toxics Rule and the Basin Plan, north of the Dumbarton Bridge, and with a proposed site-specific objective for copper and nickel south of the Dumbarton Bridge.

Urban Creeks Diazinon Refined Listing

For the 1998 303(d) list, the Regional Board and U.S. EPA agreed that toxicity identification evaluation studies in the San Lorenzo Creek watershed (Alameda Co.) and various confirmation studies around the region suggested that all segments of streams in urban areas of the region are impaired by the over-the-counter pesticide diazinon. Since this listing, studies conducted throughout urban areas of the state and nation have consistently supported this finding. Meanwhile, in 2000 the U.S. EPA reached an agreement with chemical manufacturers to phase out diazinon for non-agricultural outdoor uses over the next few years, ending sales and distribution of diazinon by August 2003. Ending sales and distribution does not equate to ending applications of diazinon, and questions remain about the persistence of diazinon toxicity and the degree to which citizens will stockpile the pesticide for private use. Therefore, the Regional Board cannot

reasonably conclude that diazinon-related toxicity in urban portions of creeks will end prior to the next listing cycle, and will not propose de-listing based on the recent federal policy decision. As with this year's proposal on copper and nickel, any proposal to de-list urban creeks for diazinon will be based on ambient monitoring data that demonstrates implementation of the water quality standard.

Arroyo Mocho and Arroyo Las Positas are recommended to be listed for diazinon, based on the oversight in listing in 1998 according to criteria used to define urban creeks (listed in Basin Plan; have existing or potential Aquatic Life Uses; and within the jurisdiction of a member of the Bay Area Stormwater Management Agencies Association). Uses for Arroyo Mocho and Arroyo de las Positas are based on those designated for Arroyo de la Laguna, to which they are both tributary and therefore the beneficial uses apply. These two water bodies were added to the Basin Plan in 1995 without any process of designation of beneficial uses. Field reconnaissance by Regional Board staff in March 2001 indicates that aquatic life beneficial uses exist for Arroyo Mocho and Arroyo Las Positas. Arroyo Hondo will be concurrently de-listed because of its erroneous listing in 1998. It is a rural watershed upstream of Calaveras Reservoir, a drinking water source, not within the jurisdiction of a member of the Bay Area Stormwater Management Agencies Association, with no known or suspected sources of diazinon.

Because the Basin Plan is currently being updated to include more water bodies, especially in the San Mateo Bayside and East Bay drainages, Table 1, below, is not considered comprehensive. Example urban creeks that will be added to the Basin Plan and meet the above criteria for "urban creeks" include but are not limited to Pulgas Creek, Redwood Creek, Cordilleras Creek, Belmont Creek, Laurel Creek, Mill Creek, Sanchez Creek, San Bruno Creek, and Colma Creek in San Mateo County; Rheem Creek, Garrity Creek, Baxter Creek, and Cerrito Creek in Contra Costa County; and Codornices Creek, Strawberry Creek, Temescal Creek, Sausal Creek, Peralta Creek, Arroyo Viejo, Ward Creek, Sulphur Creek, Dry Creek, Crandall Creek, and Laguna Creek in Alameda County. Additionally, Refugio Creek in Northwest Contra Costa County (City of Hercules) was added to the Basin Plan in 1995 without any process of designation of beneficial uses, and it is directly tributary to San Pablo Bay, so the tributary rule for aquatic life uses cannot apply without a process of designating uses, although aquatic life uses are expected to exist based on criteria outlined in the Basin Plan (p. 2-5). Adding these creeks for accuracy and consistency would increase the number of listed creeks by 25, increasing the 36 listed creeks to 61.

TABLE 2

URBAN CREEKS IMPAIRED BY DIAZINON
SAN FRANCISCO BAY REGION

		Aquatic Life Beneficial Uses			
Urban Creek	**Length (miles)**	**Cold**	**Warm**	**Migr**	**Spwn**
Alameda County					
Alameda Creek	51	E	E	E	E
Arroyo de la Laguna	7	P	P	E	E
Arroyo del Valle	49	E		P	E
Arroyo Mocho*	40	P	P	E	E

Urban Creek	Length (miles)	Aquatic Life Beneficial Uses			
		Cold	Warm	Migr	Spwn
Arroyo Las Positas*	10	P	P	E	E
San Leandro Creek	15	E	P	P	P
San Lorenzo Creek	12	E	E	E	E
Contra Costa County					
Mount Diablo Creek	13	E	E	E	E
Pine Creek	13	E	E		E
Pinole Creek	9	E	E	E	E
Rodeo Creek	8		E		E
San Pablo Creek	16		E	E	E
Walnut Creek	9	E	E	E	E
Wildcat Creek	12		E	E	E
Marin County					
Arroyo Corte Madera del Presidio	3	E			E
Corte Madera Creek	4	E	E	P	P
Coyote Creek	3	E	E		
Gallinas Creek	2	E	E		
Miller Creek	9	E	E	E	E
Novato Creek	19	P	P	P	P
San Antonio Creek	18	E	E	P	P
San Rafael Creek	3	E	E		
San Mateo County					
San Mateo Creek	11	P			E
Santa Clara County					
Calabazas Creek	5	E	E		
Coyote Creek	69	E	E	E	E
Guadalupe River	18		E	P	P
Los Gatos Creek	26	E	E	P	P
Matadero Creek	7	E	E	E	E
Permanente Creek	13	E			E
San Felipe Creek	15	P	E		P
San Francisquito Creek	12	E	E	E	E
Saratoga Creek	18	E	E		
Stevens Creek	22	E	E	E	P
Solano County					
Laurel Creek	3	E	E	E	E
Ledgewood Creek	12	E	E	E	E
Suisun Slough	10		E		E
Sonoma County					
Petaluma River*	25		E	E	

Cold Cold Freshwater Habitat—Water that supports cold-water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates).

Warm Warm Freshwater Habitat—Water that supports warm water ecosystems including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates).

Migr Fish Migration—Water that supports habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.

Spwn Fish Spawning—Water that supports high quality aquatic habitats suitable for reproduction and early development of fish.

E Existing Beneficial Use

P Potential Beneficial Use

Source: RWQCB 1995.

* Water bodies added to urban creeks list for 2002 303(d) list based on original criteria proposed in 1998. Petaluma River added to list based on data from Abelli-Amen (1999). Arroyo Hondo has been removed from the list because it was erroneously added in 1998 and is located in a rural, protected watershed for drinking water sources. Uses for Arroyo Mocho and Arroyo Las Positas are based on those designated for Arroyo de la Laguna, to which they are both tributary and therefore the beneficial uses apply. These two water bodies were added to the Basin Plan in 1995 without any process of designation of beneficial uses. Field reconnaissance by Regional Board staff in March 2001 indicates that aquatic life beneficial uses exist for Arroyo Mocho and Arroyo Las Positas.

Fishing Advisory Listings

In this listing cycle, the Contra Costa Health Services issued an interim fishing advisory for San Pablo Reservoir/Mercury, as a result of a California Office of Environmental Health Hazard and Assessment (OEHHA) paired study with Black Butte Reservoir in the Central Valley Region. Mercury levels in largemouth bass exceeded the screening level of 0.3 ppm developed from U.S. EPA protocol, based on an assumed consumption rate that has not been confirmed. The advisory was issued as a conservative measure pending more detailed study of pollutant levels and applicable consumption rates. Since the interim advisory was issued in February 2000, the Regional Board has targeted this waterbody and other commonly fished reservoirs in the San Francisco Bay Region for fish tissue monitoring as part of the Toxics Substances Monitoring Program (TSMP) and the Surface Water Ambient Monitoring Program (SWAMP). No new data are available for consideration for the 2002 303(d) list, but it is the Regional Board's intent to use this information to revisit the San Pablo Reservoir listing and evaluate potential listings for other reservoirs in the region. Similarly, Marin County Environmental Health issued a draft interim advisory for Tomales Bay/Mercury based on recent OEHHA data, and the metals listings for Tomales Bay and Walker Creek have been refined to mercury since the only metals mines in the watershed are mercury mines.

High Coliform Count and Beach Closure Listings

Attainment of water contact recreation uses is determined by comparison of bacterial indicators such as coliform with Basin Plan Objectives. Determination of impairment for this category is based on two separate factors; 1) data indicating exceedance of numeric criteria or 2) closure of beaches by a local agency. The first of these, coliform (total and fecal), E. coli and enterococcus data, was evaluated based on Basin Plan objectives in Tables 3-1 and 3-2, and Ocean Plan water contact standards (for ocean beaches). The impairment assessment focused on dry season data (May-October) when the majority of water contact recreation occurs and bacterial indicator results are not confounded by natural factors, such as wildlife fecal matter or soil bacteria that may not pose any pathogenic risk to swimmers. Year-round data was considered for ocean beaches, where the public uses waters in all weather conditions. For evaluation of beach closures, as an indication of beneficial use impairment, year-round county beach closure data from 2000 was reviewed (NRDC, 2001), and U.S. EPA guidance used to determine the support status of water contact recreation (Not supporting, i.e., impaired = one bathing closure per year greater than a week's duration or more than one bathing closure per year). In the San Francisco Bay Region, only San Mateo and San Francisco counties conduct beach closure programs. Only San Mateo County conducts the weekly sampling necessary to assess attainment of coliform water quality objectives. Marin County is planning to initiate a program in the near future (Ed Megia, pers. comm., 2001).

The San Mateo County Environmental Health Department conducts comprehensive monitoring of beaches and creeks for total and fecal coliform and E. coli. Trained representatives from Surfrider conduct field sampling, and analysis is carried out by the County's certified laboratory (San Mateo County, 1997-2001). The monitoring is considered comprehensive because in many cases, numerous 5-sample medians or geometric means over 30-day periods can be calculated to assess compliance with Basin

Plan and Ocean Plan water quality objectives. Regional Board staff assessed the number of valid 30- or 60-day calculated medians (total coliform) and geometric means (fecal coliform) for every data set in the county, spanning the public beaches and publicly accessible creeks from Pacifica in the north to Pescadero Beach in the south. Percent exceedances were calculated for the maximum, median, and geometric mean objectives, and used to determine impairment due to high coliform count. Some beaches had no exceedances of medians and geometric means during the dry season (e.g., Pescadero Beach, San Gregorio Beach, Sharp Park Beach, Montara Beach, Surfer's Beach, Pacifica State Beach and San Francisco Bay at Coyote Point), but those that exceeded these objectives were listed as impaired, consistent with U.S. EPA guidance (U.S. EPA, 1996). Of these beaches, San Gregorio Beach, Surfer's Beach, and Pacifica State Beach (also known as Linda Mar or San Pedro Beach) exhibited exceedances during wet weather.

For high coliform count, the following water bodies are recommended for listing: Marina Lagoon in the City of San Mateo, San Pedro Creek, San Vicente Creek, Pomponio Creek, San Gregorio Creek, and the Pacific Ocean at Venice Beach, Rockaway Beach, Pillar Point Beach, Fitzgerald Marine Reserve, Baker Beach (near Lobos Creek mouth) in San Francisco, and for wet weather only, San Gregorio Beach and Pacifica State Beach.

For beach closures, the following water bodies are recommended for listing: Pacific Ocean at Fitzgerald Marine Reserve, Pacifica State Beach (also known as Linda Mar or San Pedro Beach), Pillar Point Beach, Sharp Park Beach, Surfer's Beach, and Venice Beach. All beach closures in San Francisco were based on rainfall and combined sewer overflow (CSO) events and not actual monitoring data, and include Pacific Ocean at Fort Funston, Ocean Beach, and China Beach.

Bay Protection and Toxic Cleanup Program

Findings of impairment at four of the nine toxic hotspots of the Bay Protection and Toxic Cleanup Program (BPTCP) are effects-based, including both "sediment toxicity" based on amphipod survival and sea urchin development tests and concurrent "benthic community effects," as documented by the benthic community analyses that showed reduced diversity and increased pollution tolerance in the organisms inhabiting these sites. Other hotspot sites are on the preliminary or "watch" list, discussed below.

Since completion of the BPTCP in 1999, staff of the Groundwater Protection and Waste Containment Division of the Regional Board have been addressing the BPTCP sites using existing regulatory authorities under SLIC and Title 27, and further assessment and remedial plans first developed under the BPTCP are being implemented at varying levels at the nine sites, listed below in Table 3. For TMDL development these sites will receive a low priority because of the Regional Board's current application of other regulatory authorities and the effects-based nature of the listings (i.e., not pollutants whose loads would be allocated in a TMDL).

TABLE 3

TOXIC HOTSPOTS OF THE SAN FRANCISCO BAY REGION
SITES WITH DOCUMENTED BIOLOGICAL EFFECTS AND ELEVATED SEDIMENT CHEMISTRY

TOXIC HOTSPOT	WATERBODY	GEOGRAPHIC LOCATION	BPTCP WEIGHT OF EVIDENCE	303(d) LISTING RECOMMENDATION
Stege Marsh	San Francisco Bay, Central	East of Port of Richmond	Elevated Sediment Chemistry, Recurrent Toxicity, and Degraded Benthic Community	List for Sediment Toxicity and Benthic Community Effects
Mission Creek	San Francisco Bay, Lower	Downtown San Francisco	Elevated Sediment Chemistry, Recurrent Toxicity, and Degraded Benthic Community	List for Sediment Toxicity and Benthic Community Effects
Islais Creek	San Francisco Bay, Lower	Port of San Francisco	Elevated Sediment Chemistry, Recurrent Toxicity, and Degraded Benthic Community	List for Sediment Toxicity and Benthic Community Effects
Peyton Slough	Suisun Bay	Martinez	Elevated Sediment Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthic Community	List for Sediment Toxicity and Benthic Community Effects
Castro Cove	San Pablo Bay	Northwest of Richmond	Elevated Sediment Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthic Community	Preliminary List – unlinked Sediment Toxicity/Chemistry only, without evidence of benthic impacts.
Pacific Drydock #1 (area in front of stormdrain)	San Francisco Bay, Lower	Oakland Inner Harbor, across from Coast Guard Island	Elevated Sediment Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthic Community	Preliminary List – unlinked Sediment Toxicity/Chemistry only, without evidence of benthic impacts.
Central Basin, San Francisco	San Francisco Bay, Lower	Port of San Francisco	Elevated Sediment Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthic Community	Preliminary List – unlinked Sediment Toxicity/Chemistry only, without evidence of benthic impacts.
Oakland Inner Harbor-Fruitvale	San Francisco Bay, Lower	Oakland Inner Harbor at Fruitvale Ave. Bridge	Elevated Sediment Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthic Community	Preliminary List – unlinked Sediment Toxicity/Chemistry only, without evidence of benthic impacts.
San Leandro Bay	San Francisco Bay, Lower	South of Oakland Inner Harbor & Alameda Island	Elevated Sediment Chemistry and Toxicity (Site 1) or Mixed Results from Biological Indicators (Sites 2-5, 7). Site 6 showed no impacts.	Preliminary List – unlinked Sediment Toxicity/Chemistry only, without evidence of benthic impacts.

Proposed De-Listings

Only two pollutants are proposed to be removed from the 303(d) list for the San Francisco Bay estuary, based on criteria listed above. Waters proposed for de-listing are summarized below and shown in a strikethrough format in Attachment B.

More information about proposed de-listings is shown in Attachment C. This table explains which criteria, data, number of samples, and period of monitoring were used to determine that a water body is not impaired due to a specific parameter or pollutant.

The proposed de-listings include:

Copper and Nickel in San Francisco Bay Segments

Copper and Nickel are proposed to be de-listed from all segments of the San Francisco Estuary north of the Dumbarton Bridge, where shoal and channel monitoring indicate consistent compliance with the Basin Plan and the California Toxics Rule, enacted since the last listing cycle, which implements new dissolved criteria for metals. South of the Dumbarton Bridge, dissolved copper and nickel data are consistently below the proposed site-specific objectives for copper and nickel. Basin Plan amendments for these site-specific objectives are scheduled for action by the Regional Board in Spring 2002.

On the 1998 303(d) list, copper and nickel are not listed for Richardson Bay, and nickel is not listed for Central San Francisco Bay.

This de-listing is conducted concurrent with a proposed listing of Petaluma River for copper and nickel, based on RMP and new monitoring from the Bay Area Clean Water Association (BACWA) special TMDL study (Grovhoug and Salvia, 2000). Only the tidal portion of the mouth of the Petaluma River is specified in this listing. Due to the proximity of ambient levels to the water quality objectives, ongoing impairment at the Petaluma River mouth, and pending commitments of dischargers to specific pollution prevention action plans, copper and nickel in San Francisco Bay segments are recommended to be included on the preliminary or "watch" list described below under "threatened impairments to water quality." Because Richardson Bay was never listed for these pollutants, it is not included on the "watch" list, nor is nickel in Central San Francisco Bay.

See pg. 26

TABLE 4

PROPOSED LISTINGS AND DE-LISTINGS 303(d) LIST OF IMPAIRED WATERBODIES[2]

Waterbody	Pollutant or Stressor	Recommended Action
Petaluma River (tidal portion at mouth)	Copper, Nickel	List
Petaluma River	Diazinon	List
Arroyo Mocho, Arroyo Las Positas	Diazinon	List
Marina Lagoon	High Coliform Count	List
San Gregorio Creek	High Coliform Count	List
Pomponio Creek	High Coliform Count	List
San Pedro Creek	High Coliform Count	List
San Vicente Creek	High Coliform Count	List
Baker Beach	High Coliform Count	List
China Beach	Beach Closures (wet weather/CSO)	List
Ocean Beach	Beach Closures (wet weather/CSO)	List
Fort Funston Beach	Beach Closures (wet weather/CSO)	List
Sharp Park Beach	Beach Closures (wet weather)	List
Rockaway Beach	High Coliform Count	List
Pacifica State Beach (Linda Mar or San Pedro Beach)	High Coliform Count (wet weather), Beach Closures	List
Fitzgerald Marine Reserve	High Coliform Count, Beach Closures	List
Pillar Point Beach	High Coliform Count, Beach Closures	List
Surfer's Beach	High Coliform Count (wet weather), Beach Closures	List
Venice Beach	High Coliform Count, Beach Closures	List
San Gregorio Beach	High Coliform Count (wet weather)	List
San Pablo Reservoir	Mercury	List
Tomales Bay, Walker Creek	Mercury	Change from "Metals"
Stege Marsh	Sediment Toxicity and Benthic Community Effects	List
Mission Creek	Sediment Toxicity and Benthic Community Effects	List
Islais Creek	Sediment Toxicity and Benthic Community Effects	List
Peyton Slough	Sediment Toxicity and Benthic Community Effects	List
Arroyo Hondo	Diazinon	De-List (non-urban)
San Francisco Bay Segments (except Richardson Bay)[3]	Copper	De-list, place on Preliminary List
San Francisco Bay Segments (except Richardson Bay and Central San Francisco Bay)[3]	Nickel	De-list, place on Preliminary List

[2] See Attachment C, Rationale for Listing, for specific information on exceedance frequencies related to water quality objectives.

[3] San Francisco Bay Segments are generally defined as San Francisco Bay, Central; San Francisco Bay, Lower; San Francisco Bay, South; Richardson Bay; San Pablo Bay; Carquinez Strait; Suisun Bay; and Sacramento-San Joaquin Delta. Copper and nickel are not currently listed for Richardson Bay, and nickel is not currently listed for Central San Francisco Bay.

Threatened Impairments to Water Quality

This year, the Regional Board is proposing a preliminary or "watch" list for waterbodies and pollutants where anecdotal information suggests they may be impaired but either (1) the available data or information are inadequate to draw a conclusion, or (2) a regulatory program is in place to control the pollutant but data are not available to demonstrate that the program is successful. Both scenarios are common, due to limited information, and both should trigger assessment activities to support impairment decisions in the following listing cycle, which is proposed in this section of the report for specific waterbodies and pollutants in the San Francisco Bay Region.

Without an established, formal monitoring and assessment program for the state's water bodies, the Regional Boards have to make decisions on water quality impairment with a wide range of quality and quantity of information. With a few exceptions such as the Bay's Regional Monitoring Program, funded by dischargers, ambient monitoring at a level of quality needed for rigorous 303(d) listing considerations is very limited. Indeed, many states struggle to perform adequate monitoring and assessment with the staff and resources they are allocated. In April 2001, the National Research Council (NRC) published a report entitled "Assessing the TMDL Approach to Water Quality Management," produced at the request of the U.S. Congress, examining the scientific basis of the 303(d) and TMDL process. The NRC report underscored the chronic lack of resources at the state level to perform comprehensive water quality assessments. To improve the TMDL process, which currently presumes that scientifically adequate assessments are routinely funded and conducted, the NRC recommended, "***EPA should approve the use of both a preliminary list and an action list instead of one 303(d) list.***" They note that Congress may have to change the law in order to authorize this policy approach, which would better reflect the reality of state water quality assessment capabilities.

Regional Board staff support the concept of two lists – a preliminary list and an impaired water bodies list. TMDLs are developed for the latter list, but a finding of threatened impairment and placement on a preliminary list would result in increased assessment activity, or actions to determine whether or not a water body and pollutant should be added to the impaired list in the subsequent listing cycle. The preliminary list carries with it obligations for more information collection and assessment to resolve the issue of whether there is impairment. The National Research Council (NRC) recommends specific guidelines for creating the preliminary list (NRC, 2001), but one key characteristic is that "no water body should remain on the preliminary list for more than one rotating basin cycle." The rotating basin cycle presumes a formal, staffed and funded statewide monitoring and assessment program that provides assessment information every five years. Currently, California is initiating the Surface Water Ambient Monitoring Program (SWAMP), but at an annual total budget of $3.6 million and 10 personnel for the State Board and nine Regional Boards, the program is under-funded and under-staffed by at least one order of magnitude. The Regional Board proposes a preliminary list that utilizes existing regulatory authority to generate new assessment information for the waterbodies and pollutants specified as threatened impairments to

water quality (Table 5). Interested parties can use the preliminary list as a reference to evaluate the Regional Board's recommendations at the next listing cycle. Above all, the preliminary list recommended by the Regional Board will implement recommendations of the NRC.

During the public solicitation, a number of substantive water quality problems were brought to the Regional Board's attention, requiring decisions on whether to add over 100 water body/pollutant combinations to the 303(d) list. In many cases, the data or information is not of adequate quality and quantity to support a listing and subsequent TMDL regulatory process, but in the cases below, a finding is warranted that water quality appears threatened and more information must be collected to resolve the question of impairment. In many other cases, the water body/pollutant is already captured in an existing listing (e.g., excessive ammonia in San Antonio Creek, tributary to Petaluma River that is listed for nutrients, or elevated PCBs in sediment at a toxic hotspot, adjacent to San Francisco Bay listed for PCBs).

The Regional Board exercises the precautionary approach to water quality protection in its listing recommendations, and has found adequate basis to suggest several water bodies and pollutants that are threatened impairments to water quality, to be acted upon in the subsequent listing cycle based on more information and pending the results of existing water quality improvement programs. Additionally, two water body/pollutant combinations from the1998 303(d) list warrant placement on a preliminary list, concurrent with de-listing recommendations, with the exception of Lake Merritt low dissolved oxygen/organic enrichment, which is recommended to remain on the 303(d) list. Below are discussions of waterbodies and pollutants that are recommended for preliminary list status.

TABLE 5

ASSESSMENT PRIORITY LIST: PRELIMINARY LIST OF WATERBODIES AND POLLUTANTS

Waterbody	Pollutant(s) or Stressor(s)	Assessment Activity or Entity and Regulatory Authority
San Francisco Bay Segments[4]	Copper, Nickel	Regional Monitoring Program, Section 13267[5]; Copper and Nickel Special Study North of the Dumbarton Bridge and Resultant Pollution Prevention Action Plans
San Francisco Bay Segments[4]	PAHs, PBDEs	Regional Monitoring Program, Section 13267
Lake Merritt	Low Dissolved Oxygen/ Organic Enrichment	Lake Merritt Water Quality Committee, Section 13267
Lake Merced	Low Dissolved Oxygen/ Organic Enrichment, pH	San Francisco Public Utilities Commission, Section 13267
Redwood Creek, tidal portion (San Mateo County)	High Coliform Count	San Mateo County Env. Health Dept. Monitoring, AB 411 Beach Monitoring
Castro Cove, Richmond	Sediment Toxicity	Bay Protection and Toxic Cleanup Program Remedial Plans, SLIC, and Title 27
Central Basin, San Francisco	Sediment Toxicity	Bay Protection and Toxic Cleanup Program Remedial Plans, SLIC, and Title 27
Oakland Inner Harbor (Pacific Drydock Yard 1 and Fruitvale sites)	Sediment Toxicity	Bay Protection and Toxic Cleanup Program Remedial Plans, SLIC, and Title 27

[4] San Francisco Bay Segments are generally defined as San Francisco Bay, Central; San Francisco Bay, Lower; San Francisco Bay, South; Richardson Bay; San Pablo Bay; Carquinez Strait; Suisun Bay; and Sacramento-San Joaquin Delta. Copper and nickel are not currently listed for Richardson Bay. Nickel is not currently listed for Central San Francisco Bay.

[5] Section 13267 of the California Water Code provides each Regional Board authority to investigate water quality and to require any person discharging or proposing to discharge waste to furnish technical or monitoring program reports where the burden, including costs, of these reports bears a reasonable relationship to the need for the reports and benefits to be obtained from the reports.

TABLE 5 (cont.)

Waterbody	Pollutant(s) or Stressor(s)	Assessment Activity or Entity and Regulatory Authority
San Leandro Bay	Sediment Toxicity	Bay Protection and Toxic Cleanup Program Remedial Plans, SLIC, and Title 27
Novato Creek below Stafford Dam	Sedimentation/Siltation	Marin County Flood Control District's Novato Creek Watershed Erosion Inventory and Sediment Control Plan, Condition 10 of the June 22, 2000, Section 401 Water Quality Certification for removing accumulated sediment in Novato, Warner, and Arroyo Avichi Creeks.
Pilarcitos Creek below Pilarcitos Reservoir	Sedimentation/Siltation	Pilarcitos Creek Advisory Committee (PCAC), Section 13267
Urban Creeks, Lakes, and Shorelines	Trash	NPDES Stormwater Program Annual Program Reports, Section 13267

Copper and Nickel in San Francisco Bay Segments

New information on copper and nickel in San Francisco Bay segments and new CTR and site-specific criteria, described above, suggest there is adequate basis for de-listing. However, dissolved copper and nickel concentrations measured in the RMP and the TMDL special study exceed the CTR criteria at the station at the mouth of the Petaluma River, and dissolved copper values throughout the estuary are not far below applicable thresholds of concern. The TMDL special study is not complete at the time of the Regional Board's consideration of this report. Moreover, commitments of dischargers to action plans that are necessary to maintain ambient copper and nickel levels below levels of concern are still pending. The Regional Board's recommendation to de-list copper and nickel, except at the mouth of the Petaluma River, is dependent on the actions of dischargers during the next listing cycle. The commitment of dischargers to these actions is tentative at this time, and therefore copper and nickel are considered to threaten water quality of the Bay segments, based on proximity to the regulatory threshold, unfinished investigations in the North Bay, and antidegradation.

Several relevant work products remain unfinished at the time of this report:

(1) A draft technical report is pending on the results of the special study North of the Dumbarton Bridge. This will include results and interpretation of the ambient monitoring and toxicity testing along with review of relevant RMP data. The draft report will be available at the end of November 2001.

(2) The Coordinating Committee (the stakeholder group for this project) convenes in December 2001 to consider the draft technical report and how to move forward with peer review by a panel of technical experts.

(3) The draft report will receive review in early 2002 by a technical review committee (TRC), and the final technical report will be delivered soon after receipt of final TRC comments.

(4) Work will then begin on a formal impairment assessment and action plan document. From the point when work is started on this document, it is estimated that the final product will be completed in 12-18 months. Regional Board staff expects to see a demonstration of an ongoing commitment by dischargers through the development of pollution prevention actions plans for copper and nickel patterned after similar plans developed in Lower South San Francisco Bay.

(5) The dischargers may petition for consideration of a site-specific objective for copper once the action plans are developed and they can demonstrate that their petition meets the requirements described in the State Implementation Policy for the CTR. Namely, for dischargers who cannot meet the effluent limits based on the current objectives, they must demonstrate that they already have implemented all reasonable treatment, source control, and pollution prevention measures.

Regional Board staff recommends that targeted monitoring for copper and nickel continue to ensure that beneficial uses are protected, and to document any other sites in the estuary that may be exhibiting exceedances similar to the mouth of the Petaluma River. Based on the consistently high levels documented at the Petaluma River mouth, the RMP and TMDL special study spatial coverage are not adequate to conclude that un-monitored freshwater/saltwater interfaces or actively dredged riverine channels are meeting the water quality standard for copper and nickel.

Much effort has been expended in the last decade identifying and controlling sources of copper and nickel to waters of the state, particularly in Lower South Bay. The collective pollution prevention and treatment efforts have contributed to load reductions of these pollutants that help maintain ambient concentrations below regulatory thresholds, but not very far below these levels. The pollution prevention and industrial pretreatment efforts must continue indefinitely to ensure that copper and nickel levels in the waters of the state do not increase and violate water quality objectives or impair beneficial uses. Over the next listing cycle staff will use existing regulatory authorities to ensure that dischargers maintain control measures for copper and nickel.

PAHs (polynuclear aromatic hydrocarbons) in San Francisco Bay Segments

PAHs are known carcinogens that accumulate in shellfish tissue, but do not accumulate in fish tissue. The weight of evidence from the RMP indicates that although water quality criteria are almost never exceeded at RMP stations (between 0 and 1 % of RMP water sample individual PAH concentrations exceeded the EPA and CTR criterion) there is evidence that PAHs may be accumulating at higher levels over time and other effects thresholds such as toxicity have been noted. (Hoenicke, Hardin, et al., in prep.; Thompson et al., 1999). Individual PAH criteria were only exceeded for HPAHs (high molecular weight PAHs), having at least 4 rings. Individual PAH concentrations are generally between 0 and 15% of CTR Criteria (Table 2, below), with occasional sampling events of certain compounds as high as 347% of criteria.

TABLE 6
CONCENTRATIONS OF PAHs IN RMP WATER SAMPLES (1993-1998) AND CTR CRITERIA[6]

	Mean %	Median %	Max %
Acenaphthene	0%	0%	0%
Anthracene	0%	0%	0%
Fluorene	0%	0%	0%
Benz(a)anthracene	7.8%	2.4%	205%
Chrysene	6.7%	2.9%	91%
Pyrene	0%	0%	0%
Benzo(a)pyrene	4.8%	0%	110%
Benzo(b)fluoranthene	15%	5.9%	348%

[6] The percentage indicated is the ratio of the concentration found and the CTR Criterion. Thus, for example, the mean water column concentration of Benz(a)anthracene is 7.83%, or approximately 1/13th, of the CTR Criterion.

	Mean %	Median %	Max %
Benzo(k)fluoranthene	5.5%	2.0%	195%
Dibenz(a,h)anthracene	1.6%	0.7%	33%
Fluoranthene	0%	0%	0.02%
Indeno(1,2,3-cd)pyrene	11%	5.2%	196%

In most RMP water samples, PAHs did not exceed the threshold concentrations for adverse effects in fish embryos (Carls et al. 1999; Heintz et al. 1999). Depending on the effects threshold used, between 0 and 64% of RMP site sediment concentrations exceeded the threshold concentrations for adverse effects on biota (SFEI, 2001). Thompson et al. (1999) observed significant correlation between percent mortality of the amphipod, *Eohaustorius estuarius* and concentration of LPAH (low molecular weight PAHs) and HPAH in the Castro Cove, Alameda, and San Bruno Shoal sites of the RMP. PAH sediment concentrations were above ERL and ERM in these sites.

Spies and Rice (1988) linked egg and embryo mortality of starry flounder to activity of the P4501A enzyme, which is PAH inducable. PAHs in transplanted bivalves increased over time in certain regions in the estuary (Hoenicke, Hardin, et al., in prep.), including increases in the total PAHs in the inner estuary during the dry season. Combustion product PAHs increased in the inner estuary, central, and south regions in the dry season. Some decreases in specific regions/seasons were also observed. (e.g. total PAHs in the central region during the wet season). This paper also indicated a significant positive correlation between number of bridge trips (an index of automobile use) and both total PAHs and combustion product PAHs. Pereira et al. (1999) indicated higher concentrations of PAHs since the 1950s than during the late 1800s, presumably resulting from increases in industrialization and urbanization. Eljarrat et al. (2001) recently evaluated the toxic potency of PAHs alongside PCBs and dioxins in Mediterranean Spain and found that the PAH toxic equivalent values were several times higher than that of PCBs or dioxins, in accordance with other recent studies reporting a large contribution of PAHs to dioxin-like activity in sediments (Khim et al., 1999; Kannan et al., 2000; Anderson et al., 1999).

Over the next listing cycle, the Regional Board expects greater attention from dischargers to sources and control measures for PAHs. PAH water quality objectives from the California Toxics Rule (CTR) are human health-based and are therefore incomplete with respect to potential impacts to aquatic life described above. PAHs are elevated in sediments of about half the toxic hotspot sites identified in the Bay Protection Program, exhibiting a correlative (not causative) but potentially synergistic effect on aquatic life along with other chemicals, as evidenced by sediment toxicity tests and degraded benthic communities (BPTCP, 1998). Occasional exceedances of the human health criteria in ambient samples, evidence of increasing shellfish concentrations, and preponderance of PAHs at toxic sites warrant increased assessment activities for PAHs by dischargers and cities around the region. RMP resources will be expected to better assess PAH impacts in the estuary, since the current spatial and temporal coverage does not address areas near the shoreline that may be greater impacted by PAHs in discharges of urban runoff and other sources.

PBDEs (polybrominated diphenyl ethers) in San Francisco Bay Segments

Little or no data are available in the San Francisco Bay Region for many known or suspected contaminants. The RMP is currently reviewing analytical laboratory information (e.g., gas chromatographs) to identify unknown contaminants. Some of the unknown peaks in the gas chromatographs were recently identified by the RMP as polybrominated diphenyl ethers, or PBDEs, a common flame retardant found in furniture and other materials. Concurrently, a paper by She, et al. (2001), in press, documents that levels of PBDEs in San Francisco Bay harbor seal blubber are among the highest reported elsewhere, a dramatic increase in PBDEs in harbor seals was observed over the last ten years, and PBDE levels in human breast adipose tissue from the San Francisco Bay Area are the highest reported to date. Most of the studies on PBDE levels have occurred in northern Europe and Canada. Very few data are available on levels of PBDEs in the United States (She et al., 2001). PBDEs are hydrophobic, persistent compounds expected to bioaccumulate in the food chain, their effects are largely unknown, and they are chemically similar to known carcinogens such as PCBs and dioxins. The weight of evidence of increasing concentrations and their unregulated status warrant a finding that PBDEs threaten to impair water quality in all segments of the San Francisco Bay Estuary, all influenced by wastewater and urban runoff discharges, the likely sources of PBDEs. A formal listing is precluded at this time due to lack of an enforceable water quality criterion or objective. Nevertheless, the available information on PBDEs must trigger immediate attention and action to avoid irreversible impacts to aquatic life and human health that can be reasonably anticipated based on their physical and chemical properties, and documented increases in the food chain, despite the lack of clear regulatory guidance on these pollutants at this time.

Actions of dischargers will be reviewed in the next 303(d) listing process regarding discharge characterization, source identification, and pollution prevention of PBDEs. Research literature will be reviewed to ascertain any new information on actual effects thresholds for these persistent bioaccumulative substances. These actions can be conducted regionally through the RMP,the Bay Area Pollution Prevention Group, or other association of dischargers. During the subsequent listing cycle, Regional Board staff evaluation of current research, applicable water quality criteria, and local actions to characterize sources and pollution prevention of PBDEs will determine whether an impairment listing is accepted or rejected.

Dissolved Oxygen and Organic Enrichment in Lake Merritt

In 1998, the U.S. EPA listed Lake Merritt as impaired by low dissolved oxygen (DO) and organic enrichment. The original data used by U.S. EPA to recommend listing does not meet quality and quantity requirements necessary to support 303(d) listing, specified in U.S. EPA guidance. No assessment methodology for organic enrichment was followed, and the organic matter discharged to the lake would probably be better characterized as a source of potential DO impairment. Statewide the 303(d) list couples low DO with organic enrichment. Information submitted to the Regional Board during the public solicitation provided anecdotal-level information that DO levels may be inadequate to support beneficial uses, especially when the tide gates are closed by the Alameda County

Flood Control District (ACFCD), but the study design did not document surface DO levels, particularly pre-dawn levels, which provide the necessary estimator of DO to support beneficial uses. No evidence of beneficial use impairment, such as number and frequency of fish kills, has been submitted. A quick review of 1997-98 surface DO data from the county indicates that the Basin Plan standard is met, but specific time-of-day information for this data is not available, and therefore this review is inconclusive.

Dissolved oxygen in Lake Merritt needs to be monitored at the surface and at depth to assess whether there is adequate DO to support beneficial uses. Surface values should be measured early in the morning (pre-dawn if possible) to document worst-case conditions. Because of community concern and anecdotal evidence of continued impairment, Regional Board staff does not recommend de-listing at this time, but recommends that DO be monitored systematically by a public agency such as the ACFCD, City of Oakland, Alameda County Public Works Agency, or other stakeholder. This monitoring should be conducted at a minimum at the same sites as studies submitted by the Lake Merritt Institute, but more frequently than before, continuously where resources allow, to assess whether the lake is truly impaired due to lack of DO. This water body/pollutant combination is different than all others because it is on the "watch" list to confirm an earlier listing decision by U.S. EPA that may or may not be supported by current water quality information.

Dissolved Oxygen and pH in Lake Merced

The San Francisco Water Department conducts quarterly monitoring of the different portions of Lake Merced (North Lake, East Lake, South Lake – two locations) for basic water quality parameters such as dissolved oxygen (surface and 15 feet depth) and pH. Data were submitted from the period of September 1997 through December 2000, totaling 14 samples at each location (four sites total). The grab samples were typically taken in the late morning (Dave Dingman, pers. comm., 2001). The Basin Plan Objective for DO in cold freshwater habitat (>7mg/l), designated at Lake Merced, was violated in 36% of surface samples in East Lake, and the Basin Plan Objective for pH (>8.5) was violated in 36% of samples at North Lake. Because DO and pH are such dynamic parameters, the spatial and temporal coverage of this study is not adequate to assess impairment. Surface dissolved oxygen and pH should be measured continuously or with multiple grabs where possible, and DO measured pre-dawn or early morning, and pH in the late afternoon to ascertain the more worst-case conditions. Regional Board staff recommends that DO and pH be monitored systematically by a public agency such as the SFWD, the San Francisco Public Utilities Commission, or other stakeholder. This monitoring should be conducted at the same sites as the SFWD program plus additional sites within the different portions of the lake, and more frequently than before, continuously where resources allow, to assess whether the lake is truly impaired due to lack of DO or elevated pH. In the next listing cycle the Regional Board will re-evaluate DO and pH information, including the 1997-2000 data, and either accept or reject an impairment determination for DO and pH.

High Coliform Count in Redwood Creek (San Mateo County – tidal portion)
San Mateo County recently began monitoring of E. coli in the tidal portion of Redwood Creek in Redwood City. This area contains live-aboard houseboats. Twelve samples were taken in 2001 that suggest water quality impairment compared to Basin Plan objectives (4 out of 12 samples), but the temporal coverage of this study is considered inadequate for a regulatory listing and finding of impairment. Therefore, Regional Board staff recommends that bacterial levels threaten to impair water quality in this water body, and will evaluate San Mateo County data in the next listing cycle to determine if it should be added to the 303(d) list.

Bay Protection and Toxic Cleanup Program
The BPTCP documented elevated chemicals in sediments, along with sediment toxicity and benthic community impacts at four areas in the Region, recommended for listing above. Another set of five toxic hotspots defined by elevated sediment chemistry and sediment toxicity is recommended for inclusion on the preliminary list. Regional Board staff propose that these waterbodies be included on the "watch" list because (1) the presence of elevated chemicals alone can not lead to a listing (no sediment quality objectives), and (2) the presence of sediment toxicity without corroborating evidence of *in-situ* benthic community effects is not conclusive of impairment, because of natural confounding factors (e.g., ammonia toxicity), and a causal link to elevated chemistry was not established in the BPTCP (e.g., via a toxicity identification evaluation or TIE). Nevertheless, the five sites on the "watch" list are toxic hotspots with remedial plans that are required to be implemented under the BPTCP and the Regional Board can use existing authorities to require cleanups under SLIC and Title 27, as it is doing already for some sites. The sites recommended for listing are based on the summary Table 28 in the final technical report (BPTCP, 1998), and waterbodies include (1) Castro Cove (Richmond), (2) Central Basin (San Francisco), (3) San Leandro Bay (based on 6 of 7 sites), and (4) Oakland Inner Harbor (two sites: Pacific Drydock Yard 1, area in front of stormdrain, and Oakland-Fruitvale).

Sedimentation/Siltation in Novato Creek
Dramatic changes due to erosion and sedimentation have been documented in the Novato Creek watershed, and warrant consideration of a 303(d) listing (Collins, 1998). The aquatic life beneficial uses are designated only as *potential* beneficial uses in the Basin Plan, but Novato Creek has been identified as supporting steelhead, a threatened species, in regional native fish surveys (Leidy, 1997). Although erosion and sedimentation are significant in Novato Creek downstream of the Stafford Dam, an explicit linkage to beneficial use impacts, particularly steelhead (RARE, COLD, SPWN, MIGR), has not been made to date, although aesthetic (REC-2) impacts are apparent based on geomorphic studies (Collins, 1998). The Marin County Department of Public Works (MCDPW) has studied sources of sediment to Novato Creek, and has a draft erosion inventory and sediment control plan out for comment (Prunuske Chatham, 2001). The two sediment reports have resulted from conditions of 401 certifications granted by the Regional Board for dredging permits in lower Novato Creek. Because there is a sediment management planning process underway required by regulatory action, Regional Board staff believes that the water quality standard may be implemented within the next listing

cycle. Also, the sediment control plan recommends identifying areas of potential and existing salmonid spawning habitat and will better link the effects of sediment input from in-stream (the major source) and hillslope sources on beneficial uses. The Regional Board recommends that sediment threatens to impair water quality in Novato Creek. In the next listing cycle, the Regional Board will evaluate the planned sediment management and salmonid habitat identification efforts and an impairment listing either accepted or rejected. If the sediment control plan is not implemented, then the impairment listing may be triggered.

Sedimentation/Siltation in Pilarcitos Creek

Field surveys conducted in development of the Pilarcitos Creek Watershed Restoration Plan (Philip Williams & Associates, 1996) document widespread deposition of a large amount of fine sediment in and on the streambed, clogging spawning sites and filling pools. Widespread occurrence of a large amount of fine sediment in and on the streambed reduces spawning success and juvenile rearing (Philip Williams & Associates, 1996). Increased sediment production to channels may also result in longer periods of elevated turbidity following storms. Such a change in sediment transport duration and/or rate, may make it much more difficult for salmon, steelhead trout (and other stream species that are sight feeders) to successfully capture prey. This type of problem has been identified as a potentially important limiting factor in several streams in northwestern California (L. Reid, 1998; B. Trush and F. Ligon, personal communications, 2000 and 2001). Turbidity monitoring has not been conducted in Pilarcitos Creek so it is not possible, at this time, to determine whether such a problem exists in Pilarcitos Creek. Pilarcitos Creek should be listed as threatened by increased sediment production because: 1) there is a clear linkage between sediment and degradation of habitat for steelhead in this watershed; 2) it remains to be determined whether human activities are an important factor; and 3) there is an active watershed restoration program, the Pilarcitos Creek Watershed Advisory Committee (PCWAC), that has broad stakeholder participation and support. The sources of fine sediment are not adequately characterized to support a 303(d) listing at this time.

A rapid sediment budget study is needed for Pilarcitos Creek watershed to determine: a) the significant active processes that are delivering sediment from upslope areas to channels; b) which processes are natural and which processes are caused by or accelerated by human management activities; c) what are the rates and grain-size distributions of sediment delivered from each significant active process. Such information combined with hydraulic, geomorphic, and ecological assessment of channels would lead to an understanding of what percentage of the fine sediment deposition is the result of human activities and what improvement might be possible through management actions to reduce the amount of sediment production to channels. This is the type of information needed to develop to address sediment-related impacts to steelhead trout and other native fish species in the Pilarcitos Creek watershed.

The PCWAC has obtained some funding from U.S. EPA to perform reconnaissance assessment of sediment. As such, Regional Board staff believes that the best available technology to control sediment has not been implemented, and there is a management

process underway. The progress of this effort will be reviewed at the next listing cycle and if there is not progress on developing a rapid sediment budget study described above, an impairment listing may be triggered.

Trash in Urban Creeks, Lakes and Shorelines

As discussed above, anecdotal information exists that suggests impairment of water quality by trash in urban creeks, lakes, and shorelines around the Region, and chronic violations of the Basin Plan Prohibition. Some local jurisdictions expend substantial resources and effort to control litter and trash entering waterbodies, while others may not recognize trash as a water quality issue. The disparity of effort regionwide raises issues of equity in making blanket findings about impairment of water quality due to trash. One fundamental question of trash impairment assessment needs to be answered before the Regional Board makes impairment findings: if a discharger (municipality) regularly removes large masses of trash from a waterbody, is it impaired due to the recurrence of trash, or is it not impaired because it is regularly cleaned and trash is prevented from reaching receiving waters such as San Francisco Bay or Lake Merritt? Is a waterbody not impaired by trash because it is relatively clean compared to waterbodies that receive less organized cleanup efforts? Based on comments received from interested parties, there is a polarized range of opinions on this question of assessment methodology. The various options for trash impairment assessment should jump-start discussions in an upcoming period of increased assessment and control measures for trash in urban waterbodies, tied to the Regional Board's existing regulatory authority in reviewing annual reports from municipal stormwater agencies for trash assessment and control measures.

Between now and the next 303(d) listing cycle, municipalities will be expected to assess trash impairments in their jurisdiction, as documented in annual reports to the Regional Board. The approach should mirror the standard TMDL approach of defining the problem, identifying the sources (trash hot spots) through monitoring or existing information, and developing a program of action to address the principle sources, which will likely be associated with schools, convenience stores and restaurants, and places where citizens chronically dump excess garbage in violation of existing litter laws. Regional Board staff will review this specific information in the next listing cycle and determine whether specific water bodies warrant 303(d) listing, and note the existence of relatively clean urban streams.

The prevention and removal of trash in the urban streams, lakes, and coastlines of the San Francisco Bay Region will implement the mission of the Regional Board, to protect beneficial uses of waters, on many levels. Addressing trash as a pollutant ultimately will lead to improved water quality and protection of aquatic life and habitat, expansion of opportunities for public enjoyment of the state's waters, enhancement of public interest in urban waterways, public participation in restoration activities, and propagation of the vision of urban streams as a viable ecosystem and enhancement of the quality of life of nearby residents. The current trashed condition of many urban waterways perpetuates a widespread public perception that such waters are a dumping ground and hold little ecological value. This mis-perception undermines the Regional Board's goals of

improving water quality in urban portions of the San Francisco Bay Region, since so much of potential improvement depends on the actions of individuals and their management of pollutants in the diffuse watershed setting. As such, the Regional Board intends to elevate the management of trash in watersheds as part of this 303(d) list review process, and finds that trash threatens to impair water quality in all urban creeks, lakes, and shorelines in the San Francisco Bay Region.

Urban creeks were defined during the 303(d) process in 1998, refined for this process, and include 36 creeks, all listed as impaired by diazinon. Because the Basin Plan is currently being updated to include more water bodies, especially in the San Mateo Bayside and East Bay drainages, Table 7, below, is not considered comprehensive. Example urban creeks that will be added to the Basin Plan and meet the above criteria for "urban creeks" include but are not limited to those listed on pages 20-21, above. In addition to aquatic life uses, trash affects water recreation uses (REC1 and REC2) and wildlife habitat use (WILD), and designations for WILD are indicated in Table 7, below. Urban lakes are defined using the same criteria of having designated aquatic life or wildlife uses and located within the jurisdiction of a Phase I stormwater management program. Urban shorelines will be defined in consultation with stakeholders based on various assessment activities, prior to the next listing cycle.

TABLE 7

URBAN CREEKS AND LAKES[8] PRELIMINARY LIST FOR TRASH IMPAIRMENT ASSESSMENT SAN FRANCISCO BAY REGION

Water Body	Length (miles) or Area (acres)	Wild	Aquatic Life Beneficial Uses			
			Cold	Warm	Migr	Spwn
Alameda County						
Alameda Creek	51	E	E	E	E	E
Arroyo de la Laguna	7	E	P	P	E	E
Arroyo del Valle	49	E	E		P	E
Arroyo Mocho*	29	E	P	P	E	E
Arroyo de las Positas*	14	E	P	P	E	E
San Leandro Creek	15	E	E	P	P	P
San Lorenzo Creek	12	E	E	E	E	E
Alameda Creek Quarry Ponds	200		E	E		
Lake Merritt**	160	E				E
Lake Temescal	8	E	E			E
Lake Elizabeth	51	E	E	E		E
Contra Costa County						
Mount Diablo Creek	13	E	E	E	E	E
Pine Creek	13	E	E	E		E
Pinole Creek	9	E	E	E	E	E
Rodeo Creek	8	E		E		E
San Pablo Creek	16	E		E	E	E
Walnut Creek	9	E	E	E	E	E

[8] Lakes in this table are considered a preliminary list, based on review of water bodies in the Basin Plan.

Water Body	Length (miles) or Area (acres)	Wild	Aquatic Life Beneficial Uses: Cold	Warm	Migr	Spwn
Wildcat Creek	12	E		E	E	E
Marin County						
Arroyo Corte Madera del Presidio	3	E	E			E
Corte Madera Creek	4	E	E	E	P	P
Coyote Creek	3	E	E	E		
Gallinas Creek	2	E	E	E		
Miller Creek	9	E	E	E	E	E
Novato Creek	19	E	P	P	P	P
San Antonio Creek	18	E	E	E	P	P
San Rafael Creek	3	E	E	E		
San Francisco County						
Golden Gate Park Lakes	18	E		E		
Lake Merced	250	E	E	E		E
San Mateo County						
San Mateo Creek	11	E	P			E
Santa Clara County						
Calabazas Creek	5	E	E	E		
Coyote Creek	69	E	E	E	E	E
Guadalupe River	18	E		E	P	P
Los Gatos Creek	26	E	E	E	P	P
Matadero Creek	7	E	E	E	E	E
Permanente Creek	13	E	E			E
San Felipe Creek	15	E	P	E		P
San Francisquito Creek	12	E	E	E	E	E
Saratoga Creek	18	E	E	E		
Stevens Creek	22	E	E	E	E	P
Vasona Lake	40	E	E	E		E
Solano County						
Laurel Creek	3	E	E	E	E	E
Ledgewood Creek	12	E	E	E	E	E
Suisun Slough	10	E		E		E
Lake Chabot (Solano)	40	E	E	E		E

Wild Wildlife Habitat—Water that supports wildlife habitats including preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
Cold Cold Freshwater Habitat—Water that supports cold-water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates).
Warm Warm Freshwater Habitat—Water that supports warm water ecosystems including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife (including invertebrates).
Migr Fish Migration—Water that supports habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.
Spwn Fish Spawning—Water that supports high quality aquatic habitats suitable for reproduction and early development of fish.
E Existing Beneficial Use
P Potential Beneficial Use
Source: RWQCB 1995.

* Water bodies added to urban creeks list for 2002 303(d) list based on original criteria proposed in 1998. Petaluma River added to list based on data from Abelli-Amen (1999). Uses for Arroyo Mocho and Arroyo de las Positas are based on those designated for Arroyo de la Laguna, to which they are both tributary and therefore the beneficial uses apply. These two water bodies were added to the Basin Plan in 1995 without any process of designation of beneficial uses. Field reconnaissance by Regional Board staff in March 2001 indicate that aquatic life beneficial uses exist for these two streams.

** Lake Merritt is already listed as impaired by floatables – Regional Board recommends change to "trash" for statewide consistency.

Conclusion

Recognizing that a preliminary list has not been formally authorized by the State Board or U.S. EPA, Regional Board staff recommend that this "watch" list be used by interested parties in the next listing cycle to remind the Regional Board of its commitments to help generate and conduct assessments in the next two or four years, using existing regulatory authorities or activities listed in Table 5. The information used this year to generate the "watch" list is not rigorous enough, spatially, temporally, or using the correct indicators, for Regional Board staff to defend impairment listings at this time and more information is needed. We hope that this innovative approach, based on recommendations from the National Research Council in April 2001, will set a positive example of accountability, technical defensibility, and a focus on environmental protection that will result in prevention and abatement of water pollution throughout the San Francisco Bay Region. Rather than a way of deferring action with no assurance of follow-up, this approach is conceived by the Regional Board staff as a tool for continuous planning, and a method of communicating urgent assessment (and cleanup) activities to the regulated community, the environmental community, and other interested parties and organizations, based on their collective input to the Board over the last eight months.

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APPENDIX A

WATER QUALITY INFORMATION RECEIVED AND DATA QUALITY EVALUATION SUMMARY

(consisting of Tables A-1 and A-2)

PUBLIC RESPONSES TO 303(d) LIST SOLICITATION
REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO BAY REGION
Table A-1 WATER QUALITY INFORMATION EVALUATED

Date	Entity	Waterbody	County	Pollutant	Media	Data Source
3/27/01	Friends of Lake Merced; San Francisco Public Utilities Commission	Lake Merced	San Francisco	Conventionals[1]	Water	San Francisco Public Utilities Commission Quarterly Lake Monitoring
4/3/01	Lawrence Livermore National Laboratory	Arroyo Las Positas, Arroyo Seco	Alameda	Pesticides, Conventionals[2], Metals, Radioactivity	Water	LLNL's Storm Water Monitoring Program
4/11/01	U.S. Geological Survey	Lagunitas Creek, Redwood Creek (Marin), Olema Creek, Abbotts Lagoon and Tributaries, Pine Creek (Marin), Agua Fria Creek, Torogas Creek, San Antonio Creek (Alameda), Arroyo Valle, Arroyo de la Laguna, Alameda Creek, San Lorenzo Creek, Crow Creek, Cull Creek, Redwood Creek (Alameda)	Marin, Alameda	Conventionals[3]	Water	U.S. Geological Survey Water Quality Monitoring
5/11/01	Santa Clara Valley Urban Runoff Pollution Prevention Program	Lower South San Francisco Bay	Santa Clara	Copper, Nickel	Water	Santa Clara Basin Watershed Management Initiative's Copper/Nickel Impairment Assessment Report & Copper Action Plan
5/12/01	Western Waters Canoe Club	Guadalupe River and tributaries, Coyote Creek	Santa Clara	Temperature	Water	Guadalupe Coyote Resource Conservation District hourly temperature monitoring
5/14/01	Marin Audubon Society	Petaluma River (portion near the mouth)	Marin	Sediment, Mercury, Selenium, Coliform	Water	Bahia Homeowners Association Dredging Lagoon and Lock Project (via LTMS); Stuart Siegel's Monitoring Reports for Carl's Marsh, Reports of Untreated effluent flow to the river.
5/14/01	Marin Audubon Society	Novato Creek	Marin	Mercury, Sediment	Water	Bel Marin Keys Community Services District sampling reports (via LTMS)
5/14/01	Marin Audubon Society	Corte Madera Creek	Marin	Sediment	Water	Friends of Corte Madera Creek Watershed
5/14/01	Marin Audubon Society	Gallinas Creek	Marin	Sediment	Water	No specific data, but dredging occurs on regular basis, and historic permitting records from the Corps & RWQCB should be applicable
5/14/01	City of Benicia	Carquinez Strait, Lake Herman	Solano	Conventionals[4], Coliform, Metals	Water	City of Benicia Monitoring Program
5/14/01	Alameda County Water District	Alameda Creek, Stonybrook Creek, Sinbad Creek, Arroyo de la Laguna, Alamo Creek, South San Ramon Creek, Tassajara Creek, Arroyo Las Positas, Arroyo Mocho, Arroyo Valle, Vallecitos Creek	Alameda	Conventionals[5], Flow	Water	ACWD's Weekly Watershed Monitoring Program
5/14/01	Fairfield-Suisun Sewer District	Boynton Slough, Suisun Bay		Metals, Cyanide	Water	FSSD's NPDES Permit Monitoring
5/15/01	Silicon Valley Toxics Coalition	Guadalupe River, Coyote Creek, Sunnyvale East Channel		PCBs	Tissue	PCBs and Clams in Creeks: Results of an Environmental Partnership
5/15/01	U.S. Environmental Protection Agency, Region IX	San Pedro Creek		Coliform	Water	EPA Region IX Laboratory
5/15/01	San Francisco Estuary Institute	San Francisco Bay-Delta Estuary		Metals, Organic Pollutants	Water	San Francisco Estuary Regional Monitoring Program
5/15/01	WaterKeepers of Northern California	Adobe Creek	Sonoma	Diazinon, Chlorpyrifos, sediment	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District
5/15/01	WaterKeepers of Northern California	Alameda Creek	Alameda	Copper, Zinc Lead, Mercury Selenium	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde
5/15/01	WaterKeepers of Northern California	Arroyo Corte Madera	Marin	lack of flow	Water	Feasibility Study to Rehabilitate the Fishery Resources of the Arroyo Corte Madera Del Presidio Watershed, Mill Valley, California. May 31, 1995
5/15/01	WaterKeepers of Northern California	Arroyo Corte Madera	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Bean Hollow Creek	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	Boynton Slough	Solano	DO	Water	Fairfield-Suisun Water Treatment Plant Slough Data June 1997-June 2000, NPDES Permit CA0038024

1. Turbidity, Do, Fluoride, Chloride, pH, Ammonia
2. Oil and grease, Chloride, Conductivity, Sulfate, pH, TDS, Fluoride, Nitrate (NO3)
3. DO, pH, Chloride, Fluoride, Sulfate, Nitrogen, Ammonia, NO2 and NO3, Nitrite
4. DO, Ammonia, Fluoride, Nitrate, NO3+NO2, Nitrite, pH
5. pH, TDS, Chloride, Turbidity

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Date	Entity	Waterbody	County	Pollutant	Media	Data Source
5/15/01	WaterKeepers of Northern California	Carriger Creek	Sonoma	Sedimentation	Sediment	Carriger Creek Watershed Science Approach, 2001. SFEI Draft
5/15/01	WaterKeepers of Northern California	Calabazas Creek	Santa Clara	Cadmium, Zinc Lead, Copper Chromium, Mercury Nickel	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	Castro Cove	Contra Costa	Hg, Se, PAHs, dieldrin, toxicity	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 2000
5/15/01	WaterKeepers of Northern California	Castro Valley Creek	Alameda	Diazinon	Water	Characterization of the Presence of Diazinon in the Castro Valley Creek Watershed Scanlin and Feng
5/15/01	WaterKeepers of Northern California	Castro Valley Creek	Alameda	Copper, Lead Zinc, Cadmium Mercury	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde
5/15/01	WaterKeepers of Northern California	Central Basin, S.F.	San Francisco	Hg, PAHs	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Codornices Creek	Alameda	Copper, Lead Mercury Zinc, Cadmium	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde
5/15/01	WaterKeepers of Northern California	Colusa Drain	Colusa	Mercury	Water	Water Quality in the Sacramento River Basin
5/15/01	WaterKeepers of Northern California	Corte Madera Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Corte Madera Creek	Marin	Temperature	Water	Fisheries Resources Conditions of the Corte Madera Creek Watershed, A.ARich and Associates , November 10, 2000
5/15/01	WaterKeepers of Northern California	Corte Madera Creek	Marin	sediment	Sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works. December 31.2000
5/15/01	WaterKeepers of Northern California	Corte Madera Creek	Marin	sediment	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Coyote Creek	Santa Clara	Copper, Lead Mercury, Zinc Cadmium, Nickel	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	Coyote Creek	Santa Clara	Trash	Water	Video, Clean South Bay
5/15/01	WaterKeepers of Northern California	Coyote Creek	Santa Clara	cadmium, copper, lead, mercury, nickel, DO	Water	Stormwater Environmental Indicators Demonstration Project, Water Environment Research Foundation, Sept 2000 for the SCVURPPP
5/15/01	WaterKeepers of Northern California	Ellis Creek	Sonoma	Dissolved Oxygen Ammonia Conductivity	Water	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000
5/15/01	WaterKeepers of Northern California	Ellis Creek	Sonoma	sediment	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Fairfax Creek-upper	Marin	sediment	Sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works. December 31. 2000
5/15/01	WaterKeepers of Northern California	Fruitvale (area in front of stormdrain)	Alameda	chlordane, PCBs	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Glen Echo Creek	Alameda	Trash	Water	photographs
5/15/01	WaterKeepers of Northern California	Guadalupe River	Santa Clara	Trash	Water	Photos from March 1, 2001
5/15/01	WaterKeepers of Northern California	Guadalupe River	Santa Clara	Cadmium, Zinc Copper, Lead Mercury, Nickel	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	Guadalupe Creek	Santa Clara	trash	Water	photographs
5/15/01	WaterKeepers of Northern California	Islais Creek	San Francisco	PCBs, chlordane, dieldrin, endosulfan suffate, PAHs, anthropogenically enriched H2S & NH3 , toxicity	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999

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Date	Entity	Waterbody	County	Pollutant	Media	Data Source
5/15/01	WaterKeepers of Northern California	Lake Merritt	Alameda	Trash	Water	photographs
5/15/01	WaterKeepers of Northern California	Lakeville Tributaries	Sonoma	sediment	Sediment	Petaluma Watershed Enhancement Plan. Southern Somoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Liberty Creek	Sonoma	sediment	Sediment	Petaluma Watershed Enhancement Plan Southern Somoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Lichau Creek	Sonoma	sediment	Sediment	Petaluma Watershed Enhancement Plan Southern Somoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Llagas Creek	Santa Clara	Sedimentation	Water	Draft Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program Santa Clara Valley Water District. March 28. 2001
5/15/01	WaterKeepers of Northern California	Lobos Creek	San Francisco	Fecal coliform	Water	Floppy disc data spreadsheet from Eric Wilson, EPA
5/15/01	WaterKeepers of Northern California	Lower Lynch Creek	Sonoma	Chlorpyrifos	Water	Petaluma Watershed Enhancement Plan Southern Somoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Lynch Creek	Sonoma	sediment	Water	Petaluma Watershed Enhancement Plan Southern Somoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Marina Lagoon	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	Miller Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Mission Creek	San Francisco	Ag, Cr, Cu, Hg, Pb, Zn, chlordane, chlorpyrifos, dieldrin, mirex, PCBs, PAHs, anthropogenically enriched H2S & NH3, toxicity	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Novato Creek	Marin	coliform	Water	Bel Marin Keys Community Services District, water quality monitoring data from 1997-1998 and May 2000 to March 2001
5/15/01	WaterKeepers of Northern California	Novato Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Novato Creek	Marin	sediment	Water	Friends of Novato Creek Photo Journal shows photographs of massive sediment discharges into Bel Marin Keys Lagoons
5/15/01	WaterKeepers of Northern California	Novato Creek-lower	Marin	sediment	Sediment	Sediment Sources and Fluvial Geomorphic Processes of Lower Novato Creek Watershed, Laurel Collins, July 1998
5/15/01	WaterKeepers of Northern California	Old Mill Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Pacheco Creek	Marin	sediment	Water	Friends of Novato Creek Photo Journal
5/15/01	WaterKeepers of Northern California	Pacheco Pond	Marin	toxicity	Water	observed fish kills; water contact burns; see correspondence from Elena Belsky (WaterKeepers) and Sue Lattanzio (Friends of Novato Creek) to RWQCB, Feb. 9. 2001
5/15/01	WaterKeepers of Northern California	Pacific Dry Dock #1 (area in front of stormdrain)	Contra Costa	Cu, Pb, Hg, Zn, TBT, ppDDE, PCBs, PAHs, chlorpyrifos, chlordane, dieldrin, mirex	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 2003
5/15/01	WaterKeepers of Northern California	Pajaro River	Santa Clara	Sedimentation Nutrients, Metals Pesticides, Grease Oil	Water	Draft Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program Santa Clara Valley Water District. March 28. 2001

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Date	Entity	Waterbody	County	Pollutant	Media	Data Source
5/15/01	WaterKeepers of Northern California	Petaluma River	Sonoma	Diazinon, Chlorpyrifos	Water	Diazinon and Chlorpyrifos in the Chlorpyrifos Petaluma River Watershed Baseline Consulting. May 6, 1999
5/15/01	WaterKeepers of Northern California	Petaluma River	Sonoma	Temperature, Ammonia, Dissolved Oxygen, Coliform, Debris, Petroleum Distillates, Herbicides	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Peyton Slough	Contra Costa	Ag, Cd, Cu, Se, Zn, PCBs, chlordane, ppDDE, pyrene, toxicity	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Pilarcitos Creek	San Mateo	Sedimentation Coliform, Endosulfan, lack of flow	Water	Pilarcitos Creek Restoration Plan Philip Williams & Associates, Ltd.
5/15/01	WaterKeepers of Northern California	Point Potrero/ Richmond Harbor	San Francisco	Hg, PCBs, Cu, Pb, Zn	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Pomponio Creek	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	Rheem Creek	Contra Costa	Copper, Zinc	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	San Anselmo Creek	Marin	sediment	Sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works. December 31.2001
5/15/01	WaterKeepers of Northern California	San Anselmo Creek	Marin	sediment	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	San Anselmo Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	San Antonio Creek	Sonoma/Marin	Dissolved Oxygen Ammonia Conductivity	Water	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000
5/15/01	WaterKeepers of Northern California	San Antonio Creek	Sonoma/Marin	Sedimentation	Sediment	Application to the SFEI Watershed Science Approach to San Antonio Creek, Sonoma and Marin Counties, CA. Draft 2000.
5/15/01	WaterKeepers of Northern California	San Francisco Bay, Central	Alameda	Cadmium	Sediment, Tissue	Draft Seaplane Lagoon Site Characterization Memo, April 4, 2001. Submitting electronic file only.
5/15/01	WaterKeepers of Northern California	San Francisco Bay, Central	Alameda	PAHs	Sediment, Tissue	Draft IR Site 2 Remedial Investigation Report, Alameda Point, Alameda County, December 4, 2000. Prepared by Neptune and Company, Inc. for Southwest Division Naval Facilities Engineering Command, San Diego, CA
5/15/01	WaterKeepers of Northern California	San Gregorio Creek	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	San Leandro Bay	Alameda	Hg, Pb, Se, Zn, PCBs, PAHs, DDT, chlordane, dieldrin, ppDDE, hexachlorobenzene, heptachlor, chlorpyrifos	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	San Leandro Creek	Alameda	trash	Water	photographs
5/15/01	WaterKeepers of Northern California	San Lorenzo Creek	Alameda	Copper, Lead Zinc, Cadmium Mercury, Selenium	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	San Pedro Creek	San Mateo	Sedimentation	Sediment	San Pedro Creek Geomorphic Analysis, 2001
5/15/01	WaterKeepers of Northern California	San Pedro Creek	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	San Vicente Creek	San Mateo	Fecal coliform	Water	Electronic data on CD, San Mateo County Environmental Health
5/15/01	WaterKeepers of Northern California	Silver Creek	Santa Clara	Trash	Water	Video, Clean South Bay
5/15/01	WaterKeepers of Northern California	Sleepy Hollow Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst

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Date	Entity	Waterbody	County	Pollutant	Media	Data Source
5/15/01	WaterKeepers of Northern California	Sleepy Hollow Creek	Marin	sediment	Sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works. December 31,2000
5/15/01	WaterKeepers of Northern California	Sorich Creek	Marin	sediment	Sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works. December 31,2000
5/15/01	WaterKeepers of Northern California	Suisun Slough	Solano	DO	Water	Boynton Slough Beneficial Use Assessment Proposal, H.T. Harvey & Assoc. May 11, 2001
5/15/01	WaterKeepers of Northern California	Thompson Creek	Sonoma	Diazinon Chlorpyrifos	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District
5/15/01	WaterKeepers of Northern California	Stege Marsh	Contra Costa	As, Cu, Hg, Se, Zn, chlordane, dieldrin, ppDDE, dacthal, endosulfan I, endosulfan sulfate, dichlorobenzophenone, heptachlor epoxide, hexachlorobenzene, mirex, oxadiazon, toxaphene, PCBs, toxicity	Sediment, Tissue	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999
5/15/01	WaterKeepers of Northern California	Tomales Bay trib	Marin	Ammonia	Water	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000
5/15/01	WaterKeepers of Northern California	Turning Basin	Sonoma	Diazinon, Chlorpyrifos	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Walnut Creek	Contra Costa	Copper, Zinc Cadmium, Mercury Lead	Water	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996
5/15/01	WaterKeepers of Northern California	Warner Creek	Marin	degraded habitat/community ecology	Pop'n	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000. Sustainable Land Stewardship Inst
5/15/01	WaterKeepers of Northern California	Washington Creek	Sonoma	Diazinon Chlorpyrifos	Water	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999
5/15/01	WaterKeepers of Northern California	Willow Brook Creek	Sonoma	sediment	Sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999
5/15/01	Pesticide Action Network	Ledgewood Creek	Solano	Diazinon, Methidathion	Water	DPR Surface Water Database
5/15/01	Lake Merritt Institute	Lake Merritt	Alameda	DO, Trash, Sediment Chemistry, Oil/Hydrocarbons	Water, Sediment	Lake Merritt Institute Monitoring Program
5/15/01	BACWA	San Francisco Bay North of Dumbarton Bridge, San Pablo Bay	N/A	Copper, Nickel	Water	Copper and Nickel Impairment Assessment Study North of Dumbarton Bridge
5/15/01	Friends of Sausal Creek	Sausal Creek	Alameda	Conventionals[6]	Water	Friends of Sausal Creek Monitoring Program

6. DO, Ammonia, pH

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Table A-2 DATA QUALITY EVALUATION SUMMARY

SOP's = "Standard Operating Procedures"
Metadata = Who, When, What, How samples were taken

Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Lake Merced	Conventionals[1]	San Francisco Public Utilities Commission Quarterly Lake Monitoring	Grab **level 1**	South Police Range, South Pump Station, North lake, East lake-moderate/low spatial coverage **level 1**	quarterly during key periods (Mar, Jun/Jul, Sept, Dec)-data are <5 years old **level 2**	SOPs followed - **Level 3**	1
Arroyo Las Positas, Arroyo Seco	Pesticides, Conventionals[2], Metals, Radioactivity	LLNL's Storm Water Monitoring Program	Grab **level 1**	Arroyo Seco, Arroyo Los Postias-low spatial coverage **level 1**	2-3 times a year **level 1**	Approved SOPs, adequate metadata **level 2**	1
Lagunitas Creek, Redwood Creek (Marin), Olema Creek, Abbotts Lagoon and Tributaries, Pine Creek (Marin), Agua Fria Creek, Torogas Creek, San Antonio Creek (Alameda), Arroyo Valle, Arroyo de la Laguna, Alameda Creek, San Lorenzo Creek, Crow Creek, Cull Creek, Redwood Creek (Alameda)	Conventionals[3]	U.S. Geological Survey Water Quality Monitoring	Grab sample in long term monitoring, **Level 2**	Various locations throughout region, **level 3**	Data from every other month, and/or bi-monthly depending on the sites, **Level 2**	High QA/QC, SOP's followed - **Level 4**	3
Lower South San Francisco Bay	Copper, Nickel	Santa Clara Basin Watershed Management Initiative's Copper/Nickel Impairment Assessment Report & Copper Action Plan	Grab sample, **Level 2**	**Level 3**	Year-round for several years - **Level 4**	QA/QC, SOP's followed - **Level 4**	4
Guadalupe River and tributaries, Coyote Creek	Temperature	Guadalupe Coyote Resource Conservation District hourly temperature monitoring	No data submitted	No data submitted	No data submitted	No data submitted	NA
Petaluma River (portion near the mouth)	Sediment, Mercury, Selenium, Coliform	Bahia Homeowners Association Dredging Lagoon and Lock Project (via LTMS); Stuart Siegel's Monitoring Reports for Carl's Marsh, Reports of Untreated effluent flow to the river.	No data submitted	No data submitted	No data submitted	No data submitted	NA
Novato Creek	Mercury, Sediment	Bel Marin Keys Community Services District sampling reports (via LTMS)	No data submitted	No data submitted	No data submitted	No data submitted	NA
Corte Madera Creek	Sediment	Friends of Corte Madera Creek Watershed	No data submitted	No data submitted	No data submitted	No data submitted	NA
Gallinas Creek	Sediment	No specific data, but dredging occurs on regular basis, and historic permitting records from the Corps & RWQCB should be applicable	No data submitted	No data submitted	No data submitted	No data submitted	NA
Carquinez Strait, Lake Herman	Conventional[4], Coliform, Metals	City of Benicia Monitoring Program	Grab samples - Level 2	only Lake Herman-low spatial coverage **Level 1**	2times a year btwn 97-99, monthly btwn Feb 00-Apr 01, data <5 years old **level 2**	Info not available	1
Alameda Creek, Stonybrook Creek, Sinbad Creek, Arroyo de la Laguna, Alamo Creek, South San Ramon Creek, Tassajara Creek, Arroyo Las Positas, Arroyo Mocho, Arroyo Valle, Vallecitos Creek	Conventionals5, Flow	ACWD's Weekly Watershed Monitoring Program	Grab Sample - Level 2	13 creeks assessed-broad spatial coverage **level 3**	Weekly monitoring since July 1997. Broad spatial coverage (>3 years) and data are <5 years old. **Level 3**	QA/QC protocols followed, QA/QC results adequate, adequate metadata-**level 4**	3

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Table A-2 DATA QUALITY EVALUATION SUMMARY

SOP's = "Standard Operating Procedures"
Metadata = Who, When, What, How samples were taken

Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Boynton Slough, Suisun Bay	Metals, Cyanide	FSSD's NPDES Permit Monitoring	**Surface Grabs Level 2**	7 sampling stations, 2 controls, 5 under influence of effluent in overall study - 3 in slough. Level 3	Sampling done 5 times over 8 months - Level 2	QA/QC protocols followed, QA/QC results adequate, adequate metadata-**level 3**	3

1. Turbidity, Do, Fluoride, Chloride, pH, Ammonia
2. Oil and grease, Chloride, Conductivity, Sulfate, pH, TDS, Fluoride, Nitrate (NO3)
3.DO, pH, Chloride, Fluoride, Sulfate, Nitrogen, Ammonia, NO2 and NO3, Nitrite
4. DO, Ammonia, Fluoride, Nitrate, NO3+NO2, Nitrite, pH
5. pH, TDS, Chloride, Turbidity

Guadalupe River, Coyote Creek, Sunnyvale East Channel	PCBs	PCBs and Clams in Creeks: Results of an Environmental Partnership	hand selection - one deployment, **level 3**	5 sampling stations(3 in the Guadalupe River watershed, one in Coyote Creek and one in the Sunnyvale East Channel)-low/moderate spatial coverage-**level 1 or 2**	Sampling in May and August 2000(transplanted for an 11 week period beginning on May 18, 2000)-low temporal coverage, but integrator measurement -**level 3**	QA/QC protocols followed, Adequate metadata-**level 2**	2
San Pedro Creek	Coliform	EPA Region IX Laboratory	Grab sample, **Level 2**	7 stations on San Pedro Creek-extensive spatial coverage -**level 4**	weekly monitoring 4/24/00-5/22/00, 10/16/00-11/13/00-moderate temporal coverage-**level 2**	QA/QC protocls followed, Adequate metadata-**level 4**	3
Tomales Bay and Tributaries	Ammonia, Nitrate, Conventionals, Coliform	CDFG, RWQCB	Grab sample, **Level 2**	**Level 4**	**Level 4 (wet season)**	**Level 4**	4
San Francisco Bay-Delta Estuary	Metals, Organic Pollutants	San Francisco Estuary Regional Monitoring Program	Surface Grabs, long term, **Level 3**	**25 stations, mostly in channel with 4 in shoals - level 3**	**3 times/ yr. for 7 years - level 4 +**	**Exemplary QA/QC - Level 4**	4
Adobe Creek	Diazinon, Chlorpyrifos, sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District	No data	No data	No data	No data	NA
Alameda Creek	Copper, Zinc Lead, Mercury Selenium	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde	**Old data**	**Old data**	**Old data**	**Old data**	NA
Arroyo Corte Madera del Presidio	lack of flow	Feasibility Study to Rehabilitate the Fishery Resources of the Arroyo Corte Madera Del Presidio Watershed, Mill Valley, California. May 31, 1995	Grab. **Level 1**	29 sampling sites. **Level 3**	Survey conducted from Oct 26-Nov. 4. **Level 1.**	**Level 1/2**	1
Arroyo Corte Madera del Presidio	degraded *habitat/community* ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Bean Hollow Creek	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	**Not in Region 2.**	**Not in Region 2.**	**Not in Region 2.**	**Not in Region 2.**	NA
Boynton Slough	DO	Fairfield-Suisun Water Treatment Plant Slough Data June 1997-June 2000, NPDES Permit CA0038024	Grab-**level 1 or 2**	Suisun, Boynton, peytonia, Chadbourne Sloughs-moderate spatial coverage **level 3**	Bimonthly sampling, data are <5 years old-**level 3**	QA/QC protocols followed, Adequate metadata-**level 2 or 3**	3
Carriger Creek	Sedimentation	Carriger Creek Watershed Science Approach, 2001. SFEI Draft	No data submitted	No data submitted	No data submitted	No data submitted	NA

PUBLIC RESPONSES TO 303(d) LIST SOLICITATION
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Table A-2 DATA QUALITY EVALUATION SUMMARY

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Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Calabazas Creek	Cadmium, Zinc Lead, Copper Chromium, Mercury Nickel	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	**Old data**	**Old data**	**Old data**	**Old data**	**NA**
Castro Cove	Hg, Se, PAHs, dieldrin, toxicity	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 2000	Level 4	Level 4	Level 4	Level 4	4
Castro Valley Creek	Diazinon	Characterization of the Presence of Diazinon in the Castro Valley Creek Watershed Scanlin and Feng	continuous-**level 4**	station S3 near the mouth of Castro Valley Creek-low spatial coverage-**level 1**	selected storm events in the 1995-1996 and 1996-1997 rainy seasons-moderate temporal coverage **level 2**	QA/QC protocols followed, adequate metadata-**level 4**	3
Castro Valley Creek	Copper, Lead Zinc, Cadmium Mercury	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde	**Old data**	**Old data**	**Old data**	**Old data**	**NA**
Central Basin, S.F.	Hg, PAHs	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Codornices Creek	Copper, Lead Mercury Zinc, Cadmium	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde	**Old data**	**Old data**	**Old data**	**Old data**	**NA**
Colusa Drain	Mercury	Water Quality in the Sacramento River Basin	**OUT OF REGION**	**OUT OF REGION**	**OUT OF REGION**	**OUT OF REGION**	**NA**
Corte Madera Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Corte Madera Creek	Temperature	Fisheries Resources Conditions of the Corte Madera Creek Watershed, A.ARich and Associates , November 10, 2000	Continuous. **Level 3**	5 creeks in the area (p.37), **Level 2**	April-Oct. 1999. Weekly monitoring. **Level 2, possibly 3**	**Level 2 or 3**	2 or 3
Corte Madera Creek	sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works, December 31,2000	Info not available	Info not available	Info not available	Info not available	NA
Corte Madera Creek	sediment	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Coyote Creek	Copper, Lead Mercury, Zinc Cadmium, Nickel	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	**Old data**	**Old data**	**Old data**	**Old data**	**NA**
Coyote Creek	Trash	Video, Clean South Bay	video-No sampling	video-No sampling	video-No sampling	video-No sampling	**NA**
Coyote Creek	cadmium, copper, lead, mercury, nickel, DO	Stormwater Environmental Indicators Demonstration Project, Water Environment Research Foundation, Sept 2000 for the SCVURPPP	Continuous **level 3 or 4**	Broad spatial coverage-**level 3 or 4**	38 storm events btwn 1988 and 1995-"acute" data >5 years, **level 1**	**level 3 or 4**	3
Ellis Creek	Dissolved Oxygen Ammonia Conductivity	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000	grab-**level 1 or 2**	Broad spatial coverage (20 stations)-**level 2 or 3**	weekly monitoring 99-00, summary data 98-00, **level 2 or 3**	adequate metadata-**level 2**	2
Ellis Creek	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July. 1999	No data	No data	No data	No data	NA

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Fairfax Creek-upper	sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works, December 31, 2000	Info, not available	4 stations level 1	2 times a year-low temporal coverage level 1	level 1 or 2	1
Fruitvale (area in front of stormdrain)	chlordane, PCBs	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Glen Echo Creek	Trash	photographs	info not available, photos	info not available, photos	info not available, photos	info not available, photos	NA
Guadalupe River	Trash	Photos from March 1, 2001	info not available, photos	info not available, photos	info not available, photos	info not available, photos	NA
Guadalupe River	Cadmium, Zinc Copper, Lead Mercury, Nickel	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	Old data	Old data	Old data	Old data	NA
Guadalupe Creek	trash	photographs	info not available, photos	info not available, photos	info not available, photos	info not available, photos	NA
Islais Creek	PCBs, chlordane, dieldrin, endosulfan sulfate, PAHs, anthropogenically enriched H2S & NH3 , toxicity	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Lake Merritt	Trash	photographs	info not available, photos	info not available, photos	info not available, photos	info not available, photos	NA
Lakeville Tributaries	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Liberty Creek	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Lichau Creek	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Llagas Creek	Sedimentation	Draft Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program Santa Clara Valley Water District. March 28, 2001	OUT OF REGION	OUT OF REGION	OUT OF REGION	OUT OF REGION	NA
Lobos Creek	Fecal coliform	Floppy disc data spreadsheet from Eric Wilson, EPA	Info, not available	1 site-low spatial coverage level 1	3-4 times a week monitoring from Jul 97-may 98, level 3 or 4	Info, not available	2
Lower Lynch Creek	Chlorpyrifos	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Lynch Creek	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA

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Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Marina Lagoon	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	Series of grab, 5 samples in 30 days-**level 4**	10 sites on Marina Lagoon-moderate spatial coverage -**level 3**	Weekly monitoring btwn 98-00, data <5 years old-**level 3 or 4**	Trained sampling Surfrider personnel; ELAP Certified county lab analyses - **Level 3**	3
Miller Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Mission Creek	Ag, Cr, Cu, Hg, Pb, Zn, chlordane, chlorpyrifos, dieldrin, mirex, PCBs, PAHs, anthropogenically enriched H2S & NH3, toxicity	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Novato Creek	coliform	Bel Marin Keys Community Services District, water quality monitoring data from 1997-1998 and May 2000 to March 2001	Info, not available	Novato creek North locks dock, Novato Creek South locks dock, North Lagoon Community center dock, South Lagoon Dolphin Isle dock, South Lagoon Bahama Reef west dock-moderate spatial coverage-**level 2**	4-6 times a year -**level 1**	**Level 2**	1
Novato Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Novato Creek	sediment	Friends of Novato Creek Photo Journal shows photographs of massive sediment discharges into Bel Marin Keys Lagoons	photos, no sampling	photos, no sampling	photos, no sampling	photos, no sampling	NA
Novato Creek-lower	sediment	Sediment Sources and Fluvial Geomorphic Processes of Lower Novato Creek Watershed, Laurel Collins, July 1998	Detailed linear analyses - Level 4	Novato Creek and tributaries Arroyo Avichi, Warner, Vineyard, Bowman and Leveroni Creeks-moderate spatial coverage **level 3**	spring-fall 1997-adequate temporal coverage -**level 3**	Trained personnel - **Level 4**	4
Old Mill Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel **Level 4**	5 sampling stations. 15 samples **Level 4**	Spring and/or fall sampling adequate, **level 4**	Description of the procedure included. **Level 3**	4
Pacheco Creek	sediment	Friends of Novato Creek Photo Journal	photos, no sampling	photos, no sampling	photos, no sampling	photos, no sampling	NA
Pacheco Pond	toxicity	observed fish kills; water contact burns; see correspondence from Elena Belsky (WaterKeepers) and Sue Lattanzio (Friends of Novato Creek) to RWQCB, Feb. 9, 2001	No data	No data	No data	No data	NA

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Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Pacific Dry Dock #1 (area in front of stormdrain)	Cu, Pb, Hg, Zn, TBT, ppDDE, PCBs, PAHs, chlorpyrifos, chlordane, dieldrin, mirex	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 2003	Level 4	Level 4	Level 4	Level 4	4
Pajaro River	Sedimentation Nutrients, Metals Pesticides, Grease Oil	Draft Environmental Impact Report and Stream Maintenance Program Report for the Multi-Year Stream Maintenance Program Santa Clara Valley Water District. March 28, 2001	OUT OF REGION	OUT OF REGION	OUT OF REGION	OUT OF REGION	NA
Petaluma River	Diazinon, Chlorpyrifos	Diazinon and Chlorpyrifos in the Chlorpyrifos Petaluma River Watershed Baseline Consulting. May 6, 1999	4 sampling events, grab-level 1 or 2	8 locations-moderate spatial coverage level 3	4 sampling events-low temporal coverage, but corroborated with other regional urban data -level 3	adequate metadata-level 3	3
Petaluma River	Temperature, Ammonia, Dissolved Oxygen, Coliform, Debris, Petroleum Distillates. Herbicides	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Peyton Slough	Ag, Cd, Cu, Se, Zn, PCBs, chlordane, ppDDE, pyrene, toxicity	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Pilarcitos Creek	Sedimentation Coliform, Endosulfan, lack of flow	Pilarcitos Creek Restoration Plan Philip Williams & Associates, Ltd.	No data	No data	No data	No data	NA
Point Potrero/ Richmond Harbor	Hg, PCBs, Cu, Pb, Zn	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Pomponio Creek	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	series of grab, 5 samples in 30 days-level 4	one station on Pomponio creek-low spatial coverage-level 1	3-5 times a month, long term (3 years)-level 3	Surfrider sample collectors trained by SM Co., ELAP Certified Lab. - Level 3	3
Rheem Creek	Copper, Zinc	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	Old data	Old data	Old data	Old data	NA
San Anselmo Creek	sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works, December 31,2001	Info, not available	4 stations- level 1	Once a year-low temporal coverage level 1	level 1 or 2	2
San Anselmo Creek	sediment	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel Level 4	5 sampling stations. 15 samples Level 4	Spring and/or fall sampling adequate, level 4	Description of the procedure included. Level 3	4
San Anselmo Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel Level 4	5 sampling stations. 15 samples Level 4	Spring and/or fall sampling adequate, level 4	Description of the procedure included. Level 3	4

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Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
San Antonio Creek	Dissolved Oxygen Ammonia Conductivity	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000	grab-**level 1 or 2**	Broad spatial coverage (20 stations)-**level 2 or 3**	weekly monitoring 99-00, summary data 91-00, **level 4 (long term)**	adequate metadata-**level 3**	3
San Antonio Creek	Sedimentation	Application to the SFEI Watershed Science Approach to San Antonio Creek, Sonoma and Marin Counties, CA, Draft 2000.	continuous data, **Level 3 or 4**	70% of the entire mainstem San Antonio Creek covered. **Level 4.**	Continuous monitoring Sept. through Nov. 2000. **Level 3 or 4.**	**Level 3 or 4, from info given in the report**	4
San Francisco Bay, Central	Cadmium	Draft Seaplane Lagoon Site Characterization Memo, April 4, 2001.	Info not available	Only Seaplane Lagoon, low spatial coverage-**level 1**	depend on the analyte but approx. 3times a month-	Info not available	1
San Francisco Bay, Central	PAHs	Draft IR Site 2 Remedial Investigation Report, Alameda Point, Alameda County, December 4, 2000. Prepared by Neptune and Company, Inc. for Southwest Division Naval Facilities Engineering Command, San Diego, CA	Table missing	Table missing	5 samples in 1997-low spatial coverage **level 1**	Table missing	1
San Gregorio Creek	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	series of grab, 5 samples in 30 days-**level 4**	one station on Pomponio creek-low spatial coverage-**level 1**	3-5 times a month, long term (3 years)-**level 3**	Surfrider sample collectors trained by SM Co., ELAP Certified Lab. - **Level 3**	3
San Leandro Bay	Hg, Pb, Se, Zn, PCBs, PAHs, DDT, chlordane, dieldrin, ppDDE, hexachlorobenzene, heptachlor, chlorpyrifos	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
San Leandro Creek	trash	photographs	Photos, no data	Photos, no data	Photos, no data	Photos, no data	NA
San Lorenzo Creek	Copper, Lead Zinc, Cadmium Mercury, Selenium	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	**Old data**	**Old data**	**Old data**	**Old data**	NA
San Pedro Creek	Sedimentation	San Pedro Creek Geomorphic Analysis, 2001	Missing pages	Missing pages	Missing pages	Missing pages	NA
San Pedro Creek	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	series of grab-5 samples in 30 days-**level 4**	8 stations on San Pedro Creek-moderate spatial coverage-**Level 3**	weekly monitoring btwn 98-00-**level 3**	Surfrider sample collectors trained by SM Co., ELAP Certified Lab. - **Level 3**	3
San Vicente Creek	Fecal coliform	Electronic data on CD, San Mateo County Environmental Health	series of grab-5 samples in 30 days-**level 4**	1 major station on San Vicente Creek-low spatial coverage **level 1**	weekly monitoring btwn 98-00-**level 3**	Surfrider sample collectors trained by SM Co., ELAP Certified Lab. - **Level 3**	3
Silver Creek Sleepy Hollow Creek	Trash degraded habitat/community ecology	Video, Clean South Bay Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	video-No data macroinvertebrates sampled by trained personnel **Level 4**	video-No data 5 sampling stations. 15 samples **Level 4**	video-No data Spring and/or fall sampling adequate, **level 4**	video-No data Description of the procedure included. **Level 3**	NA 4

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Waterbody	Pollutant	Data Source	Sample Collection	Spatial Representativeness	Temporal Representativeness	Data Quality	LEVEL OF INFO.
Sleepy Hollow Creek	sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works, December 31,2000	Info, not available	Info, not available	Info, not available	Info, not available	NA
Sorich Creek	sediment	Geomorphic Assessment of the Corte Madera Creek Watershed, Stetson Engineers, Inc prepared for Friends of Corte Madera Creek & Marin County Dept of Public Works, December 31,2000	Info, not available	1 station level 1	once a year-low temporal coverage level 1	level 1	1
Thompson Creek	Diazinon Chlorpyrifos	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District	No data	No data	No data	No data	NA
Stege Marsh	As, Cu, Hg, Se, Zn, chlordane, dieldrin, ppDDE, dacthal,	Final Regional Toxic Hotspot Cleanup Plan, RWQCB-SF, March 1999	Level 4	Level 4	Level 4	Level 4	4
Tomales Bay trib	Ammonia	Marin-Sonoma Counties Ag Runoff Ammonia Influence Investigation, Fish and Game. Dec. 6, 2000	grab-level 1 or 2	Broad spatial coverage (40 stations)-level 2 or 3	weekly monitoring 99-00, Summary Data 97-00, level 2 or 3	adequate metadata-level 2	2
Turning Basin	Diazinon, Chlorpyrifos	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Walnut Creek	Copper, Zinc Cadmium, Mercury Lead	San Francisco Bay Area Stormwater Monitoring Data Analysis - Woodward-Clyde. Oct. 15, 1996	Old data	Old data	Old data	Old data	NA
Warner Creek	degraded habitat/community ecology	Marin County Macroinvertebrate Survey Fall-1999-Spring 2000, Sustainable Land Stewardship Inst	macroinvertebrates sampled by trained personnel Level 4	5 sampling stations. 15 samples Level 4	Spring and/or fall sampling adequate, level 4	Description of the procedure included. Level 3	4
Washington Creek	Diazinon Chlorpyrifos	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Willow Brook Creek	sediment	Petaluma Watershed Enhancement Plan Southern Sonoma Co Resource Conservation District. July, 1999	No data	No data	No data	No data	NA
Ledgewood Creek	Diazinon, Methidathion	DPR Surface Water Database	Grab - Level 1	one site- Level 1	one measurement - level 1	Level 3	1
Lake Merritt	DO, Trash, Sediment Chemistry, Oil/Hydrocarbons	Lake Merritt Institute Monitoring Program	Series of Grab Samples (3-7 times a month), only at depth Level 1	6 stations, Level 3	Sept. 23, '98-May 12, '99, no diurnal Level 1	No QA/QC, training documentation	1
San Francisco Bay North of Dumbarton Bridge, San Pablo Bay	Copper, Nickel	Copper and Nickel Impairment Assessment Study North of Dumbarton Bridge	Grab sample, level 1 or 2	Covers a total of 13 sites (8 deepwater stations and 5 shallow water stations) level 3	One year (Summer 2000-Summer 2001), including two dry seasons and one wet season. Level 2 (sample is taken over only one year)	Level 3 or possibly 4	3

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Sausal Creek	Conventionals[6]	Friends of Sausal Creek Monitoring Program	Grab - Level 1	Sampling at Palo Seco, El Centro, and Hickory stations-low spatial coverage-level 1 or 2	monthly monitoring btwn 98 and 99. Data 5 years old-moderate temporal coverage-level 1	QA/QC protocols followed, QA/QC results inadequate, adequate metadata-level 1	1

6. DO, Ammonia, pH

ATTACHMENT A

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION
MARCH 2001

California Regional Water Quality Control Board

San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The San Francisco Bay Regional Water Quality Control Board (Regional Board) is soliciting the public on behalf of the State Water Resources Control Board (SWRCB) for data and information regarding water quality conditions in surface waters in this Region. The information gathered will be used in various assessments of the State's waters including the development of a submission to US EPA required by the federal Clean Water Act (Section 303(d)). This submission will be developed by the SWRCB and will provide US EPA with a revised list of waters considered by the State to be impaired (not attaining water quality standards) after certain required technology based water quality controls are in place. It is anticipated that this submission will be provided to US EPA by April 2002, as required by federal regulations. The submission will be based on information and data available to the SWRCB and the Regional Water Quality Control Boards. The data and information gathered in this solicitation will also contribute to the preparation of the 2002 federal Clean Water Act Section 305(b) Report on Water Quality.

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

We are seeking to obtain all readily available data and assessment information generated since July 1997. The Regional Board must receive all data and information you wish to provide by 5:00 p.m. on May 15, 2001. For purposes of this solicitation, information is any documentation describing the current or anticipated water quality condition of a surface water body. We consider data to be a subset of information that consists of reports of measurements of specific environmental characteristics. The data and information may pertain to physical, chemical, and/or biological conditions of the region's waters or watersheds.

Information provided should conform to the following considerations:

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

Any data provided should conform to the following considerations:

- Data in electronic form, in a spreadsheet, database or ASCII format. Please specify the format and define any codes or abbreviations used in your database.
- A description of, and reference for your quality assurance procedures.
- Metadata for the field data, i.e., when measurements where taken, locations, number of samples, detection limits, etc.

- If possible, **two** hard copies of the data, so that we can verify that we have accurately transferred the data to our database.
- In addition, for data from citizen volunteer water quality monitoring efforts:

➢ The name of your group;
➢ Indication of any training in water quality assessment completed by members of your group;

We would like to receive data and information as soon as possible and no later than **May 15, 2001.** Data and information submitted after May 15, 2001 may be considered if that data or information was not available prior to May 15, 2001, but the Regional Board was notified on or before May 15, 2001 that it would be available in time for the Regional Board to review and incorporate it into its resolution transmitting its recommendations to the State Board.

Please send any information and data you wish to provide to:

Regional Water Quality Control Board
Atten.: Steve Moore
1515 Clay St., #1400
Oakland, CA 94612

Or by e-mail
303dlist@rb2.swrcb.ca.gov

If you have questions regarding information or data you wish to submit, please contact Steve Moore at (510) 622-2439, or email smm@rb2.swrcb.ca.gov.

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

After May 15, 2001, Regional Board staff will draft proposed changes to the 303(d) list along with the rationale used for proposed changes and distribute them for comment during Summer 2001. Proposed changes will be based on data and information generated between July 1997 and May 2001 (or afterwards in certain cases), established criteria such as beneficial uses and water quality objectives in the San Francisco Bay Water Quality Control Plan (Basin Plan), and applicable guidance published by USEPA. After receiving comments on the proposed changes, the Regional Board staff will prepare a tentative resolution and accompanying staff report for the Regional Board's consideration in Fall 2001. The tentative resolution will transmit the Regional Board's recommendations to the SWRCB on the condition of Regional waters. The staff report will include recommended changes to the 303(d) list, a description of the rationale used for any recommended changes, and a summary of responses to comments received on the proposed changes.

ATTACHMENT B

REVISED 303(d) LIST

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
B	CARQUINEZ STRAIT	207.100	Chlordane	Nonpoint Source	Medium	6560	Acres	2002	2007
			~~Copper~~	~~Municipal Point Sources~~ ~~Urban Runoff/Storm Sewers~~ ~~Other~~ ~~Atmospheric Deposition~~	~~Medium~~	~~6560~~	~~Acres~~	~~2000~~	~~2003~~
			DDT	Nonpoint Source	Medium	6560	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	6560	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	6560	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	6560	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	6560	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	6560	Acres	T.B.D.	T.B.D.
			Mercury	Atmospheric Deposition Resource Extraction Municipal Point Sources Nonpoint Source Industrial Point Sources Natural Sources	High	6560	Acres	1998	2002
			~~Nickel~~	~~Other~~ ~~Municipal Point Sources~~ ~~Urban Runoff/Storm Sewers~~	~~Low~~	~~6560~~	~~Acres~~	~~2000~~	~~2003~~
			PCBs	Unknown Nonpoint Source	High	6560	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	6560	Acres	T.B.D.	T.B.D.
			Selenium	Industrial Point Sources Agriculture	Low	6560	Acres	2006	2010
B	RICHARDSON BAY	203.130	Chlordane	Nonpoint Source	Medium	2560	Acres	2002	2007
			DDT	Nonpoint Source	Medium	2560	Acres	2002	2007
			Dieldrin	Nonpoint Source	Medium	2560	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	2560	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	2560	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	2560	Acres	T.B.D.	T.B.D.
			High Coliform Count	Boat Discharges/Vessel Wastes Septage Disposal Urban Runoff/Storm Sewers	Medium	200	Acres	2004	2008
			Mercury	Nonpoint Source Natural Sources Atmospheric Deposition Municipal Point Sources Resource Extraction	High	2560	Acres	1998	2002

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
			PCBs	Unknown Nonpoint Source	High	2560	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	2560	Acres	T.B.D.	T.B.D.
B	SAN FRANCISCO BAY, CENTRAL	203.120	Chlordane	Nonpoint Source	Medium	67700	Acres	2002	2007
			~~Copper~~	~~Municipal Point Sources~~ ~~Atmospheric Deposition~~ ~~Urban Runoff/Storm Sewers~~ ~~Other~~	~~Medium~~	~~67700~~	~~Acres~~	~~2000~~	~~2003~~
			DDT	Nonpoint Source	Medium	67700	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	67700	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	67700	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	67700	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	67700	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	67700	Acres	T.B.D.	T.B.D.
			Mercury	Industrial Point Sources Municipal Point Sources Resource Extraction Nonpoint Source Natural Sources Atmospheric Deposition	High	67700	Acres	1998	2002
			PCBs	Unknown Nonpoint Source	High	67700	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	67700	Acres	T.B.D.	T.B.D.
			Selenium	Exotic Species Industrial Point Sources Agriculture Natural Sources	Low	67700	Acres	2006	2010
B	SAN FRANCISCO BAY, LOWER	204.100	Chlordane	Nonpoint Source	Medium	79900	Acres	2002	2007
			~~Copper~~	~~Atmospheric Deposition~~ ~~Municipal Point Sources~~ ~~Urban Runoff/Storm Sewers~~ ~~Other~~	~~Medium~~	~~79900~~	~~Acres~~	~~2000~~	~~2003~~
			DDT	Nonpoint Source	Medium	79900	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	79900	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	79900	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	79900	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	79900	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	79900	Acres	T.B.D.	T.B.D.

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
			Mercury	Nonpoint Source Natural Sources Atmospheric Deposition Resource Extraction Municipal Point Sources Industrial Point Sources	High	79900	Acres	1998	2002
			~~Nickel~~	~~Urban Runoff/Storm Sewers~~ ~~Other~~ ~~Municipal Point Sources~~ ~~Atmospheric Deposition~~	~~Medium~~	~~79900~~	~~Acres~~	~~2000~~	~~2003~~
			PCBs	Unknown Nonpoint Source	High	79900	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	79900	Acres	T.B.D.	T.B.D.
B	SAN FRANCISCO BAY, SOUTH	205.100	Chlordane	Nonpoint Source	Medium	24500	Acres	2002	2007
			~~Copper~~	~~Municipal Point Sources~~ ~~Urban Runoff/Storm Sewers~~ ~~Other~~ ~~Atmospheric Deposition~~	~~High~~	~~24500~~	~~Acres~~	~~1998~~	~~2002~~
			DDT	Nonpoint Source	Medium	24500	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	24500	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	24500	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	24500	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	24500	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	24500	Acres	T.B.D.	T.B.D.
			Mercury	Resource Extraction Atmospheric Deposition Natural Sources Nonpoint Source Industrial Point Sources Municipal Point Sources	High	24500	Acres	1998	2002
			~~Nickel~~	~~Urban Runoff/Storm Sewers~~ ~~Municipal Point Sources~~ ~~Other~~	~~High~~	~~24500~~	~~Acres~~	~~1998~~	~~2002~~
			PCBs	Unknown Nonpoint Source	High	24500	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	24500	Acres	T.B.D.	T.B.D.
			Selenium	Agriculture Domestic Use of Ground Water	Low	24500	Acres	2006	2010
B	SAN PABLO BAY	206.100	Chlordane	Nonpoint Source	Medium	71300	Acres	2002	2007
			~~Copper~~	~~Urban Runoff/Storm Sewers~~ ~~Atmospheric Deposition~~	~~Medium~~	~~71300~~	~~Acres~~	~~1998~~	~~2002~~

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
				~~Municipal Point Sources~~ ~~Other~~					
			DDT	Nonpoint Source	Medium	71300	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	71300	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	71300	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	71300	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	71300	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	71300	Acres	T.B.D.	T.B.D.
			Mercury	Natural Sources Atmospheric Deposition Municipal Point Sources Resource Extraction Nonpoint Source	High	71300	Acres	1998	2002
			~~Nickel~~	~~Other~~ ~~Urban Runoff/Storm Sewers~~ ~~Municipal Point Sources~~	~~Low~~	~~71300~~	~~Acres~~	~~1998~~	~~2002~~
			PCBs	Unknown Nonpoint Source	High	71300	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	71300	Acres	T.B.D.	T.B.D.
			Selenium	Natural Sources Agriculture Industrial Point Sources Exotic Species	Low	71300	Acres	2006	2010
B	SUISUN BAY	207.100	Chlordane	Nonpoint Source	Medium	25000	Acres	2002	2007
			~~Copper~~	~~Other~~ ~~Urban Runoff/Storm Sewers~~ ~~Atmospheric Deposition~~ ~~Municipal Point Sources~~	~~Medium~~	~~25000~~	~~Acres~~	~~1998~~	~~2002~~
			DDT	Nonpoint Source	Medium	25000	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	25000	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	25000	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	25000	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	25000	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	25000	Acres	T.B.D.	T.B.D.
			Mercury	Industrial Point Sources Natural Sources Atmospheric Deposition Resource Extraction Nonpoint Source	High	25000	Acres	1998	2002

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
			~~Nickel~~	~~Urban Runoff/Storm Sewers~~ ~~Other~~ ~~Municipal Point Sources~~	~~Low~~	~~25000~~	~~Acres~~	~~1998~~	~~2002~~
			PCBs	Unknown Nonpoint Source	High	25000	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	25000	Acres	T.B.D.	T.B.D.
			Selenium	Natural Sources Exotic Species Industrial Point Sources	Low	25000	Acres	2006	2010
B	**TOMALES BAY**	**201.110**	**~~Metals~~Mercury**	**Mine Tailings**	**High**	**7820**	**Acres**	**2001**	**2005**
			Nutrients	Agriculture	Medium	7820	Acres	2002	2007
			Pathogens	Animal Operations Septage Disposal	High	7820	Acres	1999	2004
			Sedimentation/Siltation	Agriculture Upstream Impoundment	Medium	7820	Acres	2002	2007
E	SACRAMENTO SAN JOAQUIN DELTA	207.100	Chlordane	Nonpoint Source	Medium	15000	Acres	2002	2007
			~~Copper~~	~~Atmospheric Deposition~~ ~~Urban Runoff/Storm Sewers~~ ~~Municipal Point Sources~~ ~~Other~~	~~Medium~~	~~15000~~	~~Acres~~	~~1998~~	~~2002~~
			DDT	Nonpoint Source	Medium	15000	Acres	2002	2007
			Diazinon	Nonpoint Source	Medium	15000	Acres	2002	2006
			Dieldrin	Nonpoint Source	Medium	15000	Acres	2002	2007
			Dioxin compounds*	Atmospheric Deposition	Low	15000	Acres	T.B.D.	T.B.D.
			Exotic Species	Ballast Water	High	15000	Acres	1998	2006
			Furan compounds*	Atmospheric Deposition	Low	15000	Acres	T.B.D.	T.B.D.
			Mercury	Nonpoint Source Industrial Point Sources Municipal Point Sources Resource Extraction Atmospheric Deposition	High	15000	Acres	1998	2002
			~~Nickel~~	~~Urban Runoff/Storm Sewers~~ ~~Other~~ ~~Municipal Point Sources~~	~~Low~~	~~15000~~	~~Acres~~	~~1998~~	~~2002~~
			PCBs	Unknown Nonpoint Source	High	15000	Acres	2000	2004
			PCBs (dioxin-like)*	Unknown Nonpoint Source	Low	15000	Acres	T.B.D.	T.B.D.
			Selenium	Agriculture Natural Sources Exotic Species	Low	15000	Acres	2006	2010

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
				Industrial Point Sources					
E	STEGE MARSH	203.120	Sediment Toxicity	Industrial Point Sources	Low	12	Acres	2007	2012
			Benthic Community Effects	Industrial Point Sources	Low				
E	MISSION CREEK	204.400	Sediment Toxicity	Combined Sewer Overflows Industrial Point Sources	Low	24	Acres	2007	2012
			Benthic Community Effects	Combined Sewer Overflows	Low				
				Industrial Point Sources					
E	ISLAIS CREEK	204.400	Sediment Toxicity	Combined Sewer Overflows Industrial Point Sources	Low	37	Acres	2007	2012
			Benthic Community Effects	Combined Sewer Overflows	Low				
				Industrial Point Sources					
E	PEYTON SLOUGH	207.330	Sediment Toxicity	Industrial Point Sources	Low	10	Acres	2007	2012
			Benthic Community Effects	Industrial Point Sources	Low				
E	MARINA LAGOON (SAN MATEO CO.)	204.400	High Coliform Count	Urban Runoff/Storm Sewers	Low	3.74	Miles	2007	2012
				Nonpoint Source					
C	PACIFIC OCEAN AT BAKER BEACH	203.110	High Coliform Count	Urban Runoff/Storm Sewers	Low	0.22	Miles	2007	2012
				Combined Sewer Overflows					
C	PACIFIC OCEAN AT CHINA BEACH	203.110	Beach Closures	Urban Runoff/Storm Sewers	Low	0.15	Miles	2007	2012
				Combined Sewer Overflows					
C	PACIFIC OCEAN AT FORT FUNSTON	202.100	Beach Closures	Urban Runoff/Storm Sewers	Low	1.2	Miles	2007	2012
				Combined Sewer Overflows					
C	PACIFIC OCEAN AT OCEAN BEACH	202.100	Beach Closures	Urban Runoff/Storm Sewers	Low	2.79	Miles	2007	2012
				Combined Sewer Overflows					
C	PACIFIC OCEAN AT PILLAR POINT BEACH	202.210	High Coliform Count	Nonpoint Source	Low	0.95	Miles	2007	2012
			Beach Closures	Nonpoint Source	Low				
C	PACIFIC OCEAN AT FITZGERALD MARINE RESERVE	202.210	High Coliform Count	Nonpoint Source	Low	1.54	Miles	2007	2012
			Beach Closures	Nonpoint Source	Low				

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
C	PACIFIC OCEAN AT ROCKAWAY BEACH	202.210	High Coliform Count	Urban Runoff/Storm Sewers	Low	0.54	Miles	2007	2012
				Nonpoint Source					
C	PACIFIC OCEAN AT PACIFICA STATE BEACH (LINDA MAR OR SAN PEDRO BEACH)	202.210	High Coliform Count	Urban Runoff/Storm Sewers	Low	0.83	Miles	2007	2012
				Nonpoint Source					
			Beach Closures	Urban Runoff/Storm Sewers Nonpoint Source	Low				
C	PACIFIC OCEAN AT SHARP PARK BEACH	202.210	Beach Closures	Urban Runoff/Storm Sewers	Low	0.5	Miles	2007	2012
C	PACIFIC OCEAN AT SURFER'S BEACH	202.210	High Coliform Count	Nonpoint Source	Low	1.18	Miles	2007	2012
			Beach Closures	Nonpoint Source	Low				
C	PACIFIC OCEAN AT SAN GREGORIO BEACH	202.230	High Coliform Count	Nonpoint Source	Low	0.4	Miles	2007	2012
L	CALERO RESERVOIR	205.400	Mercury	Surface Mining Mine Tailings	High	350	Acres	2001	2005
L	GUADALUPE RESERVOIR	205.400	Mercury	Mine Tailings Surface Mining	High	80	Acres	2001	2005
L	LAKE HERMAN	207.210	Mercury	Surface Mining	Low	110	Acres	2006	2010
L	LAKE MERRITT	204.200	~~Floating Material~~Trash	Urban Runoff/Storm Sewers	Low	160	Acres	2006	2010
			Org. Enrichment/Low D.O.	Urban Runoff/Storm Sewers	Low	160	Acres	2006	2010
L	SAN PABLO RESERVOIR	206.600	Mercury	Atmospheric Deposition	Low	860	Acres	2006	2010
R	ALAMEDA CREEK	204.300	Diazinon	Urban Runoff/Storm Sewers	High	50.77	Miles	2000	2004
R	ALAMITOS CREEK	205.400	Mercury	Mine Tailings	High	21	Miles	2001	2005
R	ARROYO CORTE MADERA DEL PRESIDIO	203.200	Diazinon	Urban Runoff/Storm Sewers	High	3.2	Miles	2000	2004
R	ARROYO DE LA LAGUNA	204.300	Diazinon	Urban Runoff/Storm Sewers	High	7.4	Miles	2000	2004
R	ARROYO DEL VALLE	204.300	Diazinon	Urban Runoff/Storm Sewers	High	48.7	Miles	2000	2004
R	~~ARROYO HONDO~~	~~204.300~~	~~Diazinon~~	~~Urban Runoff/Storm Sewers~~	~~Low~~	~~9.23~~	~~Miles~~	~~2000~~	~~2004~~
R	ARROYO LAS POSITAS	204.300	Diazinon	Urban Runoff/Storm Sewers	High	13.5	Miles	2000	2004

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
R	ARROYO MOCHO	204.300	Diazinon	Urban Runoff/Storm Sewers	High	28.5	Miles	2000	2004
R	BUTANO CREEK	202.400	Sedimentation/Siltation	Nonpoint Source	High	1	Miles	2002	2006
R	CALABAZAS CREEK	206.401	Diazinon	Urban Runoff/Storm Sewers	High	4.7	Miles	2000	2004
R	CORTE MADERA CREEK	203.200	Diazinon	Urban Runoff/Storm Sewers	High	4.12	Miles	2000	2004
R	COYOTE CREEK (MARIN CO.)	203.200	Diazinon	Urban Runoff/Storm Sewers	High	2.62	Miles	2000	2004
R	COYOTE CREEK (SANTA CLARA CO.)	205.300	Diazinon	Urban Runoff/Storm Sewers	High	68.63	Miles	2000	2004
R	GALLINAS CREEK	206.200	Diazinon	Urban Runoff/Storm Sewers	High	2.4	Miles	2000	2004
R	GUADALUPE CREEK	205.400	Mercury	Mine Tailings	High	6	Miles	2001	2005
R	GUADALUPE RIVER	205.400	Diazinon	Urban Runoff/Storm Sewers	High	18.21	Miles	2000	2004
			Mercury	Mine Tailings	High	30	Miles	2001	2005
R	LAGUNITAS CREEK	201.130	Nutrients	Agriculture Urban Runoff/Storm Sewers	Medium	22	Miles	2002	2007
			Pathogens	Agriculture Urban Runoff/Storm Sewers	Medium	22	Miles	2002	2007
			Sedimentation/Siltation	Urban Runoff/Storm Sewers Agriculture	Medium	22	Miles	2002	2007
R	LAUREL CREEK (SOLANO CO.)	207.230	Diazinon	Urban Runoff/Storm Sewers	High	3.02	Miles	2000	2004
R	LEDGEWOOD CREEK	207.230	Diazinon	Urban Runoff/Storm Sewers	High	12.44	Miles	2000	2004
R	LOS GATOS CREEK (REG 2)	205.400	Diazinon	Urban Runoff/Storm Sewers	High	25.72	Miles	2000	2004
R	MATADERO CREEK	205.500	Diazinon	Urban Runoff/Storm Sewers	High	7.34	Miles	2000	2004
R	MILLER CREEK	206.200	Diazinon	Urban Runoff/Storm Sewers	High	9.03	Miles	2000	2004
R	MT. DIABLO CREEK	207.310	Diazinon	Urban Runoff/Storm Sewers	High	12.63	Miles	2000	2004
R	NAPA RIVER	206.500	Nutrients	Agriculture	High	55	Miles	2001	2005
			Pathogens	Agriculture Urban Runoff/Storm Sewers	High	55	Miles	2001	2005
			Sedimentation/Siltation	Urban Runoff/Storm Sewers Agriculture Construction/Land Development	High	55	Miles	1998	2005
R	NOVATO CREEK	206.200	Diazinon	Urban Runoff/Storm Sewers	High	18.74	Miles	2000	2004
R	PERMANENTE CREEK	205.500	Diazinon	Urban Runoff/Storm Sewers	High	13.1	Miles	2000	2004

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TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
R	PESCADERO CREEK (REG 2)	202.400	Sedimentation/Siltation	Nonpoint Source	High	21	Miles	2002	2006
R	**PETALUMA RIVER**	**206.300**	Nutrients	Agriculture Construction/Land Development Urban Runoff/Storm Sewers	Low	25	Miles	2003	2007
			Pathogens	Urban Runoff/Storm Sewers Agriculture Construction/Land Development	Low	25	Miles	2003	2007
			Sedimentation/Siltation	Agriculture Construction/Land Development Urban Runoff/Storm Sewers	Low	25	Miles	2003	2007
			Copper	**Municipal Point Sources** **Urban Runoff/Storm Sewers** **Atmospheric Deposition** **Other**	**Low**	**150**	**Acres**	**2006**	**2010**
			Nickel	**Municipal Point Sources** **Urban Runoff/Storm Sewers** **Atmospheric Deposition** **Other**	**Low**	**150**	**Acres**	**2006**	**2010**
			Diazinon	**Urban Runoff/Storm Sewers**	**High**	**25**	**Miles**	**2002**	**2004**
R	PINE CREEK (CONTRA COSTA CO.)	207.310	Diazinon	Urban Runoff/Storm Sewers	High	12.56	Miles	2000	2004
R	PINOLE CREEK	206.600	Diazinon	Urban Runoff/Storm Sewers	High	9.17	Miles	2000	2004
R	**POMPONIO CREEK**	**202.400**	**High Coliform Count**	**Nonpoint Source**	**Low**	**6.8**	**Miles**	**2007**	**2012**
R	RODEO CREEK	201.300	Diazinon	Urban Runoff/Storm Sewers	High	7.96	Miles	2000	2004
R	SAN ANTONIO CREEK (MARIN CO.)	206.300	Diazinon	Urban Runoff/Storm Sewers	High	17.77	Miles	2000	2004
R	SAN FELIPE CREEK	205.300	Diazinon	Urban Runoff/Storm Sewers	High	15.47	Miles	2000	2004
R	SAN FRANCISQUITO CREEK	205.500	Diazinon	Urban Runoff/Storm Sewers	High	12.05	Miles	2000	2004
			Sedimentation/Siltation	Nonpoint Source	High	18	Miles	2000	2005
R	**SAN GREGORIO CREEK**	**202.300**							
			Sedimentation/Siltation	Nonpoint Source	Low	16	Miles	2003	2007
			High Coliform Count	**Nonpoint Source**	**Low**	**16**	**Miles**	**2007**	**2012**
R	SAN LEANDRO CREEK	204.200	Diazinon	Urban Runoff/Storm Sewers	High	14.77	Miles	2000	2004
R	SAN LORENZO CREEK (R2)	204.200	Diazinon	Urban Runoff/Storm Sewers	High	11.7	Miles	2000	2004
R	SAN MATEO CREEK	204.400	Diazinon	Urban Runoff/Storm Sewers	High	11.05	Miles	2000	2004

2001 SAN FRANCISCO BAY REGIONAL BOARD 303 (d) AND TMDL PRIORITY LIST

TYPE	WATER BODY NAME	HYDRO UNIT	CAUSES	SOURCE	PRIORITY	SIZE AFFECTED	UNIT	START DATE	END DATE
R	SAN PABLO CREEK	206.600	Diazinon	Urban Runoff/Storm Sewers	High	16.14	Miles	2000	2004
R	**SAN PEDRO CREEK**	**202.210**	**High Coliform Count**	**Urban Runoff/Storm Sewers Nonpoint Source**	**Low**	**2.2**	**Miles**	**2007**	**2012**
R	SAN RAFAEL CREEK	203.200	Diazinon	Urban Runoff/Storm Sewers	High	2.8	Miles	2000	2004
R	**SAN VICENTE CREEK**	**202.210**	**High Coliform Count**	**Nonpoint Source**	**Low**	**3.5**	**Miles**	**2007**	**2012**
R	SARATOGA CREEK	205.500	Diazinon	Urban Runoff/Storm Sewers	High	17.86	Miles	2000	2004
R	SONOMA CREEK	206.400	Nutrients	Agriculture Construction/Land Development Urban Runoff/Storm Sewers	High	23	Miles	2001	2006
			Pathogens	Construction/Land Development Agriculture Urban Runoff/Storm Sewers	High	23	Miles	2001	2006
			Sedimentation/Siltation	Urban Runoff/Storm Sewers Construction/Land Development Agriculture	High	23	Miles	2000	2006
R	STEVENS CREEK	205.500	Diazinon	Urban Runoff/Storm Sewers	High	22.26	Miles	2000	2004
R	SUISUN SLOUGH	207.23	Diazinon	Urban Runoff/Storm Sewers	High	10	Miles	2000	2004
R	**WALKER CREEK**	**201.120**	**~~Metals~~Mercury**	**Surface Mining Mine Tailings**	**High**	**25**	**Miles**	**2001**	**2005**
			Nutrients	Agriculture	Medium	25	Miles	2002	2007
			Sedimentation/Siltation	Agriculture	Medium	25	Miles	2002	2007
R	WALNUT CREEK	207.320	Diazinon	Urban Runoff/Storm Sewers	High	9.03	Miles	2000	2004
R	WILDCAT CREEK	206.600	Diazinon	Urban Runoff/Storm Sewers	High	12.07	Miles	2000	2004
T	SUISUN MARSH WETLANDS	207.230	Metals	Flow Regulation/Modification Agriculture Urban Runoff/Storm Sewers	Low	57000	Acres	2004	2008
			Nutrients	Agriculture Urban Runoff/Storm Sewers Flow Regulation/Modification	Low	57000	Acres	2004	2008
			Org. enrichment/Low D.O.	Flow Regulation/Modification Urban Runoff/Storm Sewers Agriculture	Low	57000	Acres	2004	2008
			Salinity	Flow Regulation/Modification Urban Runoff/Storm Sewers Agriculture	Low	57000	Acres	2004	2008

ATTACHMENT C

303(d) LISTING RATIONALE

ATTACHMENT C - LISTING RATIONALE FOR 2001 303(d) LIST

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
San Francisco Bay Segments North of the Dumbarton Bridge	Suisun Basin, San Pablo Basin, Central Basin, South Bay Basin	Copper	De-List	**De-list all SF Bay segments North of Dumbarton Bridge except for segment including mouth of Petaluma River.** Since March 1993, there have been only 21 exceedances of the current objective, 15 of which were at the Petaluma River station. There has not been an exceedance at any other location since 1997 and the one before that was 1995.	466	3/93 – 4/01	RMP and Special TMDL study
San Francisco Bay Segments North of the Dumbarton Bridge	Suisun Basin, San Pablo Basin, Central Basin, South Bay Basin	Nickel	De-List	**Using CTR 8.2 ug/L dissolved as standard: De-list all SF Bay segments North of Dumbarton Bridge except for segment including mouth of Petaluma River.** Since March 1993, there have only been 4 exceedances of the CTR objective of 8.2 ug/L dissolved. All of these were at the Petaluma River Station. The most recent exceedance occurred in February 2001 and was twice the Basin Plan objective. **Using 1986 Basin Plan 7.1 ug/L total as standard: List all SF Bay segments North of Dumbarton Bridge except for segment including mouth of Petaluma River.** Since March 1993, there have been 102 exceedances of the current Basin Plan objective of 7.1 ug/L total nickel. Of these exceedances, there have been 9 at Davis Point, 13 at Grizzly Bay, 9 at Honker Bay, 13 at Napa River, 19 at Petaluma River, 10 at San Pablo Bay. 36 exceedances in 1998-99 alone.	~~467~~ 435	3/93 – 4/01	RMP and Special TMDL study

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
South San Francisco Bay (south of the Dumbarton Bridge)	Santa Clara Basin	Copper	De-List	**Using proposed site-specific objective of 6.9 ug/l dissolved, De-list South San Francisco Bay south of the Dumbarton Bridge.** 0 out of 690 samples exceed this proposed SSO. If CTR value of 3.1 ug/l dissolved is used, then 35% of samples exceed and the listing would be retained.	690	2/97 – 12/00	San Jose Copper and Nickel Study
South San Francisco Bay (south of the Dumbarton Bridge)	Santa Clara Basin	Nickel	De-List	**Using proposed site-specific objective of 12 ug/l dissolved, De-list South San Francisco Bay south of the Dumbarton Bridge.** 0.17% of samples (1 of 604) exceed this objective (once in three years, in compliance with standard). If CTR value of 8.2 ug/l dissolved is used, then 1% of samples (6 out of 604) exceed and the listing would be retained.	604	2/97 – 12/00	San Jose Copper and Nickel Study
Petaluma River	San Pablo Basin	Diazinon	List	California Dept. of Fish and Game Acute Criterion of 80 ng/l violated in 33% of samples, corresponding to effects levels in other Bay Area studies.	36	7/98-11/98	Abelli-Amen, Petaluma Tree Planters, 1999
San Pablo Reservoir	San Pablo Basin	Mercury	List	Five out of 12 composite samples exceeded the U.S. EPA screening criteria for mercury in fish tissue (0.3 ppm), all in largemouth bass (trophic level 4), ranging from 0.37 to 0.77 ppm. Contra Costa Health Services issued an interim fish advisory in Feb. 2000.	12 composites (2 trout, 2 catfish, 2 carp, 5 largemouth bass, and 1 crappie)	11/97	California Office of Health Hazard Assessment, Contra Costa Co. Health Services
Stege Marsh	Central Basin	Sediment Toxicity and Benthic Community Effects	List	Elevated sediment chemistry (ERM quotient), 0-1% amphipod survival in all 5 samples, significant urchin toxicity in 3 of 3 samples, relative benthic index of 0.00 in both samples taken. Station with recurrent toxicity and degraded benthic community.	5 amphipod tox., 3 urchin tox., 2 benthic samples, 3 sed. chem..	10/97-12/97	Bay Protection and Toxic Cleanup Program (127 sites total)

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
Mission Creek	South Bay Basin	Sediment Toxicity and Benthic Community Effects	List	Elevated sediment chemistry (ERM quotient), significant amphipod toxicity in 3 of 5 samples, significant urchin toxicity in 3 of 5 samples, relative benthic index of 0.00, 0.34, and 0.65 in gradient samples taken toward Bay. Station with recurrent toxicity and degraded benthic community.	5 amphipod tox., 5 urchin tox., 3 benthic samples, 5 sed. chem..	5/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
Islais Creek	South Bay Basin	Sediment Toxicity and Benthic Community Effects	List	Elevated sediment chemistry (ERM quotient), significant amphipod toxicity in 3 of 4 samples, significant urchin toxicity in 4 of 5 samples, relative benthic index of 0.22, 0.25, and 0.43 in gradient samples taken toward Bay. Station with recurrent toxicity and degraded benthic community.	4 amphipod tox., 5 urchin tox., 3 benthic samples, 3 sed. chem..	9/94-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
Peyton Slough	Suisun Basin	Sediment Toxicity and Benthic Community Effects	List	Elevated sediment chemistry (ERM quotient), significant amphipod toxicity in 4 of 5 samples, significant urchin toxicity in 4 of 5 samples, relative benthic index of 0.36, 0.51, and 0.34 in gradient samples taken toward Bay. Station with biological impact by toxicity and somewhat degraded benthic community.	5 amphipod tox., 5 urchin tox., 3 benthic samples, 5 sed. chem..	5/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
Marina Lagoon (4 sampling sites-at mouth, rec. ctr, apt. bldg, aquatic park)	South Bay Basin	Total and fecal coliform	List	Basin Plan Objectives violated in 1% of samples for total coliform max.(>10,000), 50% of samples for total coliform median (>240), 10% for fecal coliform geomean (>200), and 33% of samples for fecal coliform 90th % ile (>400) in dry weather months.	192 samples for total coliform max., 144 samples for total coliform median, 84 samples for fecal coliform geomean, and 84 samples for fecal coliform 90th %ile.	10/7/98-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
Marina Lagoon (4 sampling sites-at mouth, rec. ctr, apt. bldg, aquatic park)	South Bay Basin	E. coli	List	Basin Plan Objectives violated in 31% of samples for max. at designated beach (>235), 28% of samples for max. at moderately used beach (>298), 17% for max. at lightly used beach (>406), and 15% of samples for max at infrequently used beach (>576) in dry weather months.	54 samples for all the beach usages	6/14/00-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
San Vicente Creek (1 sampling site)	San Mateo Coastal Basin	Total and fecal coliform	List	Basin Plan Objectives violated in 3% of samples for total coliform max.(>10,000), 100% of samples for total coliform median (>240), 100% for fecal coliform geomean (>200), 100% of samples for fecal coliform 90th % ile (>400) **(Rec 1)**. Basin Plan Objectives violated in 32% of samples for fecal coliform mean (>2000), and 23% of samples for fecal coliform 90th %ile (>4000) **(Rec 2)**, in dry weather months.	38 samples for total coliform max., 25 samples for total coliform median, 22 samples for fecal coliform geomean, 22 samples for fecal coliform 90th %ile, 22 samples for fecal coliform mean.	10/6/98-9/26/00	San Mateo County Environmental Health Dept. Beach Monitoring
San Vicente Creek (1 sampling site)	San Mateo Coastal Basin	E. coli	List	Basin Plan Objectives violated in 100% of samples for max. at all the beach usages in dry weather months.	6 samples for all the beach usages	6/12/00-9/26/00	San Mateo County Environmental Health Dept. Beach Monitoring

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
San Pedro Creek (9 sampling sites- parking lot, outlet, Linda Mar Blvd, oddstad Blvd, North Fork, South Fork, Middle Fork, Linda Mar Peralta, and Peralta)	San Mateo Coastal Basin	Total and fecal coliform	List	Basin Plan Objectives violated 13% of samples for total coliform max.(>10,000), 98% of samples for total coliform median (>240), 100% for fecal coliform geomean (>200), and 100% of samples for fecal coliform 90th % ile (>400) in dry weather months.	99 samples for total coliform max., 56 samples for total coliform median, 6 samples for fecal coliform geomean, and 6 samples for fecal coliform 90th %ile.	5/26/98-8/14/00, 4/24/00-11/13/00	San Mateo County Environmental Health Dept. Beach Monitoring EPA Region IX Laboratory
San Pedro Creek (1 sampling site-Linda Mar Beach, or Pacifica State Beach)	San Mateo Coastal Basin	Total and fecal coliform	List	Ocean Plan Objectives violated 90% of samples for total coliform 80th %ile, (>1000), 96% of samples for fecal coliform geomean (>200), and 100% of samples for fecal coliform 90th % ile (>400) in dry weather months.	41 samples for total coliform 80th %ile., 25 samples for fecal coliform geomean, and 23 samples for fecal coliform 90th %ile.	5/26/98-8/14/00, 4/24/00-11/13/00	San Mateo County Environmental Health Dept. Beach Monitoring EPA Region IX Laboratory
San Pedro Creek (5 sampling sites- outlet, Linda Mar Blvd, North Fork, Linda Mar Peralta, and Peralta)	San Mateo Coastal Basin	E. coli.	List	Basin Plan Objectives violated 67% of samples for max. at designated beach (>235), 63% at moderately used beach(>298), 57% at lightly used beach (>406), and 54% of samples for max at infrequently used beach (>576) in dry weather months.	54 samples for all the beach usages	5/26/98-8/14/00, 4/24/00-11/13/00	San Mateo County Environmental Health Dept. Beach Monitoring EPA Region IX Laboratory

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
San Pedro Creek (1 sampling site- beach)	San Mateo Coastal Basin	Enterococcus	List	Basin Plan Objectives violated 40% of samples for max. at designated beach (>104), 40% at moderately used beach(>124), 20% at lightly used beach (>276), and 10% of samples for max at infrequently used beach (>500) in dry weather months.	10 samples for all the beach usages	4/24/00-11/13/00	EPA Region IX Laboratory
San Gregorio Creek near Pacific Ocean	San Mateo Coastal Basin	Total and fecal coliform	List	Basin Plan Objectives violated 2% of samples for total coliform max.(>10,000), 73% of samples for total coliform median (>240), 26% for fecal coliform geomean (>200), and 43% of samples for fecal coliform 90th % ile (>400) in dry weather months.	56 samples for total coliform max., 45 samples for total coliform median, and 23 samples for fecal coliform geomean and 90th %ile.	9/28/98-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
San Gregorio Creek near Pacific Ocean	San Mateo Coastal Basin	E Coli.	List	Basin Plan Objectives violated 45% of samples for max. at designated beach (>235), moderately used beach (>298), and infrequently used beach (>576). 18% of samples violated at lightly used beach (>406) in dry weather months.	22 samples for all the beach usages	6/12/00-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pomponio Creek near Pacific Ocean	San Mateo Coastal Basin	Total and fecal coliform	List	Basin Plan Objectives violated 64% of samples for total coliform median (>240), 13% for fecal coliform geomean (>200), and 17% of samples for fecal coliform 90th % ile (>400) in dry weather months.	44 samples for total coliform median, and 23 samples for fecal coliform geomean and 90th %ile.	9/28/98-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
Pomponio Creek near Pacific Ocean	San Mateo Coastal Basin	E. coli.	List	Basin Plan Objectives violated 5% of samples for all the beach usages in dry weather months.	21 samples for all the beach usages	6/12/00-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Venice Beach	San Mateo Coastal Basin	Fecal coliform	List	Ocean Plan Objectives violated 13% of samples for Total Coliform (80th %ile>1000) in dry weather months.	30 samples for Total Coliform 80th %ile	9/28/98-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Pillar Point (Pillar Point Harbor, Pillar Point #4, 5, and 7)	San Mateo Coastal Basin	Total Coliform	List	Ocean Plan violated 40% of samples for Total Coliform (80th %ile>1000) in dry weather months.	143	5/98-10/98, 5/99-10/99, 5/00-10/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Pillar Point (Pillar Point Harbor, Pillar Point #4, 5, and 7)	San Mateo Coastal Basin	Fecal Coliform	List	Ocean Plan Objective violated 9% of samples for log mean (>200) and 35% of samples for 90th %ile (>400) in dry weather months.	143 for log mean 113 for 90th %ile	5/98-10/98, 5/99-10/99, 5/00-10/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Fitzgerald Marine Reserve	San Mateo Coastal Basin	Total Coliform	List	Ocean Plan Objective violated 43% of samples for Total Coliform (80th %ile>1000) in dry weather months.	49	5/98-10/98, 5/99-10/99, 5/00-10/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Fitzgerald Marine Reserve	San Mateo Coastal Basin	Fecal Coliform	List	Basin Plan Objective violated 16% of samples for log mean (>200) and 73% of samples for 90th %ile (>400) in dry weather months.	49 for log mean, 37 for 90th %ile	5/98-10/98, 5/99-10/99, 5/00-10/00	San Mateo County Environmental Health Dept. Beach Monitoring

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
Pacific Ocean at Rockaway Beach	San Mateo Coastal Basin	Total Coliform	List	Ocean Plan Objectives violated 13% of samples for Total Coliform (80th %ile>1000), dry weather months.	23	5/00-10/00	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at San Gregorio Beach	San Mateo Coastal Basin	Total Coliform	List	Ocean Plan Objectives violated 5% of samples for Total Coliform (80th %ile>1000) in combined wet and dry weather. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	76	9/98–3/01	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at San Gregorio Beach	San Mateo Coastal Basin	Fecal Coliform	List	Ocean Plan Objectives violated 8% of samples for Fecal Coliform (90th %ile>400) in combined wet and dry weather. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	73	9/98–3/01	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Surfer's Beach	San Mateo Coastal Basin	Total Coliform	List	Ocean Plan Objectives violated 5% of samples for Total Coliform (80th %ile>1000) in combined wet and dry weather. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	134	7/97-1/01	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Surfer's Beach	San Mateo Coastal Basin	Fecal Coliform	List	Ocean Plan Objectives violated 9% of samples for Fecal Coliform (90th %ile>400) in combined wet and dry weather. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	126	7/97-1/01	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Pacifica State Beach (Linda Mar)	San Mateo Coastal Basin	Total colifom	List	Ocean Plan Objectives violated 22% of samples for Total Coliform (80th %ile>1000) in wet weather months. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	36 (wet weather only)	1/98-1/01	San Mateo County Environmental Health Dept. Beach Monitoring

Water Body	Hydrologic Basin	Pollutant	Recommended Action	303(d) Listing or De-Listing Rationale	Total Samples	Monitoring Dates	Data Source(s)
Pacific Ocean at Pacifica State Beach (Linda Mar)	San Mateo Coastal Basin	Fecal Coliform	List	Ocean Plan Objectives violated 19% of samples for Fecal Coliform (geomean>200) and 22% of samples for Fecal Coliform (90th %ile>400) in wet weather months. (No exceedances between May and October - LISTING DRIVEN BY WET WEATHER ONLY)	36 geomean and 18 90th %ile (wet weather only)	1/98-1/01	San Mateo County Environmental Health Dept. Beach Monitoring
Pacific Ocean at Baker Beach (mouth of Lobos Creek)	Central Basin	Total colifom	List	Ocean Plan Objectives violated 9.7% of samples for Total Coliform (80th %ile>1000) in dry weather months.	164 samples	7/1/97-5/29/98	EPA STORET
Peytonia Slough (part of Suisun Marsh Wetlands)	Suisun Basin	DO	List	Basin Plan Objectives (<7mg/l) violate 40.4% of samples	47 samples	7/2/97-5/3/01	Fairfield-Suisun Water Treatment Plant Slough Data June 1997-June 2000, NPDES Permit CA0038024
Suisun Slough (part of Suisun Marsh Wetlands)	Suisun Basin	DO	List	Basin Plan Objectives (<7mg/l) violate 56% of samples	144 samples	7/2/97-5/3/01	Fairfield-Suisun Water Treatment Plant Slough Data June 1997-June 2000, NPDES Permit CA0038024
Boynton Slough (part of Suisun Marsh Wetlands)	Suisun Basin	DO	List	Basin Plan Objectives (<7mg/l) violate 38% of samples	144 samples	7/2/97-5/3/01	Fairfield-Suisun Water Treatment Plant Slough Data June 1997-June 2000, NPDES Permit CA0038024

RATIONALE FOR 2001 PRELIMINARY LIST

Water Body	Hydrologic Basin	Pollutant	Recommended Action	Preliminary List Rationale	Total Samples	Monitoring Dates	Data Source(s)
Lake Merced	San Mateo Coastal Basin	Dissolved Oxygen-Surface	Preliminary List – Review during next Listing Cycle	Basin Plan Objective (>7mg/l) violated 36% of samples at East Lake Spatial, Temporal Coverage inadequate for listing.	14 samples	9/97-12/00	San Francisco Public Utilities Commission Quarterly Lake Monitoring
Lake Merced	San Mateo Coastal Basin	Dissolved Oxygen-15ft depth	Preliminary List – Review during next Listing Cycle	Basin Plan Objective (>7mg/l) violated 64% of samples at South Police Range, 57% at South Pump Station, 93% at North Lake, and 57% at East Lake Spatial, Temporal Coverage inadequate for listing.	14 samples each	9/97-12/00	San Francisco Public Utilities Commission Quarterly Lake Monitoring
Lake Merced	San Mateo Coastal Basin	pH	Preliminary List – Review during next Listing Cycle	Basin Plan Objective (>8.5) violated 36% of samples at North Lake Spatial, Temporal Coverage inadequate for listing.	14 samples	9/97-12/00	San Francisco Public Utilities Commission Quarterly Lake Monitoring
Redwood Creek – tidal portion (3 sampling sites)	South Bay Basin	E. Coli	Preliminary List – Review during next Listing Cycle	Basin Plan Objectives violated 33% of samples for max. at designated beach(>235), moderately used beach(>298), and lightly used beach (>406), and 25% of samples for max at infrequently used beach (>576). Temporal Coverage inadequate for listing (only one season).	12 samples for all the beach usages	6/14/00-10/31/00	San Mateo County Environmental Health Dept. Beach Monitoring
Castro Cove	San Pablo Basin	Sediment Toxicity	Preliminary List – Review during next Listing Cycle	Elevated sediment chemistry (ERM quotient) but only one sample, 0 and 33% amphipod survival in 2 samples, significant urchin toxicity in 1 of 3 samples. No benthic analysis conducted. Inadequate ambient data to support listing, but defined as toxic hotspot and remedial plan should be implemented and reviewed.	2 amphipod tox., 3 urchin tox., no benthic samples, 1 sed. chem..	9/94-5/95	Bay Protection and Toxic Cleanup Program (127 sites total)

Water Body	Hydrologic Basin	Pollutant	Recommended Action	Preliminary List Rationale	Total Samples	Monitoring Dates	Data Source(s)
Oakland Inner Harbor – Pacific Dry Dock #1	South Bay Basin	Sediment Toxicity	Preliminary List – Review during next Listing Cycle	Elevated sediment chemistry (ERM quotient), significant amphipod toxicity in 2 of 4 samples, no significant urchin toxicity. No benthic analysis conducted. Inadequate ambient data to support listing, but defined as toxic hotspot and remedial plan should be implemented and reviewed.	4 amphipod tox., 4 urchin tox., no benthic samples, 2 sed. chem..	4/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
Oakland Inner Harbor – Oakland-Fruitvale	South Bay Basin	Sediment Toxicity	Preliminary List – Review during next Listing Cycle	Slightly elevated sediment chemistry (ERM quotient) but only one sample, significant amphipod toxicity in 2 of 2 samples, no significant urchin toxicity.. No benthic analysis conducted. Inadequate ambient data to support listing, but defined as toxic hotspot and remedial plan should be implemented and reviewed.	2 amphipod tox., 2 urchin tox., no benthic samples, 1 sed. chem..	4/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
Central Basin, San Francisco	South Bay Basin	Sediment Toxicity	Preliminary List – Review during next Listing Cycle	Slightly elevated sediment chemistry (ERM quotient) but only one sample, significant amphipod toxicity in 1 of 2 samples, significant urchin toxicity in 1 of 2 samples. No benthic analysis conducted. Inadequate ambient data to support listing, but defined as toxic hotspot and remedial plan should be implemented and reviewed.	2 amphipod tox., 2 urchin tox., no benthic samples, 1 sed. chem..	12/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)
San Leandro Bay	South Bay Basin	Sediment Toxicity	Preliminary List – Review during next Listing Cycle	Elevated sediment chemistry (ERM quotient) in 6 of 7 samples, significant amphipod toxicity in 3 of 7 samples, significant urchin toxicity in 3 of 7 samples. Relative benthic index did not indicate significant degradation in any sample (one site, #6, was best in BPTCP). Inadequate ambient data to support listing, but defined as toxic hotspot and remedial plan should be implemented and reviewed.	7 amphipod tox., 7 urchin tox., 5 benthic samples, 7 sed. chem..	4/95-4/97	Bay Protection and Toxic Cleanup Program (127 sites total)

ATTACHMENT D

RESPONSIVENESS SUMMARY

Responsiveness Summary

303(d) Staff Report
Response to Comments

California Regional Water Quality Control Board
San Francisco Bay Region
November 14, 2001

The State Water Resources Control Board (State Board) is considering changes to the State of California 303(d) list of impaired waterbodies in 2002. The nine Regional Water Quality Control Boards including the San Francisco Bay Region (Regional Board) are submitting recommended changes to the State Board. On March 2, 2001, the Regional Board included a notice of solicitation for water quality information and data with its monthly agenda package, mailed to hundreds of individuals and organizations. The deadline for responses was May 15, 2001. The Regional Board staff reviewed all of the information submitted as well as information already planned for review, and drafted a staff report that proposed changes to the 1998 303(d) list for public comment on August 27, 2001, placed on the Regional Board's website for download and emailed to all parties that submitted information by May 15, 2001, as well as other organizations affected by the decisions. Comments on the staff report were due on October 15, 2001 (a 45-day comment period). Comment letters were received from 14 organizations, listed below, and the letters are included as Attachment E of the Board's November 28, 2001 agenda package. Comments received are grouped and summarized below, followed by Board staff's responses.

The draft staff report was revised to respond to a number of comments received. Some valuable additional information was submitted in the letters, below, that changed Board staff's recommendations for a "watch" list, listing, de-listing, or placing certain waterbodies/pollutants on the "watch" list. The comments also provided Board staff useful guidance on where the draft report was vague, erroneous, or confusing. While we have strived to make the process transparent, lacking formal state guidance, the 303(d) listing process this year may be difficult for interested parties to understand. We wish to thank all individuals and organizations, below, that submitted thoughtful and constructive comments and hope that our responses and revisions to the staff report and 303(d) listing recommendations meet with their commensurate respect.

303(d) Comment Letters

	Organization	Date of Letter
A.	San Mateo Co. Stormwater Pollution Prevention Program	June 27, 2001[9]
B.	Santa Clara Valley Water District	August 28, 2001[10]
C.	U.S. Environmental Protection Agency, Region IX	September 1, 2001[11]
D.	Lake Merritt Institute	September 1, 2001[10]
E.	Pilarcitos Creek Advisory Group	October 10, 2001[10]
F.	City of San Pablo	October 12, 2001
G.	WaterKeepers	October 15, 2001
H.	WaterKeepers plus other Signatory Env. Groups	October 15, 2001
I.	Communities for a Better Environment	October 15, 2001
J.	Bayview Hunters Point Community Advocates	October 15, 2001
K.	Alameda Countywide Clean Water Program	October 15, 2001
L.	City of San Mateo	October 15, 2001
M.	Santa Clara Urban Runoff Pollution Prevention Program	October 15, 2001
N.	San Francisco Public Utilities Commission	October 15, 2001
O.	Alliance for a Clean Waterfront	October 15, 2001
P.	Lake Merritt Institute	October 16, 2001

Comment A.1. *San Pedro Creek should not be listed for high coliform count because water contact recreation is not a designated beneficial use, and therefore beneficial uses are not impaired.*

Response: Phone and personal interviews with local residents, as well as visual observations of Board staff, indicate a preponderance of evidence that water contact recreation occurs along San Pedro Creek. Moreover, there is a public beach at the creek's mouth upstream of its confluence with the ocean, where direct contact is common. We support the presumption that water contact recreation is an existing use, attained on or after Nov. 28, 1975, that may not be currently supported due to runoff from urban or horse ranching, or most likely, sanitary sewer overflows. As such, water contact recreation objectives in the Basin Plan are applicable to evaluate attainment of the water quality standard, regardless of whether the Board officially designated water contact recreation. Regional Board legal counsel and U.S. EPA training manuals (Water Quality Standards Academy) support this conservative approach.

Moreover, the analysis of compliance with Basin Plan Objectives in the memorandum is erroneous, applying a single geometric mean or percentile analyses to the entire datasets. The required analysis is much more complicated than portrayed in the memorandum. For

[9] Memorandum from Paul Randall, EOA, Inc., to Bob Davidson, San Mateo Co. STOPPP recommending that San Pedro Creek not be listed for any pollutants.

[10] Letter sent by email only.

[11] Letter sent by email only; U.S. EPA's comments were preliminary, but no further written comments have been received as of November 14, 2001. Comments on San Francisco Bay RWQCB list begin on page 9 of the U.S. EPA letter.

example, fecal coliform geometric means are only valid for 5 samples collected within 30 days for creeks (or 60 days for Ocean Plan standards), necessitating a detailed analysis to determine the number of valid geometric means for comparison to water quality objectives. The same logic applies to 80th percentile and 90th percentile objectives in the Ocean Plan and Basin Plan, respectively. For the water quality assessment, the Regional Board applied this more detailed, accurate analysis, finding widespread impairment during the dry season, and some wet season-only exceedances, as documented in detail in Attachment C of the staff report.

Comment B.1. *The size affected numbers for Alamitos Cr. and Guadalupe River seem to be incorrect. Alamitos Creek is only about 8 miles in length from Almaden Res. to the Guadalupe Creek confluence, where the Guadalupe River begins and flows about 20 miles to San Francisco Bay.*

Response: The numbers in the state's 303(d)/305(b) database tend to be the entire stream length of the mainstem. The size can be changed based on input from the group that is working on the Guadalupe River Mercury TMDL, but statements such as "about 8 miles" are not exact enough to make the change, which ultimately has no prescriptive implication for efforts on the TMDL. In the TMDL, under the Problem Statement element, the refinement of the actual extent of impairment in the Guadalupe River watershed will take place and supersede the general statement of the extent of impairment indicated in the current 303(d) list.

Comment C.1. *Regional Board should consider data from 1997 to assess the last 5 years of data as provided in U.S. EPA's 305(b) guidance.*

Response: The March 2, 2001 public solicitation explicitly states that the Regional Board will consider data generated on or after July 1997. All data sets were evaluated from that date forward, where applicable, and in some cases before that date, where the Board had not reviewed the information in previous listing cycles.

Comment C.2. *Revised standards would not provide a valid basis for the assessment and listing decision process until the revised standards are approved by EPA. Because EPA supports the methodology being used to revise the standards for the South Bay, we would recommend according the TMDLs a low priority.*

Response: Enough technical information exists in 2001 to interpret the narrative toxicity objective, based on an unprecedented and rigorous water effect ratio study, and determine that copper and nickel are not impairing beneficial uses of San Francisco Bay south of the Dumbarton Bridge. Staff recommendation remains to de-list on this technical basis, with Basin Plan amendments scheduled for Spring 2002. The standards revision process is underway, and Regional Board staff resources are committed to achieving this process, and accordingly a de-listing decision can be made on this basis for the 2002 list and adjusted as necessary in the next listing cycle. De-listing at the next 303(d) cycle could be four years away and would lead to a 303(d) list that is technically inaccurate on copper and nickel in South San Francisco Bay between 2002 and 2006. The approach

recommended in this comment sends a confusing message to the public, all on procedural grounds.

Comment C.3. *As noted for some other Regions, the issue of whether a pollutant source is natural is irrelevant to a listing decision unless the State standards provide for a natural sources exemption.*

Response. Comment noted; this rationale was not used in the report as the sole basis for any listing decision.

Comment D.1. *Lake Merritt Institute does not have an ongoing water quality monitoring program, though one is under development. Also, pounds of trash removed are monitored and in 12 years of observations, the lake appears truly enriched with organic matter. Please correct the staff report.*

Response: Changes are made to the staff report. Because all state listings for Low D.O. are accompanied by organic enrichment, Board staff will not deviate from this convention.

Comment D.2. *Please use Alameda County's dissolved oxygen data from 1989-1995.*

Response: As stated in the draft report, we discussed this dataset with Alameda County on the phone and we both determined that it did not contain strong enough information to change the listing status and was also of inadequate coverage to make a listing decision, consistent with the staff report's analysis of the high school data. We are aware of the Lake Merritt water quality committee and encourage the development of a water quality monitoring program through this committee to answer the outstanding questions of spatial and temporal impairment in the lake.

Comment E.1. *Pilarcitos Creek Advisory Committee (PCAC) recommends that the creek be listed as impaired by sediment based on information contained in "Sediment Transport Reconaissance of the Pilarcitos Creek watershed, Water Year 2001," by Balance Hydrologics, Inc. This report was published shortly after the draft 303(d) revisions report, and PCAC believes that the data contained in the report substantiate that Pilarcitos Cr. is sediment impaired and meets the criteria described in the draft staff report.*

Response: As indicated in the draft staff report on page 23, we recognize the PCAC as a broad and knowledgeable stakeholder group in the watershed. The rationale for a preliminary listing includes recognition of existing (or needed) assessment efforts that should drive the decision to list on the impaired waterbodies list. At the time of the final staff report, staff has not had time to review the new technical report published in September 2001, well after the May 15, 2001 deadline for new water quality information. We believe that our recommended preliminary list status affords a level of protection to the Pilarcitos Creek watershed commensurate with activities underway to assess and rehabilitate the watershed, and that Regional Board review of those activities at the next

listing cycle will support a decision to list or not to list the creek as impaired by sedimentation/siltation.

Comment F.1: *The City of San Pablo strongly disagrees with the proposal to include Wildcat and San Pablo creeks, within the city limits, on the list of urban waterbodies where trash threatens to impair water quality (i.e., the Board's "watch" list). The City of San Pablo has implemented a number of measures to successfully prevent and remove trash from these creeks. As evidence, the city has provided summaries of inspection, cleanup, preventive, and public education measures in which the City is involved.*

Response: We concur that the City of San Pablo has already been providing leadership in control and abatement of trash discharges. It is this very reason that the Board proposes placing all urban creeks, lakes and shorelines on its "watch" list, the preliminary list, in lieu of the impaired waterbodies list. This approach will allow municipalities the opportunity to provide the Board a better assessment of spatial and temporal extent of trash occurrence and use a defensible assessment methodology to determine impairment due to trash, rather than presence/absence on a given day at a given site, which besides Coastal Cleanup and National River Cleanup data, is all the Board had to review during this listing cycle.

The Regional Board staff is grateful to the City of San Pablo for the detailed submittal in response to our draft 303(d) report, and applauds the City of San Pablo for raising community awareness and removing pollution from its waterbodies. We have noted the challenge you mentioned of balancing public access with observed levels of trash in the creeks, where trash levels appear to decline when fences are erected to exclude the public, which hopefully is not the ultimate solution to managing trash discharges.

Notably, the City mentions, "noting continuous improvements in the quality of the creeks" and your photos provide snapshot evidence of trash-less conditions after cleanup efforts. Your comments underscore the need for the Regional Board and cities to work together regionally to (a) establish baseline conditions (perhaps as long as 7 years ago when efforts began in earnest), and (b) agree on a methodology to note continuous improvement, due to the diffuse nature of this pollutant. We encourage your input to these discussions as they occur in the processes of stormwater program annual report review and compliance status determination.

Using its existing regulatory authority under the stormwater NPDES permits, the Board intends to review annual reports from stormwater programs, in monitoring sections, to identify trash hotspots in cooperation with municipalities. These reviews will guide the Board on where to make impairment determinations in the next listing cycle. Keep in mind, however, that a discussion topic in the coming years will be the measurement "trash removed." If "trash removed" is a high magnitude, it reflects well on abatement efforts of cities and volunteer efforts, but it signifies an ongoing impairment with respect to preventing the trash from being discharged to waters of the State in the first place, which is prohibited by the Basin Plan. For instance, Lake Merritt is listed as impaired by trash, and the high magnitude of trash removed on a regular basis provides strong

evidence of ongoing impairment, even though the City of Oakland and others diligently remove the trash from the waterbody in good faith. The impairment listing is not punitive to the City of Oakland, but rather provides them a basis to develop a plan (which can be called a TMDL) to prevent trash from entering the waterbody.

Comment G.1: *Board staff should convene a public workshop to air concerns over its proposed list and explain its reasoning for excluding scores of polluted waterbodies. No rationale is given for ignoring many studies submitted to the Board in support of listing.*

Response: Given the volume of information reviewed and staff resources, it is not possible to explain every decision for every waterbody (>100) in the report text. We believe we provided adequate rationale in the draft report to support every decision to list or not to list. Nevertheless, we added a section to the report, "Decisions to Not List," at page 17 to assist the interested public in understanding application of the rationale to specific sets of data called out in public comments received.

The Regional Board's recommendations to the State Board are not required to be a public process. The public process occurs at the statewide level, estimated to occur in April 2002. Nevertheless, the Regional Board staff purposefully solicited input on its recommendations in order to better represent the overall public interest in its recommendations for the State Board. Because these recommendations can be accepted or rejected by State Board or U.S. EPA in subsequent public and administrative processes, there will be no additional workshop. All written comments received will be forwarded to the State Board along with the Regional Board's recommendations. Public comment will be accepted at the November 28, 2001 Board meeting and consideration of a tentative resolution to transmit the recommendations to the State Board.

Contrary to the comment, rationale was explained in the draft report under the section "Approach to Listing Waters," with special attention to issues of Basin Plan Criteria, California Toxics Rule, Sediment, and Trash. This section of the report has been augmented to respond to comments. Additionally, the commenter failed to acknowledge that Board staff and interns personally met with WaterKeepers for three hours on July 10, 2001 and explained its reasoning for not listing every waterbody/pollutant combination requested by WaterKeepers. Board staff "disagreement" with WaterKeepers' interpretations is not "ignoring."

A great number of the waterbodies/pollutants suggested by WaterKeepers are technically already listed for the pollutants, whether they are toxic hotspots with elevated chemicals in sediments (mercury, PCBs, DDT, dieldrin, chlordane, etc.) that are part of listed waterbodies (e.g., these pollutants in San Francisco Bay, Central; San Pablo Bay; etc.), or tributary to listed waterbodies and therefore automatically captured in subsequent TMDL processes (e.g., San Antonio Creek/sediment or nutrients, ammonia; tributary to Petaluma River which is already listed for sediments, nutrients). The draft staff report states the rationale for tributary-based listings on page 4, which prevents unnecessary proliferation of TMDL processes that are obviously interrelated. WaterKeepers' suggested listings would result in a fragmented, ineffective management scheme for the straightforward

reasons stated on page 4, which their comments appear to ignore. The idea that more listings in a given set of tributaries afford more water quality protection has no basis in reality.

Because the rationale has been provided, and apparently overlooked by the commenter, the Regional Board does not have to provide a defense for each waterway that is not recommended for listing. There are over 300 waterbodies in the Basin Plan, and defending a decision not to list for 300 waterbodies and over 15 classes of pollutants is too much workload for too little environmental protection. The Regional Board provided rationale for listing and de-listing recommendations. The Regional Board staff reviewed all submittals and reviewed additional information, such as the Regional Monitoring Program, and watershed monitoring by drinking water agencies and U.S. Geological Survey.

The Regional Board can not legally recommend listing a waterbody and pollutant based on sediment concentrations, due to lack of sediment quality objectives. In response to this and other comments, including internal staff comments, the Board staff will recommend listing certain toxic hotspots as impaired due to the documented effects: sediment toxicity and benthic community effects (see report revisions under Bay Protection Program and Tables 4 and 5, pages 23 and 36 in particular).

Comment G.2: *The proposal to de-list the San Francisco Bay, North of the Dumbarton Bridge, for copper and nickel is premature.*

Response: Years of data collected under the Regional Monitoring Program, augmented by data collected in the shoal areas of San Pablo Bay in the past year, together provide an overwhelming case that copper and nickel levels in the main water mass areas consistently comply with applicable California Toxics Rule water quality objectives, which are dissolved (see Attachment C for number of data points and exceedance frequency). Some parties argue that the proposal is overdue.

However, we agree that copper and nickel need to remain on the "watch" or threatened list because ambient values are within an order of magnitude of applicable objectives, and aggressive pollution prevention efforts must remain in force throughout the Bay Area in order to prevent ambient copper and nickel values from increasing and violating the antidegradation portion of the Bay's water quality standard. Moreover, the mouth of the Petaluma River consistently shows exceedances of the California Toxics Rule criteria for copper and nickel, correlated with increased total suspended solids (TSS) in the water column, and raises questions about compliance in freshwater/saltwater interfaces and actively dredged channels such as the tidal Petaluma River. The Board is recommending listing of this portion of the Estuary as impaired by copper and nickel.

We have added discussion of actions that need to happen (page 31-) to prevent increases in ambient copper and nickel. Any statistically significant increases would violate the antidegradation portion of the water quality standard and trigger listing.

Comment G.3: *The Draft 303(d) list should not arbitrarily exclude wet weather data when evaluating coliform and E.coli contamination.*

Response: We agree that wet weather information is valid for ocean monitoring, due to the presence of the beneficial use, and have revised the listing that specifies which beaches are impaired during wet weather months only. We maintain that wet weather bacterial indicators can be misleading, based on a century of research in this arena, and therefore do not recommend their use for waterbodies other than the ocean. Wildlife and soil bacteria trigger coliform-based impairment findings and can have no correlation with actual pathogenic risk. Moreover, persistent coliform or E. coli levels in dry weather provide a clearer signal that an anthropogenic discharge is present, and the Regional Board can better defend such listings on a technical basis, effectively targeting resources toward problems that actually exist and can be solved. Contrary to the comments, the data indicate that Pescadero Beach is not impaired at any time.

Comment G.4. *The Draft Report fails to include several waterbodies impaired by trash.*

Response: The report responded to the information provided by the commenter and elevates trash as a pollutant of concern to the public, and the Board. The water quality information submitted by WaterKeepers on behalf of other public organizations triggered significant staff activity investigating region-wide information for trash removal, in order to provide a defensible rationale for assessment at this time with existing information. After this effort we concluded that existing information is not collected in a way to justify impairment listing.

See Comment F.1 and response for the urban runoff program perspective.

Trash is officially on the "watch" list for all urban waterways, and staff is committed to reviewing annual stormwater program reports to identify assessment methods and hotspots to make defensible listing decisions in the next listing cycle. The commenter has failed to provide adequate information to justify any impairment listing. One photograph or video taken on one day does not represent spatial or temporal variability over the last 5 years, and other commenters, while acknowledging trash is worthwhile to address, have effectively dismissed this snapshot methodology. The staff report is clear that impairment findings must be based on persistent, waterbody-wide conditions. The staff report has been edited to remove the stormwater programs' rationale that technology has not been implemented yet – rather, there is a program in place that should be preventing trash from entering waterbodies, but there are not adequate data available to determine whether it is working. Notably, the City of San Pablo objects to their creeks being listed on the "watch" list because of their consistent efforts and reduction of wastes entering the Bay as a result. In sum, recommendations for any listings would be counterproductive at this time.

Comment G.5: *The draft report unlawfully proposes to avoid listing Bay Area creeks for sediment.*

Response: The draft report provided adequate explanation why sediment-related impacts do not equate to a finding of impairment. Moreover, the report provided an example, Corte Madera Creek, where reduction of sediment inputs to the stream, triggered by any TMDL action, would actually harm beneficial uses. In the case of Novato Creek, actions underway may unveil that the water quality standard is attained within the next listing cycle, and therefore a "watch" list status is justified at this time. By placing it and Pilarcitos Creek on the "watch" list, we acknowledge that an impairment finding may be justified at a future listing, pending more information to see whether or not a management action underway has provided the assessment information and/or corrective action that is warranted to protect water quality.

Comment G.6: *The draft report arbitrarily concludes that certain data are too old to use for listing numerous creeks contaminated with heavy metals.*

Response: This comment is misleading. The March 2001 public solicitation provided that the Board would consider data before July 1997 that it had not considered in past listing recommendations. State Board advised Regional Boards to not consider any data before July 1997, but Regional Board staff purposefully left this option available, and the listing recommendations in Attachment C include data before July 1997.

The commenter submitted these heavy metals data in the previous listing cycle and the Board already considered them, and found them to be inadequate to justify listing. A new section has been added to the staff report at page 17 reiterating the rationale, especially in light of the California Toxics Rule which established dissolved criteria for metals except mercury and selenium.

This is not to say that the Board is not interested in metals in urban runoff, both as contributors to the Bay and in the creeks themselves. As is noted in the additions to the report (page 17), the infrequent (~4%) exceedances of the copper and zinc acute (1-hour) criteria do raise questions of water quality protection and highlight monitoring objectives for these pollutants for stormwater programs, as indicators of potential impairment. For a listing recommendation, however, the exceedances must be persistent and waterbody-wide, as described in the staff report under "Approach to Listing Waters."

Comment H.1 – Same as G.2 (Premature to de-list copper and nickel for San Francisco Bay segments)

Comment H.2 – Same as G.1 (No rationale given for "ignoring" studies submitted to the Board)

Comment H.3 – Same as G.3 (Wet weather coliform)

Comment H.4 – Same as G.4. (Trash) See also comment/response F.1 for a city's urban runoff program perspective.

Comment H.5 – Same as G.5 (Sedimentation)

Comment H.6 – Same as G.6 (Metals in stormwater runoff, 1988-1995)

Comment I.1: *The staff report correctly identifies polybrominated diphenyl ethers (PBDEs) as pollutants of concern but defers action by not recommending listing, inconsistent with the precautionary principle and other criteria.*

Response: We agree that PBDEs are of significant concern, and acknowledge Communities for a Better Environment (CBE) for bringing attention to the matter in 2000, but absent numeric objectives, impairment findings can not be defended at this time. By placing the PBDEs on the "watch" list, the Regional Board staff will steer the Regional Monitoring Program to prioritize the pollutant for monitoring and already the Bay Area Pollution Prevention Group, composed of municipal dischargers, have proposed a pollution prevention project for PBDEs for fiscal year 2001-02, thanks in part to efforts of local researchers, CBE and the Regional Board's statement that PBDEs are increasing and threaten to impair water quality.

Comment I.2: *Narrative criteria, additive toxicity, and synergistic toxicity. The staff report's analysis of the potential for violations of narrative water quality (objectives) due to combinations of pollutants is missing and/or inadequate. Eljarrat et al. (2001) provides clear evidence of the potential for PAH compounds to exacerbate the toxicity of dioxins and certain PCBs.*

Response: The current water quality assessment framework is not equipped to address additive or synergistic effects, other than to list waterbodies for multiple pollutants and/or effects-based listings. In the case of San Francisco Bay segments, multiple pollutants are listed including PCBs and dioxins cited by the commenter, and the draft report has been revised to specify nine toxic hotspots where adverse effects are clearly documented and linked to pollution (four are recommended for listing, five for "watch" list status).

The recent article furnished by the commenter from the scientific journal Environmental Science and Technology by Eljarrat et al., as well as some of the references in that article, provide mounting evidence that PAHs exhibit dioxin-like toxicity at greater levels than dioxin, based on the actual sediment concentrations observed in Mediterranean Spain. That article demonstrated that the dioxin "toxic equivalents" of the PAHs were orders of magnitude higher than the dioxins themselves, suggesting that PAHs were perhaps more deleterious than dioxins at the ambient concentrations observed. The draft 303(d) report was revised to include this recent article as further justification for recommending PAHs on the "watch" list, even though California Toxics Rule criteria for PAHs are consistently met in RMP water samples.

Comment I.3: *PAHs should be listed, because of the potential to contribute to the toxicity of dioxins and certain PCBs, and additive/synergistic toxicity. The draft seems to conclude that the proposal not to list PAHs, in absence of an analysis of additive/synergistic toxicity, is a close call.*

Response: See response to I.2. Generally, we agree that listing PAHs is a close call, and that we prefer to make a finding of "threatened impairment" recognizing the limitations of the CTR criteria, and focus Regional Monitoring Program and other discharger monitoring resources on more assessment, particularly in near shore areas more influenced by urban discharges laden with PAHs. A blanket listing of San Francisco Bay segments on the current data is impossible to justify without inferences on additive/synergistic toxicity we presently can not defend with data from San Francisco Bay. We have revised the draft report to include more specific expectations for further assessment for better decision making in the next listing cycle.

Comment I.4: *Copper and nickel should not be de-listed because (1) copper toxicity may cause effects in the open ocean below concentrations found in the Bay, (2) dissolved copper concentrations in the Bay appear elevated above less urbanized estuaries, and (3) species believed most vulnerable to copper toxicity are reduced in abundance in parts of the Bay with the highest sustained copper levels (Coale, 1991; Luoma, 1992; Karras 1992).*

Response: Water quality objectives for copper and nickel are consistently met in the hundreds of samples taken north of Dumbarton Bridge, and decrease significantly in a gradient leading toward the ocean. Chelating chemicals in effluent such as EDTA bind copper and render it non-toxic, and this is one reason areas of the Bay that have the highest sustained levels of copper, due to effluent and urban runoff, do not exhibit toxicity to test organisms at levels above the national water quality criterion of 3.1 ug/l, dissolved. The evidence collected in the last decade, reviewed by many stakeholders, supports the conclusion that relatively elevated copper in this urbanized estuary is not impairing water quality or beneficial uses. Board staff have responded to and upheld the challenge that there may be copper-sensitive organisms missing from the southern estuary, but a causal link could not be established. There will be opportunity to comment on the Board's Basin Plan amendment in Spring 2002 on the proposed site-specific objectives for copper and nickel, south of the Dumbarton Bridge.

This comment underscores the need to remain vigilant and control sources of copper and nickel to the estuary. If ambient levels increase, these pollutants will be re-listed on the basis of antidegradation. In the meantime, they remain on the "watch" list at least through the next listing cycle, to answer questions raised by elevated levels consistently recorded at the actively dredged, freshwater interface station at the mouth of the Petaluma River.

Comment I.5: *Dioxins and dioxin-like PCBs should be listed as high priority ranking, based on input from U.S. EPA.*

Response: Dioxins, furans, and dioxin-like PCBs are a high priority for pollution prevention, but the Board and its staff do not believe it is a high priority for TMDL development, which is what the 303(d) list communicates. Nonetheless, the infrastructure needed to create a technical TMDL for dioxins and related pollutants will be developed for the mercury and PCB TMDLs (persistent, bioaccumulative pollutants

with significant atmospheric and runoff sources), under development, providing the technical structure needed to establish and implement TMDLs for these pollutants, as well as chlorinated pesticides. In other words, the same preparatory work for a dioxin TMDL as for a PCB TMDL is already underway.

Comment J.1: *We are strongly dismayed by the environmental injustice of (removing Islais Creek from the 303(d) list) and insist that Islais Creek and Yosemite (Creek) be added to the 303(d) list.*

Response: Islais Creek was never on the 303(d) list, so any allegations of environmental injustice are unfounded. In addition to comments received by interested parties, Regional Board staff have internally discussed the appropriate technical approach to addressing Bay Protection and Toxic Cleanup Program (BPTCP) sites in the 303(d) context, absent sediment quality objectives. We concur that the weight of evidence at Islais Creek as well as 3 other toxic hotspots in the Bay Area warrant inclusion on the 303(d) list for effects-based stressors, sediment toxicity and benthic community impacts, because of the scientific rigor of the statewide program. The data in the BPTCP do not support a listing of Yosemite Creek on this basis, although more data collection in the area, conducted by the City and County of San Francisco, could lead to a similar finding in the future. These data from the City and County were not "readily available" for the current listing cycle.

Comment J.2: *The 303(d) proposal has been made without any community involvement or consultation. A meeting should be held in the Bayview Hunters Point community prior to making any decisions regarding issues affecting the people or environmental of its neighborhood.*

Response: There appears to be a significant misunderstanding by the commenter of the 303(d) process, mediated by miscommunication by WaterKeepers. This comment is rooted in the misconception that Islais Creek was ever on the 303(d) list. This year's process has been unprecedented in the amount of public input considered, extending from March 2001 to the present, and two open public processes of input and comment. With current staffing on this process (less than one staff person), holding of community meetings in over 100 cities regarding over 300 waterbodies is simply not possible. We welcome this comment letter and input from the community, but the discussion must be centered on scientific-based evidence of water quality impact and not general assumptions of impact, which are all the comment letter provided. Fortunately, the 303(d) list already contains pollutants of concern for the community for the entire San Francisco Bay, which includes Islais Creek and Yosemite Creek which are tidal, and pollutants such as PCBs and mercury that are contained in sediments near the community will be considered in overall TMDL plans to reduce contaminant levels in fish tissue. Therefore, the Regional Board has the community's interests well in mind, in case the Advocates were not aware of this process already underway.

Comment J.3: *The Bayview Hunters Point Community Advocates respectfully request that it be added to all Board notification lists regarding activities in San Francisco.*

Response: Staff will add your organization and address to the monthly Agenda mailing list, which currently contains hundreds of individuals, agencies and organizations, so that you may more closely monitor agenda items and decide which ones to track. We recommend you use our website www.swrcb.ca.gov/rwqcb2 as a convenient way to track agenda items, which are downloadable up to two weeks before each monthly meeting.

Comment K.1: *The Regional Board should retain and formalize the Threatened Impairments to Water Quality List, recommended by the National Research Council (NRC), and we recommend that this new approach be established in a formal policy/resolution of the Regional Board, allowing an opportunity for all of the affected parties to comment on this new approach and for the Regional Board to formally adopt the approach. We do not agree, based on the NRC report, that a rotating basin approach would take one listing cycle, and that listings would be automatically triggered, as stated in the draft report.*

Response: We agree that a policy (and perhaps federal regulation) should be developed for a watch list, but not at a decentralized Regional Board level. For the time being, we only recommend approaches consistent with the NRC report, and will only specify a default future listing for those cases where there are adequate data to find impairment now, and we defer listing decisions based on allowing a regulatory program to be assessed for its ability to control that pollutant (i.e., trash and bay protection sites). For the Regional Board's 2002 303(d) recommendations, this is the public process for comment on what is actually an "interim" approach to the preliminary "assessment" or "watch" list.

We agree that the NRC report anchors the listing decisions related to the preliminary list in a five-year rotating basins approach, and the staff report has been corrected to reflect consistency with the NRC report at page 27.

Comment K.2: *Proceed with the de-listing of copper and nickel.*

Response: Comment noted.

Comment K.3: *Based on Alameda Countywide stormwater program's experience, the increased emphasis on better controlling trash is worthwhile. The staff report needs to provide more specificity to trash listing on "watch" list. For instance, which urban shorelines are threatened?*

Response: Draft staff report stated that urban shorelines, not defined in the Basin Plan, would be defined in consultation with stakeholders and not at this time.

Comment K.4: *What are criteria that Regional Board staff used in noting excessive levels of trash during field reconnaissance?*

Response: Staff make visual observations and draw site maps at >80 monitoring sites of the California Surface Water Ambient Monitoring Program, including trash observations.

We have removed the adjective "excessive," because of the vagueness of the term. The Basin Plan Prohibition No. 7 could be interpreted that any trash in a waterbody is excessive.

Comment K.5: *Other questions regarding trash that need to be answered include: Which of the municipal stormwater programs' current performance standards for trash meet best available technology to control trash discharges, or do the performance standards need to be modified? How much trash originates from the discharge of stormwater versus the direct deposition or windblown accumulation of trash onto local waters or floodplains? How are different types of trash evaluated in terms of their potential impacts to beneficial uses?*

Response: These outstanding questions are part of why it is premature to list waterbodies in the San Francisco Bay Region as "impaired" by trash, and provide discussion topics to assist in development of defensible assessment methodology.

Comment K.6: *The Regional Board should recognize the need to refine beneficial use determinations (designations). If urban creeks are to be added to the Basin Plan in the near future, as stated in the draft staff report, we believe it will be increasingly important to recognize finer distinctions of beneficial uses than currently provided in the Basin Plan, given the complexity of the creek systems with relatively intact headwaters and highly altered main stems. Seasonal uses may be appropriate for ephemeral creeks or sections of creeks and use attainment and impairment findings need to be realistic for urban creeks. There are issues of existing or designated uses as defined by 40 CFR 131.1, and how impairments are determined.*

Response: Comments noted.

Comment L.1: *The City of San Mateo requests that the Regional Board consider delaying the addition of Marina Lagoon to the 303(d) list. Although water quality objectives are exceeded, further research should be conducted to determine whether the beneficial use of Marina Lagoon is impaired.*

Response: The commenter misunderstands the 303(d) list. If water quality objectives are exceeded, as is clearly the case in Marina Lagoon during dry weather, and beneficial uses exist, which is also clear based on designated public access and swimming areas where data are collected, then the waterbody must be listed, and the Regional Boards and State Boards do not have any flexibility to delay listing based on planned studies. The studies and corrective actions the City plans may result in monitoring data that demonstrates compliance with the water quality standard, and then the Marina Lagoon may be subsequently de-listed before a TMDL has to be developed.

Comment M.1: *The Santa Clara stormwater program concurs with the de-listing of copper and nickel for San Francisco Bay south of the Dumbarton Bridge.*

Response: Comment noted.

Comment M.2: *We believe the Regional Board needs to develop a formal policy for the threatened listings (the "watch" list).*

Response: See response to comment K.1, above.

Comment M.3: *We disagree with staff's default position to list where data are not available.*

Response: The staff report has been corrected to be aligned with National Research Council recommendations, also see response to Comment K.1 and removal of default listing language throughout the section of the staff report entitled "Threatened Impairments to Water Quality." We agree that a default listing can not occur where data are not available, but certain listings may be triggered in absence of new assessment information, based on currently available information.

Comment M.4: *We support the staff recommendation on trash.*

Response: Comment noted.

Comment M.5: *Remove diazinon from the 303(d) list and place it on the threatened (or "watch") list.*

Response. Staff does not agree with the logic behind this recommendation and the staff report has been augmented with a discussion that responds to this comment at page 20.

Comment N.1: *San Francisco Public Utilities Commission requests that Lake Merced be removed from the "watch" list and that the Baker Beach listing for high coliform count be changed to Lobos Creek.*

Response: The rationale offered by the commenter to exclude Lake Merced from the dissolved oxygen and pH "watch" listings are inconsistent with the rationale outlined in the staff report, namely, to evaluate ambient data based on Basin Plan objectives. Monitoring of the lake must be more comprehensive than suggested in the comment letter, and Board staff will work with the PUC to develop a monitoring plan that answers questions of water quality impairment.

The fact that the source of the bacterial contamination of Baker Beach, via Lobos Creek, is unknown to the PUC is not adequate basis to shift the impairment from the beach to the creek, since the beneficial use exists at the beach. If anything, the comment provides a basis for listing both waterbodies, as has been done at locations along the San Mateo Coast where data from creeks were analyzed. Since no data are readily available for Lobos Creek itself, and that it has been inferred as a source based on ocean monitoring locations by the PUC, we will defer a listing decision on Lobos Creek pending the investigations that will be forthcoming as a result of the Baker Beach listing. As shown in Attachment C, the exceedance frequency of Ocean Plan total coliform standards is

fairly low (9.7%) and therefore we believe that this water quality impairment can be understood and solved by the next listing cycle (e.g., through investigations of shorebird non-pathogenic contributions to total coliform levels). We are grateful for the PUC's willingness to work with the Presidio and others to ascertain the sources of elevated bacteria conveyed by Lobos Creek, and bring Baker Beach into compliance with the water quality standard.

Comment O.1: *Alliance for a Clean Waterfront believes Mission Creek and Islais Creek warrant inclusion on the impaired waterway (waterbodies) list. Yosemite Creek also merits review by the Regional Board.*

Response: In addition to this and other comments, and internal staff comments, we concur that Islais and Mission Creeks belong on the impaired waterbodies list for sediment toxicity and benthic community effects. Yosemite Creek data from the Bay Protection Program was also re-considered. See Response to Comment J.2 and the new sections of the staff report entitled Bay Protection and Toxic Cleanup Program, to understand Board staff's rationale related to evaluation of contaminants in sediment and biological effects. Contrary to the commenter's assertion, standards are not exceeded for heavy metals, PAHs, and enriched H2S and NH3, because sediment quality objectives do not exist – this was the reason that Bay Protection data was not used to recommend listing pollutants in the draft report – it would be overturned on procedural grounds.

Comment O.2: *High quality data were not used to make findings of impairment.*

Response: See new section of report entitled "Decisions to Not List." High quality data may not be adequate to list if there are no exceedances of water quality objectives.

Comment O.3: *The draft report is inadequate. Public input was solicited but not included or responded to in the draft. The issue of environmental justice must also be factored into the criteria.*

Response: The draft report has been revised based on comments received and Appendix A contains a comprehensive list of data and information received and reviewed by the Regional Board staff. We do not agree with the assertion that environmental justice issues, which require a socio-economic overlay outside of the scope of the Regional Board's authority, should weight evaluation of water quality standards. Any environmental justice issues are self-evident when these disparate disciplines are analyzed conjunctively.

Comment O.4: *Please include our organization on your mailing list for future notices on this issue.*

Response: Your organization and address will be added to the Board's Agenda mailing list. See response to J.3.

Comment P.1: *Since the term trash is neither employed in the Basin Plan nor defined in the Clean Water Act, please clarify if there will be any change in terms of enforceability with the use of this term.*

Response: California's statewide 303(d) list consistently uses trash to describe floatable and settleable debris. Los Angeles Regional Board adopted a TMDL for Trash that received a 2001 Governor's Award. There is no change with the use of this term.

Comment P.2: *Lake Merritt Institute believes that organic enrichment listing should remain coupled with low dissolved oxygen based on visual observations. Please clarify what assessment methodology is required to support an organic enrichment listing.*

Response: We reviewed the statewide listing and found that the State Board always couples organic enrichment with low DO listings, and have removed this recommendation from the staff report, and will place Lake Merritt Low DO/Org. enrichment on both the 303(d) list and the "watch" list, since U.S. EPA's 1998 listing was not based on adequate data, based on their own guidance. The commenter misunderstands the Board staff concern about U.S. EPA's ad-hoc decision to list Lake Merritt in 1998. The commenter failed to provide adequate information to support a listing – the presence of organic matter in sediments needs to be compared against a threshold or range that would affect DO. The mere presence of organic matter or anaerobic degradation in leaf-rich sediment is not impairment – in fact it may benefit aquatic life, depending on a host of factors. A number of assessment methodologies would suffice to support an organic enrichment listing – in 1998 there were none cited, and raw data cited by the commenter is not an assessment.

Comment P.3: *Lake Merritt Institute requests that the Regional Board consider how the problem of petroleum and hydrocarbon based pollutants within the Lake should be addressed as part of the 303(d) listing process.*

Response: Comment noted. As explained in Approach to Listing Waters, the Regional Board needs evidence of persistent, waterbody-wide conditions that violate a water quality standard.

Comment P.4: *Please clarify how the municipal stormwater program's statements that "best available technology for trash control may not have been implemented yet" can be reconciled with other statements as well as Regional Board findings regarding BAT for removal of trash from stormwater discharges in NPDES proceedings before the Regional Board.*

Response: After internal discussion, this portion of the draft report has been eliminated. See also response to Comment G.4.

ATTACHMENT E

PUBLIC COMMENTS ON DRAFT 303(D) STAFF REPORT

Memorandum

TO: Bob Davidson

FROM: Paul Randall

DATE: June 27, 2001

SUBJECT: Response to recommendation by Water Keepers of Northern California for San Pedro Creek to be added to 303(d) list for fecal coliform, total coliform and sedimentation

Summary

Total and fecal coliform data were obtained from San Mateo County Health Department and US Environmental Protection Agency and assessed to determine if San Pedro Creek is impaired by bacteria and should be added to the 303(d) list. The data show that beneficial uses of the creek and ocean are not impaired. Water Quality Objectives for REC1 use at Pacifica State Beach are generally met, except for a few months when bacteria levels get high enough to close the beach. The data also show Water Quality Objectives for REC2 use along San Pedro Creek are being met. Health risk from ingesting contaminated water in the creek could be reduced by posting additional signs warning of contaminated water along the creek. Another consideration is to change the beneficial use of the creek from REC2 to REC1. Sediment data was assessed from a geomorphic study of San Pedro Creek mainstem to determine if the creek is impaired by sedimentation and should be added to the 303(d) list. There is evidence of elevated sediment supply from bed and bank erosion in the last 217 years. Physical habitat and biological data is needed, however, to determine if sediment is actually impairing fish spawning and rearing habitat.

Introduction

The Water Keepers of Northern California and US Environmental Protection Agency (EPA) have proposed San Pedro Creek be added to the 303(d) list of impaired water bodies for total and fecal coliform and sedimentation. Coliform data from San Mateo County Health Department and the EPA Region 9 Laboratory and sediment supply data from a geomorphic study conducted by Laurel Collins et al. were referenced as documentation in support of this listing. This purpose of this memorandum is to determine if these data support the listing.

Designated Beneficial Uses

The Basin Plan has identified several Beneficial Uses for San Pedro Creek, San Mateo County, including Non-contact Water Recreation (REC2), Municipal and Domestic Water Supply (MUN), Cold Freshwater Habitat (COLD), Warm Freshwater Habitat (WARM), Fish Spawning (SPWN) and Fish Migration (MIGR) (Appendix 1). In addition, ocean water at the outlet of San Pedro Creek at Pacifica State Beach, also referred to as Linda Mar Beach, is designated as Contact Water Recreation (REC1) in the Ocean Plan. The Water Quality Control Plan for San Francisco Bay Basin (Basin Plan) defines REC1 use as recreational activities that involve body contact with water where ingestion is reasonably possible. These uses may include swimming, wading, surfing, skin diving and fishing, among others. REC2 use is defined as activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably

possible. These uses include sunbathing, beachcombing, hiking, boating, and tide pool and marine life study, among others.

Use of Bacterial Indicator Organisms

The basic reason for carrying out microbiological water analysis is to safeguard the health of a community by testing for possible fecal pollution, the source of microorganisms causing waterborne disease. Indicator organisms are organisms that coexist with pathogens in the fecal environment and are easier and less expensive to test for than pathogens. For these reasons indicator organisms are often the focus of water analyses rather than pathogens. Ideally, an indicator organism would always be present when the pathogen is present, be present in equal or higher numbers than the pathogen of interest, be easy and inexpensive to assay, and would serve as an indicator of human fecal contamination (as opposed to animal contributions). The most commonly employed indicator organisms are total coliform, fecal coliform, enterococcus, and E. coli.

Sampling and analysis of some creeks throughout California and the United States have shown sporadic exceedances of Basin Plan criteria and EPA water quality objectives for bacterial indicator densities. Although no link has been established demonstrating a clear quantitative connection between the bacterial indicator densities and human health risks, it has been suggested that the water contact recreation beneficial use may be impaired by those exceedances and may be grounds for listing the corresponding creeks under the Clean Water Act Section 303(d).

Water Quality Objectives for Bacteria

The Basin Plan objectives and fresh and salt water criteria for Water Contact Recreation Beneficial Use (REC1) is summarized in Table 1. A summary of how these criteria were established is summarized in Appendix 2.

Table 1: Water Quality Criteria for Indicator Organisms in Contact Water Recreation Beneficial Use

Organism	Criteria	Fresh Water Value	Salt Water Value	Units
Fecal Coliform	Log mean	<200	<200	MPN/100ml
	90th %ile	<400	<400	
Total Coliform	Median	<240		MPN/100ml
	No sample	>10,000		
Enterococci	Steady state	33	35	colonies/100ml
	max at beach	61	104	
	max at lightly used area	108	276	
E Coli	Steady state	126		colonies/100ml
	max at beach	235		
	max at lightly used area	406		

The Basin Plan Objectives and fresh water criteria for non-contact recreation is summarized in Table 2.

Table 2: Water Quality Criteria for Indicator Organisms in Non-contact Water Recreation Beneficial Use (REC2).

Organism	Criteria	Fresh Water Value	Units
Fecal Coliform	Mean	<2000	MPN/100ml
	90th %ile	<4000	

Data Summary of Bacteria Levels

We obtained data sets from San Mateo County Health Department (County) and U.S. Environmental Protection Agency (EPA) showing bacterial indicator concentrations from water quality samples taken at several locations in San Pedro Creek and Pacifica State Beach. (Figure 1). The County data set includes 2 ½ years of total and fecal coliform levels taken at two ocean and seven creek sites at weekly intervals. We calculated the geometric mean for all samples taken during the following seasonal intervals: November – March (wet season) and May – October (dry season). We also calculated the percent samples from combined season data that exceeded the 90%ile for the Water Quality Standards for REC1 and REC2. The EPA data set was obtained from Vivian Matuk's Masters thesis (San Francisco State University) water quality study of San Pedro Creek. V. Matuk collected the water samples and sent them to EPA Region 9 Laboratory for analysis. Total coliform, E coli and enterococcus were measured weekly at six creek sites and one beach site during four sampling periods, Jan-Feb, April-May, July-Aug and Oct-Nov 2000. We compared the geometric means calculated in Vivian Matuk's study for this assessment.

Ocean sites

The County provided fecal coliform data for two beach locations: Beach #5 site, located 50 feet north of San Pedro Creek outlet, and Beach #6 site, located approximately 2000 feet north of the outlet. The data show neither of these sites exceeded Water Quality Objectives for fecal coliform concentrations in contact recreation water for either winter or dry seasons (Table 3). There were at least two months, November 1999 and February 2000, however, where the geometric mean exceeded the Water Quality Objectives of 200MPN/100ml (at least five samples were taken in less than 30 day time period). Although 13 of 117 (11%) total samples for Beach #5 site were above 400 MPN/100ml, the 90%ile limit was never exceeded because these did not occur within a 30-day time period. All but one of these thirteen samples was taken during the wet season.

Table 3. Geometric means and percent samples exceeding 90%ile for fecal coliform concentrations taken at both beach and creek locations by San Mateo County Health Department.

Sites	Geometric mean of all samples by season		Percent samples above 400 MPN/100ml	
	Winter	Dry	REC 1	REC 2
Beach #5	17.7	29.8	11	na
Beach #6	13.4	14.5	0	na
Outlet	723	719	71	4

The County also sampled San Pedro Creek (outlet), just before it empties into the ocean. The bacteria concentration is significantly higher in the creek compared to the ocean most likely due to dilution of creek water from the ocean. The data shows the outlet did not exceed Water Quality Objectives for fecal coliform concentrations in non-contact recreation waters for either winter or dry seasons (Table 3). In May 2000, however, geometric mean values exceeded the Water Quality Objectives (2000 MPN/100ml). The creek site is included with the beach sites because of its proximity to the ocean and its potential for public recreation. The beach reach is designated non-contact recreation and the County advises against using this section of the creek for REC1. The public, however, does use this reach, between the ocean and 100 feet upstream, for swimming and wading (personal communication, Steve Hartsell, County) and therefore people are potentially at risk for ingesting creek water. If the data at this site were assessed using Water Quality REC1 Standards for fecal coliform, the standards would be exceeded for both wet and dry seasons. In addition, 90 of the 126 (71%) of the samples would exceed 400 MPN/100ml.

The County has closed the beach to public recreation in the past due to elevated bacterial concentrations. These closures may have been a response to high concentrations over a 30-day sampling period. Bacterial concentrations have remained constant at the beach and creek outlet for over 40 years of testing by the County (personal communication, Steve Hartsell, County). In addition to San Pedro Creek outlet, there is a city operated pump station that releases storm drain overflow at a site just north of the Creek. According to Steve Hartsell, the coliform levels do not appear to fluctuate when the overflow is in operation.

Analysis of the EPA data conducted by Vivian Matuk was done at four sampling intervals in 2000 (Table 4). Water Quality Objectives for enterococci in REC1 waters (35 colonies/100ml) were exceeded for Apr-May and Oct-Nov sampling periods.

Table 4. Geometric means for all Enterococcus samples taken at four seasonal intervals in 2000.

	Geometric mean by season			
Sites	Jan-Feb	Apr-May	Jul-Aug	Oct-Nov
Parking lot	65	16	16	16
Beach	15	42	30	116

Creek sites

Vivian Matuk compiled the County fecal coliform data into similar seasonal intervals as the EPA data to compare County data with EPA data (Tables 5 and 6). The Water Quality Standards as described in the Basin Plan for REC2 list only fecal coliform (Table 2). None of the sites sampled by the County for any of the sampling periods exceed this standard. We could not assess the EPA data for exceedence of REC2 standards because the Basin Plan do not have established criteria for these bacterial indicators.

The concentrations of the bacterial indicators listed in Tables 5 and 6 do not demonstrate impairment to the REC2 beneficial use. Nonetheless, the public has been known to use sections of the creek above the beach reach for water contact recreation

Table 5. Geometric means for total (TC) and fecal coliform (FC) concentrations taken at both beach and creek locations for four seasonal intervals by the County.

	Geometric mean of all samples by season							
	Jan-Feb		Apr-May		Jul-Aug		Oct-Nov	
Sites	TC	FC	TC	FC	TC	FC	TC	FC
Parking lot	200	304	45	35	13	20	na	29
Beach	761	124	344	146	184	314	na	66
Outlet	2597	910	1907	925	3552	1218	na	488
Peralta	1447	651	4326	1498	5400	1343	na	1048
Linda Mar	894	321	3389	1395	5991	487	na	249
North Fork	1691	739	3202	1667	5635	595	na	363
Oddstad	75	57	175	93	1093	96	na	52

Table 6. Geometric means for total coliform (TC) and E coli (EC) concentrations taken at both beach and creek locations for four seasonal intervals by EPA.

	Geometric mean of all samples by season							
	Jan-Feb		Apr-May		Jul-Aug		Oct-Nov	
Sites	TC	EC	TC	EC	TC	EC	TC	EC
Parking lot	751	110	65	20	36	11	104	19
Beach	7307	965	670	110	200	36	1805	141
Outlet	18389	1693	11000	1700	9600	2200	9716	615
Peralta	10680	588	8700	1100	8600	2400	9455	1175
Linda Mar	3851	190	8200	210	15000	320	5543	189
North Fork	5123	216	24000	730	31000	480	9614	212
Oddstad	1889	67	1200	26	1800	110	1061	28

where water ingestion is possible (personal communication, Vivian Matuk). Several creekside residents use the creek for swimming and wading, especially near the Peralta road crossing. As a result, the County has posted signs warning the public of bacterial contamination at this site. If the County and EPA data were assessed using REC1 standards, all of the sampling locations, with the exception of Oddstad (Middle Fork), would exceed these standards.

Both data sets show elevated levels of bacterial indicator concentrations originating from the North Fork, now primarily an underground culvert draining an urban area. The Middle Fork, in contrast is relatively undisturbed and has significantly lower bacterial indicator concentrations. Masters Thesis work suggests the elevated levels of bacteria from the North Fork is likely from leaky sewer pipes or septic systems (personal communication, Vivian Matuk). Higher concentrations of total and fecal coliform at the North Fork during the dry season may support this hypothesis (coliform sources from urban run-off are much reduced in the summer). The elevated levels of bacteria originating from the upper end of the watershed make it difficult to determine potential sources of bacteria in the lower reaches (personal communication, Steve Hartsell). Efforts are now underway to

sample water quality in the storm drain system in the North Fork to help determine the location of the source.

Data summary of sediment supply

A geomorphic survey of bed and bank conditions for San Pedro Creek, conducted by Laurel Collins et al. of San Francisco Estuary Institute and published in March 2001, provides detailed information describing sediment supply from the mainstem channel. In summary, the report indicates that 37% of the total length of the banks on the mainstem is in an eroding condition. The study also found that the creek is deeply entrenched (as much as 16 feet incision in the upper reaches of mainstem), and has lost access to its historic floodplain. The combined long-term rate of sediment supply (over the course of 217 years of European colonization) from bed and banks is estimated at 388 cu yd/yr. An estimated 60% of this sediment supply is related to anthropogenic activities. The amount of sand and finer-sized sediment on the bed surface of the mainstem is about 22%, and the amount of fine substrate increases in a downstream direction.

A complete sediment source assessment has not been conducted for San Pedro Creek. Aside from in-stream erosion, sediment can originate from landslides, rangeland, agriculture, roads, construction sites and other urban areas. Sediment transport processes (instream transport and storage of sediment) and total sediment yield for the watershed are important factors to consider when determining a sediment source assessment (EPA Protocol for Developing Sediment TMDLs).

Sedimentation in the stream channel can potentially impair attainment of Cold Freshwater Habitat and Fish Spawning Beneficial Uses, which are both listed for San Pedro Creek. Sediment can fill the interstitial spaces of cobble and gravel substrate, reducing available habitat for macro-invertebrates, an important food source for steelhead, as well as limiting suitable substrate for steelhead spawning. Excessive sediment can also limit available steelhead habitat by reducing pool volumes. Bank erosion can also reduce riparian vegetation, resulting in higher water temperatures and reducing habitat complexity (through the loss of large woody debris recruitment and undercut banks).

The evidence of in-stream sediment loss in the mainstem San Pedro Creek does not imply impairment to Beneficial Uses. There is limited biological or physical habitat information available to directly assess impacts of sediment to cold freshwater and spawning habitat. The Collins report identified composition of sediment and estimated proportion of spawning sized substrate for the mainstem. In addition, the report suggested the amount of fine substrate in the channel falls within the range of fine sediment found in other viable steelhead streams in the San Francisco Bay Region. The report does not however, indicate the amount or quality of spawning habitat. A fish spawning habitat survey would measure the area of appropriate gravel size, measures of embeddedness, and location of spawning gravels (Steelhead require adequate flow and water depth for optimal spawning conditions). In addition, migration barriers need to be assessed to determine if fish have access to spawning habitat.

The Collins report also identified frequency and depth of pools for the mainstem. These are good indicators of cold freshwater habitat attainment as pools provide shelter for both adult and young steelhead. The report suggested pool frequency was relatively normal, although a large proportion of the pools was not caused by natural conditions. Additional

work is needed to determine quality of pools in terms of in-stream cover, as well as frequency and quality of pools in the tributaries. The San Pedro Creek Watershed Coalition has funding to conduct steelhead spawning and rearing habitat surveys of the creek late in 2001.

Additional data describing macro-invertebrate diversity would be useful to assess potential impacts of sediment to aquatic biota. The Regional Water Quality Control Board has funded the Department of Fish and Game to collect macro-invertebrates for several watersheds in the SF Bay Region, using the California Stream Bioassessment Protocol (CSBP) (CDFG was scheduled to sample San Pedro Creek this Spring, but ran out of time). Metrics has been developed in the CSBP to measure stream health and potential impacts of sedimentation. The Coalition is seeking additional funding to continue sampling macro-invertebrates at different locations to determine if changes to macro-invertebrate diversity are occurring over time.

More biological data is needed to determine if sediment adversely impacts Beneficial Uses. It is recommended to collect and assess additional physical habitat and macro-invertebrate data to determine if San Pedro Creek is impaired by sediment.

Recommendations

Analysis of the coliform and sediment data lead to the following recommendations:

1. Do not add San Pedro Creek or Pacifica State Beach on the 303(d) list for total and fecal coliform or sediment, because the data does not suggest beneficial uses are impaired.
2. Reduce public risk of ingesting creek water by posting signs warning of contaminated water along the lower 100 feet of the creek.
3. Investigate and eliminate potential sources of bacteria in the North Fork.
4. Consider changing the beneficial use of San Pedro Creek from REC2 to REC1.
5. Collect additional physical habitat and biological data to determine if sediment is impairing beneficial uses.

Appendix

TABLE 2-2 BASIN 2 - SAN MATEO COASTAL

BASIN	WATERBODY	AGR	COLD	COMM	EST	FRSH	GWR	IND	MAR	MIGR	MUN	NAV	PROC	RARE	REC-1	REC-2	SHELL	SPWN	WARM	WILD
Lake Merced			E								P				E	E		E	E	
San Pedro Creek			E							E	E					E		E	E	
San Vincente Creek		E	E							E	E			E	P	P		E		
Denniston Creek		E	E							E	E			E	E	E		E	E	
Frenchmans Creek		E	E							E				E	E	E		E	E	E
Pilarcitos Creek		E	E							E	E			E	P	P		E	E	E
	Apanolio Creek																			
	Arroyo Leon Creek																			
	Mills Creek																			
	Pilarcitos Lake		E								E			E	L	E		E	E	E
Purisima Creek		E	E							E				E	E	E		E		E
Lobitas Creek		E	E							E				E	E	E		E		E
Tunitas Creek		E	E							E				E	P	P		E	E	E
San Gregorio Creek		E	E							E				E	E	E		E	E	E
	Alpine Creek																			
	El Corte de Madera Creek		E							P				E	P	E		P	E	E
	La Honda Creek																			
	Woodruff Creek																			
	Clear Creek																			
	Harrington Creek																			
	Bogess Creek																			
	Mindego Creek																			
Pomponio Creek		E	E							E		P			E			E	E	E
	Pomponio Reservoir																			
Butano Creek																				
Pescadero Creek		E	E							E	E			E	E	E		E	E	E
	Fall Creek																			
	Hoffman Creek																			
	Honsinger Creek																			
	Jones Gulch Creek																			
	McCormick Creek																			
	Oil Creek																			
	Lambert Creek																			
	Peters Creek																			
	Slate Creek																			
	Tarwater Creek																			
	Little Boulder Creek																			
	Waterman Creek																			

E: Existing Beneficial Use P: Potential Beneficial Use L: Limited Beneficial Use

Water bodies listed here may not correspond exactly to those that appear on Figure 2-4.

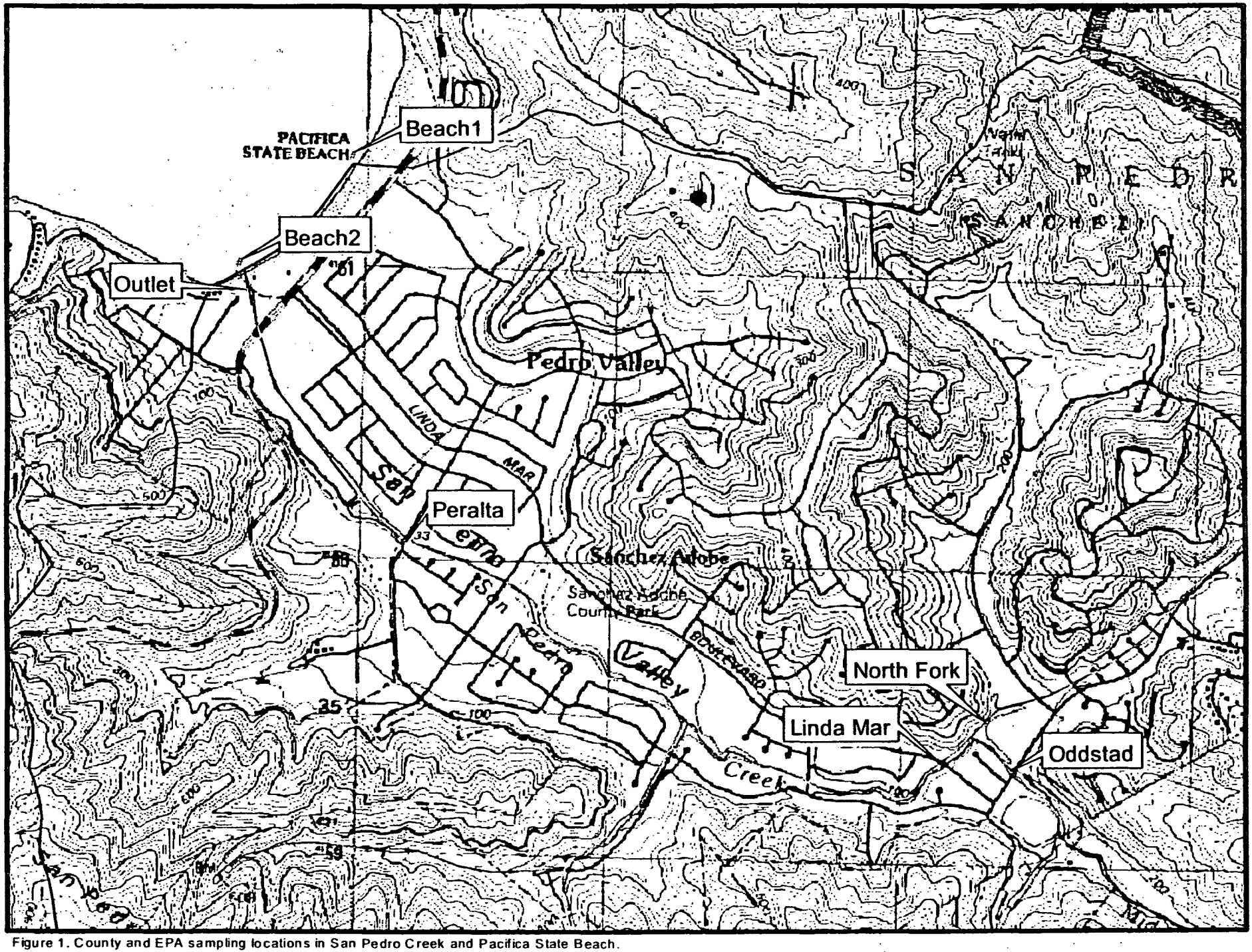

Figure 1. County and EPA sampling locations in San Pedro Creek and Pacifica State Beach.

History of Bacterial Water Quality Objectives

The following is a summary of information originally prepared by the US EPA (1986). Federal water quality criteria recommendations were first proposed in 1968 by the National Technical Advisory Committee (NTAC) of the Department of the Interior. The microbiological criterion suggested by the NTAC for bathing waters was based on a series of studies conducted in the 1940s and 1950s by the United States Public Health Service. The studies were conducted at bathing beaches located on Lake Michigan in Chicago, IL, on the Ohio River in Dayton, KY, and on Long Island Sound, NY. In each case two beaches with different water quality were selected, cooperating families recorded their swimming activity and illnesses on a daily basis for the entire summer.

Data from the Ohio River study indicated that swimmers who swam in water with a median coliform density of 2300 total coliform/100ml had an excess of gastrointestinal illness when compared to an expected rate calculated from the total study population. An analysis of the Lake Michigan study comparing a one week time period following three days of high coliform density, with a corresponding time period following three days of low coliform density corroborated the Ohio River study results. The results of the two marine bathing beach studies showed no association between illness and swimming in water containing approximately 400 and 800 coliforms/100ml.

The coliform water quality index used during the studies noted above was translated into a fecal coliform index in the mid-1960s by using a ratio of fecal coliform to total coliform at the location on the Ohio River where the original study had been conducted in 1949. About 18% of the coliforms were found to be fecal coliforms and this proportion was used to transform the density at which a statistically significant swimming-associated gastrointestinal illness was observed to a fecal coliform standard (400/100ml). The NTAC suggested that a detectable risk was undesirable, and therefore one half of the density at which a health risk occurred, 200/100ml was proposed. The recommended criterion for fecal coliform was thus generated. Although this criterion was criticized on a number of technical issues, it was again recommended by the US EPA in 1976.

The US EPA, in 1972 initiated a series of studies at marine and fresh water bathing beaches which were designed to correct the perceived deficiencies of the PHS studies. One goal of these EPA studies was to determine if swimming in sewage-contaminated water carries a health risk for bathers, and if so, to what type of illness. If a quantitative relationship between water quality and health risk was obtained, two additional goals were to determine which bacterial indicator is best correlated to swimming associated health effects and if the relationship is strong enough, to provide a criterion.

The results of the EPA bathing beach studies are described by Cabelli (1983) and Dufour (1984). In these studies, quantitative relationships between the rates of swimming-associated health effects and bacterial indicator densities were determined using regression analysis. The studies included an examination of a number of potential indicators including total and fecal coliform, *enterococci, E. coli, klebsiella sp., Enterobacter sp., citrobacter sp., Clostridium perfringens, Pseudomonas aeruginosa, Aeromonas hydrophilia, and Vibrio parahemolyticus.*. The selection of the best indicator was based on the strength of the relationship between the rate of gastroenteritis and the indicator density. The marine studies concluded that enterococci showed the strongest relationship, E. coli was a poor second, and all others showed very weak association to the observed gastroenteritis. In the fresh water studies E. coli and enterococci had similar regression coefficients, and fecal coliform showed a weaker relation to gastroenteritis.

Based on the results of these studies, EPA did not change the stringency of its bacterial criteria for recreational waters. EPA's evaluation of the bacteriological data indicated that using the fecal coliform indicator group at the maximum geometric mean of 200/100ml would cause an estimated 8 illness per 1000 swimmers at fresh water beaches and 19 illnesses per swimmers at marine beaches. E. coli and enterococcus criteria were developed using those accepted illness rates. The equations developed by Cabelli (1983) and Dufour (1984) were used to calculate the geometric mean indicator densities corresponding to the accepted gastrointestinal illness rates. Those densities are the ones shown in the table presented previously. EPA recommends the application of these criteria unless sanitary and epidemiological studies show the sources of the indicator bacteria to be non-human suggesting that the indicator densities are not indicative of a health risk to those swimming in such waters.

From: Dave Drury <DaveDrur@scvwd.dst.ca.us>
To: "'smm@rb2.swrcb.ca.gov'" <smm@rb2.swrcb.ca.gov>
Date: Tue, Aug 28, 2001 1:41 PM
Subject: 303(d) list

Steve:

The "Size Affected" numbers in Appendix B indicate 21 miles for Alamitos and 30 miles for Guadalupe River, which seem to be incorrect. Alamitos Creek it is only about 8 miles in length from the confluence with Guadalupe Creek to Almaden Reservoir. Guadalupe River "begins" at this confluence, which is 20 miles in length from there to the Bay.

From: "Dr. Bailey" <lmi@netwiz.net>
To: <smm@rb2.swrcb.ca.gov>
Date: Sat, Sep 1, 2001 1:17 PM
Subject: Draft 303d Staff Report

Congratulations on a herculean effort: Overall this is an impressive list and much appreciated.

With respect to Lake Merritt, a few comments:

1) Please correct the reference to a Lake Merritt Institute Monitoring Program on page 30. LMI does not have a monitoring program. We do have a program to remove trash (we have consistent, monthly data on the pounds of trash removed from a 4,650 acre watershed for more than 4 years - which ranges from 1,000 to 6,000+ pounds/mo. depending on the season). See our website at www.lakemerrittinstitute.org for this data, which may be among the best of its kind that you will find for how much trash is washed into storm drains. If we assume an average of 1,500 pounds for the dry season and 4.500 for the wet season, that means that the Lake's watershed contributes about 3,000 pounds per month of trash. Check it out. But, we do not measure oxygen levels or other parameters on any consistent basis.

2) Please use the Alameda County data for oxygen with respect to Lake Merritt. I refer to the annual reports 1989 - 1995 ('96 data is unpublished). Jim Scanlin at Alameda County Flood Control has these reports, which are the best available at this time. The City of Oakland is currently negotiating with Uribe & Assoc. to begin a year of professional monitoring based on a plan developed jointly with LMI.

3) On page 4 of Table A-2, please use the Institute's trash data mentioned above. We have more than photographs. If the website is unavailable (it is being revised) call me at 238-2290).

4) With respect to the comments on Lake Merritt on page 21, we are in agreement that pre-dawn samples are needed and have asked that these be included in the upcoming professional monitoring. We also agree that continual (including summer) monitoring is needed. Mr.William Madison of the Oakland Environmental Services Division is working on these details for the upcoming monitoring contract with Uribe & Assoc..

Regarding management actions for oxygen, the Institute has installed 3 aeration fountains in the Lake. We have had operational problems, but the goal is to keep all 3 operating continually. Two of these are located at the outfalls of the major storm drains. We have some data that shows they increase bottom oxygen levels.

As for surface water oxygen samples, see the annual reports mentioned above.

With respect to fish kills, there hasn't been a major, reported kill since 1981, but we do have occasional small kills of sticklebacks at the mouth of Glen Echo creek when a pollutant (almost certainly paint) is very visible in the Creek. Mr. Bill Putnam traps these fish here for a living, and I note whenever a paint spill is observed.

Regarding organic enrichment, there is no data on N, and to my knowledge the City does not weigh the algae and widgeon grass removed from the Lake daily during the spring and summer. However, at peak season, many truckloads are removed every week. If funding is available, the City will try to develop a N budget. Chlorophyll data would be expensive, but secchi data is an indication of the tremendous productivity from plankton, especially in the winter. From daily experience here for 5 years, and a total of 12 years experience with the Lake, it is clear that this is a very enriched body of water. We have a golf course and a cemetery in the Glen Echo creek watershed, and I suspect they are the source of a lot of N. Last winter huge quantities of Lemna washed down into the Lake from upstream ponds, further contributing to the the organic load.

Regarding restriction of tidal flows, LMI has just written a draft white paper on this topic, which will eventually be on our website along with the white paper on oxygen levels. Let me know if you want a copy.

In general, with respect to Trash, it is good to see a critical evaluation of this problem. We give several educational presentations about this each month and deal with in on a daily basis, not just on Creek to Bay day and Earth Day. We are working with the City of Oakland on ways to solve the problem, including the Lake's first CDS storm drain filter, education (polluters are given a packet), enforcement assistance (all outfalls are labeled Spill, Call 911) and we will be getting a power vacuum to pick up cigarette butts.

If you have any questions after visiting our website, give me a call at 238-2290.

Dr. Richard Bailey.

September 1, 2002

MEMORANDUM

Subject: EPA Preliminary Comments on California's Draft 303(d) Listing Considerations and Regional Board Listing Actions

To: Diane Beaulaurier
Val Connor

From: Dave Smith
TMDL Team Leader
EPA Region 9

Thanks so much for the opportunity to review and comment on the draft listing considerations document and survey results concerning Regional Board listing approaches. I have worked with the EPA liaisons and wanted to provide some preliminary feedback before I leave for work travel next week. I greatly appreciate the State Board's efforts to help organize the State's listing efforts as well as the Regional Boards' efforts to collect and analyze a great deal of data and information. Much work remains to be done. We would be very interested in working with you and your colleagues at the State and Regional Boards to improve the clarity and consistency of listing approaches and ensure that these approaches are consistent with federal requirements. These comments are an initial effort to share our views on what we've seen to date. We just received Region 2's proposed listing approach and will have separate comments on that early in September.

General Comments

We appreciate the State Board's efforts to provide for discussion of listing and assessment procedures and identify initial assessment guidelines. However, the purpose of the listing considerations document is not clear and should be clarified. Is this intended to eventually serve as part of the listing rationale to be provided to the public, the State Board, and EPA as part of the list review process? Is it intended to serve as a discussion document to further discussions with the Regional Boards as they do their part of the list revision process? It reads more like a discussion document that a guidance document at present.

The section identifying PAG interests and the discussion of 305(b) guidance appear out of place in a document intended to describe a listing methodology. The section of staff goals is interesting, but again, not clearly relevant to a description of a listing methodology. The staff goals do not align closely with the PAG goals in the next section. In particular, the staff goals statement does not address or appears to conflict with the PAG goals focusing upon "enhanced consistency among Regional Boards", "better utilization of all existing data", and " amount of information and scientific rigor needed for listing".

EPA views the 303(d) listing decisions as the first screening step in the process to identify more rigorous water quality based pollutant controls where they are needed. The States are required to assess a large number of waters in a relatively short period of time. EPA expects the States to undertake a reasonably diligent inquiry into the status of the States water and to place waters on the 303(d) list where available data and information indicate that waterbody is impaired or threatened due to the presence of pollutants. This does not mean the States must be in possession of unequivocal evidence of waterbody threats or impairment before listing waters on the 303(d) list. If States establish listing criteria which result in listings of waters only where there is virtual certainty that the water body is impaired, there is a very high risk that actually impaired waters will be missed in the listing process, and will not benefit from further attention during the later steps of the water quality protection process. In general, EPA expects that States will select assessment criteria which balance the risks of improperly listing waters which are not actually impaired or threatened with the risks of failing to identify actually impaired or threatened waters.

In the process of developing TMDLs for waters on the 303(d) list, additional data and analysis are developed to further characterize the water quality problem. If, based on this followup monitoring and analysis, it is determined that the waterbody is meeting applicable water quality standards, the State should document this finding and remove the waterbody/pollutant combination from the 303(d) list at the time of the next regular listing update. Listing decisions are not risk management decisions in which pollutant control or remedial actions are identified and implemented. Therefore, we recommend that the State adopt listing criteria and methods which make full use of available data and information based on reasonably inclusive assessment criteria. To the extent the State decides not to utilize available data and information or sets extremely stringent listing criteria, EPA will request documentation from the State providing good cause for deciding not to consider the available data or information or for using particular listing criteria.

At some places in the document, the State appears to recognize these points concerning the appropriate level of assessment rigor, while at other it appears that a very high threshold of evidence is expected to support a listing judgement.

EPA concurs with the PAG's identification of several issues which are critical to the 2002 listing revision:

- the need for enhanced consistency among the Regional Boards in listing methods,
- the need to ensure that a reasonably thorough effort is made to gather and analyze all existing and readily available data and information (see prior EPA letter concerning data and information sources which should be consulted),
- the need to ensure that a reasonable level of scientific rigor is applied in the review of available data and information.

The State should take additional steps to ensure there is a reasonable level of consistency among the Regional Boards in terms of the scope of data and information sources which are considered and the listing decision rules applied to review and revise the list. The State Board should stress the importance of Regional Board staff efforts to seek out and obtain readily available information, especially from information sources within the Regional Board offices. Finally, the State Board should ensure that sufficient information is developed and provided by the Regional Boards to facilitate preparation of detailed decision rationales for each listing decision. This will entail descriptions of the basis for listing and delisting waters on the 303(d) list as well as the basis for the assessment judgements for waters which are not included on the 303(d) list.

The document should include an introduction which more clearly explains its purpose and the steps in the process the Regional and State Boards are following. If it is not intended to serve (eventually) as the description of the State's listing methodology, it should describe how waterbody listing rationales will be addressed. Whether the methodology is described in a summary fashion or on a waterbody by waterbody basis, it should explain how it is consistent with federal regulatory requirements for 303(d) listing actions.

The document should discuss what the State considers to be existing and readily available data and information, how the Regional and State Board staffs sought out this data and information, and (if applicable) a rationale for not considering any existing and readily available data and information. EPA has already provided initial suggestions concerning data and information sources which should be consulted.

Section IV: Staff Considerations

The discussion of listing and delisting factors, evaluation criteria, and other listing considerations provides some helpful guidance for preparation of listing assessments. However, the section lacks sufficient detail and direction concerning:

- the minimum scope of data and information sources which need to be assembled and addressed,
- data quality expectations and procedures for considering lower quality data and information,
- data quantity expectations, including procedures for conducting assessments based on different sized data sets,
- procedures for evaluating water quality standards, including allowable duration and frequencies of exceedences, procedures for implementing standards expressed as functions of other water quality factors (e.g., pH or temperature), procedures for assessing narrative objectives and antidegradation policies,
- methods for applying and documenting a weight of evidence approach in a more rigorous manner (see, for example, EPA's proposed methodology for determining the need for TMDLs for toxics chemicals for Newport Bay watershed (attached)).

Listing Factors

In IV.A.1, the CTR and NTR should also be referenced as sources of water quality standards currently applicable in California. If a waterbody is determined to be in non-attainment solely due to permit violations, the listing submission should document the basis for that determination.

In IV.A.2, the first phrase should be revised to include "based on local data and information". See EPA guidance on 303(d) listing based on consumption advisories, which is available at www.epa.gov/OWOW/tmdl.

In IV.A.3, we recommend that you remove the phrase "i.e. in the next four years" since the currently effective regulation provides for a two year listing cycle, and it is not clear that a four year listing cycle will be established due to the uncertain future of the 2000 TMDL rule. This section provides insufficient guidance on how to conduct the assessments called for under this guideline. EPA strongly supports the use of listing methods which consider all available chemical, physical, and biological data and information.

In IV.A.4, we support this approach. The State should document more clearly the basis for its decision to apply an "incremental" listing process which assumes the continued listing of waters absent new information or data supporting a change in its listing status.

In IV.A.5, the State should identify the specific guidelines that will be used to assess whether waters are impaired or threatened due to tissue contamination. This section should be expanded to also reference guidelines associated with sediment contamination. EPA expects the State to assess available data and information concerning waterbody sediment contamination as a valid line of evidence to support potential 303(d) listings.

Although we recognize that the State has the flexibility to list waters impaired or threatened due to the presence of non-pollutant stressors, the State is not required to do so by the Clean Water Act or its implementing regulations. We recommend that the State limit the scope of the list to waters impaired or threatened due to the presence of pollutants since the list's principal purpose is to identify waters for which TMDLs are necessary. Because TMDLs are not required except for waters affected, at least in part, by pollutants, the 303(d) list need not identify waters impaired by other stressors.

Delisting Factors

In IV.B.1, clarify that waters may be delisted only if the revised objectives have been approved by U.S. EPA.

In IV.B.3, the phrase beginning "or limitations related to..." is unclear and should be revised. Waters should not be delisted simply because the State revisesd its listing methods in a later listing cycle. In general, waters should not be delisted unless new data and information are available to support a new assessment of the waterbody's status, or it

is determined that an analytical error occurred at the time of the last listing action (e.g., typographical or lab analysis error).

In IV.B.4, it should not be a requirement to demonstrate both that objectives are being met and beneficial uses are not impaired in order to delist a water. In general, if a numeric or narrative objective is now being met, the water should be delisted. It is very difficult in many cases to make firm determinations about beneficial use status, particularly based on data which focuses upon surrogate chemical indicators. Biological indicators are not yet developed or implemented in California to support widespread conclusions concerning use attainment in many waters.

In IV.B.5, add "or established" following the phrase "has been approved" to account for those situations where EPA unilaterally establishes TMDL which have not been adopted by the State and submitted for EPA approval.

In IV.B.6, the guidelines should clarify that in order for waters to be delisted based on the other control measures provision, the other control measures must be:

- required and enforceable (this element is present in the text),
- specific to the waterbody and pollutant of concern,
- assured to result in attainment of standards within a short period (e.g., the next 2 years), based on evidence provided in the listing submission, and
- already implemented or scheduled for implementation with firm funding in place (this element also appears to be present, more or less).

In addition, we recommend that rather than saying "protection of beneficial uses", the text be revised to say "attainment of applicable water quality objectives". It is often very difficult to assess use attainment, which is one reason why we focus so much on assessment of surrogate indicators in the form of narrative and numeric objectives.

Evaluation Criteria

This section should be clarified to state that all data and information will be considered in the listing process, and that this useful hierarchy is intended to provide guidance with regard to how the State considers multiple lines of evidence and assessment criteria.

Regarding the paragraph on minimum data requirements, we support the State's willingness to consider all data and information and your apparent interest in avoiding setting listing thresholds which are too stringent. We agree that waterbody-specific considerations make it difficult to articulate "one size fits all" assessment criteria. We also generally agree with the general analysis in this paragraph concerning situations in which more or less data are needed to assess water quality.

However, we recommend that you consider establishing clearer guidelines concerning minimum data needs and acceptable exceedence frequencies which are consistent with any existing requirements of State water quality standards, standards implementation

procedures, or EPA promulgated standards. By setting a standardized approach to assessing data sets to determine WQS attainment, the State would help ensure that consistent approaches are being applied for listing decisions while simplifying the assessment process. Many states have established listing methodologies which establish minimum data requirements and exceedence frequencies. It is possible to establish such listing guidelines in a way which is sensitive to differences in pollutant types, beneficial use effects, waterbody types, and the amount of data and information available about individual waters. Moreover, assessment approaches are available which explicitly account for concerns about sampling errors and the potential for assessment errors based on relatively small sample sizes. We would be happy to provide examples of assessment methodologies which address these issues along with national assessment guidance and scientific papers which discuss a range of statistical assessment methodologies designed to explicitly manage analytical uncertainty.

As discussed later in these comments, our preliminary review of proposed Regional Board assessment criteria found that at least two proposed methods are far too stringent and would result in missing large numbers of impaired waters. To the extent these methods are motivated by the desire to avoid listing waters in cases where uncertainty about whether the waters actually exceed standards, we would like to discuss other ways of managing uncertainty in the assessment process. Our early review illustrates that individual Regional Boards are considering drastically different assessment criteria which would probably result in very different listing results. As discussed above, we share the PAG's goal that the State should strive for a higher level of consistency in listing decisions in the 2002 listing decision.

Priority Ranking

In IV.D, we recommend that you provide clearer guidance on how the priority ranking factors should be applied to set priority rankings. As discussed at the Roundtable meetings, we also stress the importance of completing comprehesive reevaluations of TMDL development schedules as part of the 2002 assessment cycle. We would remind you that federal regulations at 40 CFR 130.7 require the State to identify the waters targeted for TMDL development over the next 2 years as part of its priority rankings.

Weight of Evidence

In IV.E. we support the general concept that you don't need extremely extensive data na information to conduct an assessment and make a conclusion on impairment or nonimpairment. However, this doesn't imply that you have to make an assessment decision (impaired or not) based on any amount of data or information. We have supported State assessment methodologies which set minimum data requirements to conduct an assessment (e.g., 5 or so samples).

We don't believe it is necessary to show that many standards are exceeded for "at least one significant period of time" in order to demonstrate impairment. It wouldn't be necessary to show impairment for a significant period of time to assess compliance with

acute standards for toxic pollutants and many "not to be exceeded" objectives (e.g. for pathogens), for example.

We disagree that it is infeasible or unwise to design a standardized set of decision rules to guide listing decisions. Many states have articulated listing methodologies which show how all available information and data are considered, and how specific kinds of data are evaluated to make different conclusions. As a general proposition, EPA supports methods which provide for listing under 303(d) where:

- a single line of evidence (e.g., water chemistry, sediment chemistry, fish tissue, toxicity testing, or biological data) is sufficient to demonstrate likely impairment or threat, or
- two or more lines of evidence, which by themselves are insufficient to support a listing decision, are viewed together and found sufficient to demonstrate likely impairment or threat.

This is the appropriate framework in which to apply a weight of evidence approach. All data and information sources are considered, and waters are listed where a single line of evidence is sufficient or where several lines of evidence together support a listing decision. It should not be necessary to have confirming information or data if a single line of evidence is reasonably persuasive. In addition, we stress the importance of describing the State's procedures for applying a weight of evidence approach so that there is a reasonable level of consistency across the State in how different types of information and data are assessed. The State's weight of evidence procedures should show how all data and information sources are considered and provide for documentation of the rationale for a decision to exclude available data and information sources from consideration.

Use of 305(b) Guidance As the Basis for 303(d) Listing

The analysis in Section IV.F is quite confusing and appears to act more as an argument in favor of a particular assessment theory than as a description of specific listing assessment guidelines. Although we agree that 305(b) assessment guidelines do not directly address several issues associated with the specific characteristics of many data sets and the structure of some water quality standards, we disagree with the conclusion that the 305(b) guidelines do not provide a sufficient basis to conclude waters are impaired based on water chemistry data. As the document acknowledges in Section IV.E, "it is not neessary to have a comprehensive study with detailed statistical analysis of the magnitude, duration, and intensity of impact to beneficial uses to conclude that an impairment exists."

The 305(b) guidelines are intended to provide a simple-to-use, protective set of decision rules to apply in conducting water quality assessments for large numbers of waters. We noted that the description of the 305(b) guidelines was not accurate with respect to analysis of toxic pollutant exceedences or analysis of standards violations associated with human health protection. However, for sake of discussion, we do believe the 10% "rule

of thumb" listing criterion is a defensible basis for listing decisions. This approach does account to some degree for sampling error and uncertainty associated with drawing conclusions based on limited data sets. It is easy to apply—a significant factor given the number of waters which must be assessed and the limitations in staff resources available to conduct the assessments. The 305(b) guidelines have been developed over many years through the cooperative efforts of EPA and state water quality analysts from many states.

If California decides that it is very important to conduct more rigorous assessments of chemical data, there are many analytical approaches available through which the characteristics of water quality data sets can be analyzed, and many statistical approaches through which assessment error and uncertainty can be managed as explicit analytical variables (see, for example, Smith, et al, 2001, CALM, 2001 Appendix B, and Gibbons, 2001). However, these methods take substantial staff expertise and time to use properly. Based on our conversations with State and Regional Board staff, we detect no strong interest in using these approaches. Moreover, if one Regional Board decides to use these approaches, the other Regional Boards and State Board should do so as well.

We do not agree that perceived weaknesses in the 305(b) assessment guidelines (or alternative, simple-to-apply cuttoff guidelines similar to the 305(b) approach) provide a basis to require confirming evidence from an independent line of evidence before listing a water under Section 303(d). Therefore, we recommend that the State support the use of 305(b) guidelines for listing assessment purposes unless it intends to replace this approach to water chemistry analysis with a more robust statistical approach.

The document emphasizes correctly that 303(d) listings are not risk management decisions and that the listings begin a process which leads to other regulatory decisions to manage actual pollutant sources. Therefore, it would be inappropriate to apply an excessively stringent set of decision criteria, requiring multiple lines of evidence which are often unavailable, to list waterbodies. However, we agree that there will be instances in which the water chemistry data will be insufficient to support an assessment determination (e.g., too few data points or violation rates below the selected threshold). In those cases, we strongly support the suggested "weight of evidence approach" to assessing these waters, as discussed in our comments on Section IV.E.

The discussion of the assessment of chronic toxics criteria was unclear, but we do believe it is possible to effectively assess compliance with these criteria based on analysis of data sets based on grab samples. This approach is endorsed by the 305(b) guidelines.

Regional Board Submittal Package

The description of needed elements in the Regional Board submittal packages is reasonably thorough. We do believe some additional information may be necessary. First, EPA expects that the State will fully document its efforts to gather and evaluate readily available data and information for the assessment process. This includes not only data and information submitted by the public, but also data and information compiled by State staff from available sources. Second, the State must document how it assessed data

and information on all waters addressed by the data and information, and not just those waters that were listed, previously listed, proposed for listing, or proposed for delisting. The State can determine the appropriate method for documenting its analysis. The fact sheet approach may work well but would be quite cumbersome to document assessments of several thousand waters.

Submittal Schedules

We appreciate the State and Regional Boards' efforts to complete their work in time to meet an April 1, 2001 submittal deadline. However, we are aware that at least some Regions are concerned that they will not be able to complete a complete assessment within the interim timeframes provided in the document. In light of EPA's proposal to extend the due date for the next 305(b) list, perhaps the State should consider a modest (e.g., 2 month) extension in the timeframe provided for Regional Boards to complete their work. This extension would provide a valuable opportunity for the State and Regional Boards to work toward agreement on a more consistent and thorough set of assessment procedures and decision criteria. Taking the time now may help the State Board reduce the amount of time and effort it would have to expend to modify Regional Board recommendations to provide more consistent and legally defensible listing decisions.

Comments on Individual Regional Board Assessment Methods

EPA reviewed the questionnaire results for question 2 and the document from Regional Board 3 and would like to provide some initial feedback. We noted significant variation among Regions in the approaches to be taken. We also noted widespread interest in applying a "weight of evidence" assessment approach. We would like to review the specific descriptions of how a weight of evidence approach is actually applied because we suspect that this term means different things to different people. To the extent a weight of evidence approach is interpreted consistently among regions and consistent with EPA expectations outlined above, this approach would be reasonable. We also noted interest in using fact sheets to document the results of Regional Board assessments. We look forward to seeing the Regional Board writeups and fact sheets (even in draft) as soon as possible.

Region 1: Not enough information to form an opinion.

Region 2: We will provide more comments on the listing proposal in early September. To the extent the Region is planning to assess the last 5 years of data (305 b guidance), it may need to consider some data from 1997 to cover a full 5 years. We would like to know if the State is considering a separate threatened categorization on the 303(d) list in accordance with Region 2's suggestion, and to discuss this with the State and Regional Boards. Also, we noted a couple of suggested delistings for S. San Francisco Bay based on proposed revised water quality standards. Revised standards would not provide a valid basis for the assessment and listing decision process until the revised standards are approved by EPA, which is not expected to occur for the standards in question prior to

the 2002 listing decision. Therefore, the listing decision must be based on standards currently in effect. Because EPA supports the methodology being used to revised the standards for the South Bay, we would recommend according the "TMDLS" a low priority. After revised standards are approved, these segment/pollutant combinations can be delisted at the time of the next 303(d) list approval.

As noted for some other Regions, the issue of whether a pollutant source is "natural" is irrelevant to a listing decision unless the State standards provide for a natural sources exemption.

Region 3: It appears Region 3 has already conducted a very thorough review of available data. The listing approach provided by the Region contains several decision rules which do not appear to be consistent with federal requirements:

- Natural processes. Absent a specific provision in approved State water quality standards which exempts naturally impaired waters from coverage by standards, waters impaired by natural processes must be listed. We would support a low priority ranking for such waters and consideration of the option of modifying water quality standards.
- Weight of evidence. Listing waters only if more than 50% of samples is far too stringent and is not grounded in a reasonable reading of state standards. The result of applying a 50% cutoff would be to miss a very large number of impaired waters. The six sample minimum may be acceptable, but a technical rationale for the choice of this number would need to be provided.
- Applicable standards. The CTR and applicable NTR standards must also be applied, along with narrative standards (e.g., for turbidity) and antidegradation policy provisions. We saw no information indicting how narratives and antidegradation would be considered. We also saw not information on how non-water chemistry data and information will be considered in the listing process. There are many valid procedures for considering sediment, fish and animal tissue, toxicity, biological, and other types of data in the assessment process. These requirements must be addressed in the listing decision. In particular, we did not see that toxics standard exceedences were addressed.
- Fecal coliform. If there is a geometric mean standard in effect, it must also be assessed for prospective violations.
- TDS, Na, Cl, and B Violations. It was not clear how the referenced tables related to each other or how it affects the resulting method.

Regions 4, 5, 7 and 9: We did not find sufficient information to form an opinion. If we could obtain the attachments sent by the Regions, they might provide enough information to evaluate the methodologies.

Region 6: Not enough information to form an opinion. A method which excludes naturally impaired waters absent an explict provision in standards would not be consistent with federal requirements.

Region 8. As we have discussed with Region 8, the proposed exceedence frequency is far too high and is inconsistent with national requirements. We appreciate the Region's intent to consider the characteristics of the data set and the magnitude of potential violations.

Conclusion

We look forward to continued discussions with you and the Regional Board staff as we move forward on the listing process this fall. Please call me at 415-744-2012 to discuss next steps.

Cc: Regional Board staff contacts
Tom Mumley
Stefan Lorenzato

Received
Oct. 10, 2001

Dear Mr Moore

The Draft Staff Report ' Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region' proposes listing Pilarcitos Creek as "threatened" since "the sources of fine sediment are not adequately characterized to support a 303(d) listing at this time.

The Pilarcitos Creek Advisory Committee (PCAC) recommends that the Creek be listed as sediment impaired based upon the information contained within the 'Sediment-Transport Reconnaissance of the Pilarcitos Creek Watershed, San Mateo County, California, Water Year 2001' produced for our committee by Balance Hydrologics, Inc. This report was published shortly after your proposed list draft. We believe that the data contained in the report substantiates that Pilarcitos Creek is sediment impaired and that it meets the criteria for 303(d) listing:

Consensus of professional scientists familiar with listed watersheds (Hecht, Smith, Anderson)

Critical habitat for native stream-riparian species assemblages (rlf, st, sfgs)

Decline of threatened or endangered species linked to habitat degradation (siltation affecting spawning, decline in pools, impacted lagoon formation)

Degradation due to sediment supply and transport (from Apanolio and Corinda de Los Trancos)

Consequences of inaction are substantial in delaying PCAC stream restoration and enhancement of habitat for threatened and endangered species.

The Pilarcitos Creek Advisory Group is the stakeholder organization that has worked with your agency and California Department of Fish and Game in providing oversight for the implementation of the $1.4 Million Dollar Pilarcitos Creek Restoration Project since 1994.

We recommend the action to further the plan implementation in this vital watershed. Thank you. Keith Mangold - Chair - Pilarcitos Creek Advisory Group

CITY OF SAN PABLO

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OFFICE OF THE MAYOR

October 12, 2001

VIA U.S. Mail and FAX: 622-2460

Lorretta Barsamian, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Response to Draft Staff Report, Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region (Threatened Impairment Trash Listings for Wildcat and San Pablo Creeks)

Dear Ms. Barsamian:

The City of San Pablo (City) has reviewed the Draft Staff Report, Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region. Of concern to the City is the information listed in the section "Threatened Impairments to Water Quality, Trash in Urban Creeks, Lakes and Shorelines" on pages 26 and 27 of the report. Wildcat and San Pablo Creeks are included on the threatened list for trash impairment. We strongly disagree with this listing and propose that the listing be modified to exclude portions of Wildcat and San Pablo Creeks within the San Pablo's City limits. The City of San Pablo has implemented a number of measures to successfully prevent and remove trash from these creeks. Below is a summary of the inspection, cleanup, preventative and public education measures that the City is involved in.

The City of San Pablo has done creek inspection and cleaning as part of its routine NPDES activities for 7 years. We conduct quarterly creek inspections and re-inspections on public and private property, and follow up with enforcement actions to get private property owners clean up trash from their property, and to trim vegetation that might be growing into the watercourse, potentially obstructing flow. These efforts have been extremely successful with nearly all property owners complying. In the few cases where they do not comply, further actions are taken in accordance with San Pablo's Municipal Code. (See attached Municipal Code Sections 8.40 and 13.04 related to stormwater management and handling of violations.) Similarly, for public/City

property, work orders are issued to our maintenance staff who then clean the property. Exhibit A shows the letter that the City sends out to private property owners. Exhibit B shows the City Work Order form.

In addition to these efforts, the City does an annual summer/early fall creek cleanup on public and private property in select areas of the creek that are known to be littered upon more frequently. These cleanups help the City to meet NPDES requirements by removing litter from the creek while establishing positive relationships with residents who own creek property. This helps to alleviate some of the burden for our residents and usually they are more cooperative when they have to do the cleanups themselves. City maintenance crews keep track of the volume of trash that is remove from our creeks during these cleanups using Daily logs as shown in Exhibit C. This information is reported every year in the City's Annual report. I am pleased to say that we are continuing to see significant improvements in both creeks. Exhibits D and E show stretches of Wildcat Creek that were taken this October along with a map of the photo locations in Exhibit F.

In conjunction with our routine inspection and maintenance, the City has fall and spring Public Education and Outreach cleanup activities that also serve to remove and/or prevent litter from reaching San Pablo's Creeks. The third Saturday of every October, the City holds the Wildcat Creek Cleanup. Volunteers from the local high school, and elementary schools participate in the cleanup of an approximate 1 mile stretch of Wildcat Creek between Rumrill Boulevard and Church Lane. This year will mark our 7th Annual Wildcat Creek Cleanup. Exhibit F also shows the Creek Cleanup Limits and Exhibit G is a flier for our next Creek Cleanup on Saturday. October 20th from 9 am-12 pm at Davis Park.

The City also has a community cleanup program which focuses on litter and is run through the local elementary schools. Next spring will mark our 3rd year for the Community Cleanup Program. Presentations are given in the schools about litter prevention and recycling and the link between the urban stormdrain system, creeks and the bay. The presentations are followed by small cleanups on school grounds or in the neighborhoods surrounding the school.

Finally, the City has assessed specific areas on both Wildcat and San Pablo Creeks where trash has been a problem and has taken additional steps to protect the creek from trash. After the completion of a creek restoration project on Wildcat Creek at 23rd Street, the creek was fenced off. This was a difficult decision for the City to make because we view the creek a resource that our residents should be able to enjoy and

access. However, when trash became too much of a problem, the fence was erected as a preventative measure. As a result, there has been a significant decrease in the amount of trash that ends up at this location. We have similar plans for a few other locations on Wildcat and San Pablo Creeks.

In San Pablo, we know that litter is and will continue to be a challenge, however, we also know that in our city, we inspect and clean the creek on a regular basis and are continuing to take steps to protect and maintain this precious resource. We continue to educate our residents about litter prevention and the creeks, and are noting continuous improvements in the quality of the creeks.

As you can see, the City of San Pablo is working hard to keep our creeks clean. We believe our proven programs and effective results warrant removal of Wildcat and San Pablo Creek reaches in the City of San Pablo from the threatened list. Thank you for the opportunity to respond to the new listing. If you have questions, or need additional information, please do not hesitate to call Angela El-Telbany, Assistant Civil Engineer/NPDES Coordinator at (510) 215-3066.

Sincerely,

Joseph M. Gomes
Mayor

Attachment A – San Pablo Municipal Code Section
Attachment B-Exhibits

cc: Christine Boschen, Environmental Specialist II
City Council
Brock Arner, City Manager
Ronald Kiedrowski, Assistant City Manager
Adele Ho, Public Works Division Manager
Angela El-Telbany, Assistant Civil Engineer

ATTACHMENT A

CHAPTER 8.38 APPROVED WATER SUPPLY SYSTEMS

8.38.010 Adoption by reference.

Ordinance Code of Contra Costa County, California, Title 4, Division 414, Approved Water Supply Systems, effective August, 1981, is adopted by reference. (Ord. 87-002 § 1 (part), 1987).

8.38.020 Copies on file.

A copy of the Contra Costa County Ordinance, Title 4, Division 414, adopted by this chapter, is on file in the office of the city clerk. (Ord. 87-002 § 1 (part), 1987).

CHAPTER 8.40 STORM WATER MANAGEMENT AND DISCHARGE CONTROL

8.40.010 Intent and Purpose.

A. Intent. The intent of this chapter is to protect and enhance the water quality of the City's watercourses pursuant to, and consistent with, the federal Clean Water Act.

B. Purpose. It is the purpose of the City Council in enacting this chapter to protect the health, safety, and general welfare of the City of San Pablo's citizens by:

1. Eliminating non-storm water discharges to the City's storm water system.

2. Controlling the discharge to the City's storm water systems from spills, dumping or disposal of materials other than storm water.

3. Reducing pollutants in storm water discharges to the maximum extent practicable.

(Ord. No. 95-006, Enacted, 08/21/95)

8.40.020 Definitions.

The following words and phrases, when used in this chapter, shall be as defined herein. Words and phrases used in this chapter and not otherwise defined shall be interpreted as defined in the regulations issued by the U. S. Environmental Protection Agency to implement the provisions of the federal Clean Water Act, and as defined by the State Water Resources Control Board to implement the Porter-Cologne Act in the state Water Code:

A. Discharge shall mean any addition of any pollutant to the City's storm water system from any distinguishable or identifiable source.

B. Unlawful Discharge shall mean any discharge to the City's storm water system that is not composed entirely of storm water, except discharges pursuant to a NPDES permit, discharges resulting from fire fighting activities, and discharges further exempted by Section 8.40.050 of this chapter.

C. Pollutant shall mean any material other than storm water, including but not limited to petroleum products or by-products, paint, cement, cooking oil and kitchen waste, solid waste, incinerator residue, sewage, garbage, sewage sludge, chemical wastes, biological materials, radioactive materials, wrecked or discarded equipment, rock, sand, soil, and industrial, municipal, or agricultural waste discharged into water.

D. Storm water shall mean storm water runoff, snow melt runoff, and surface runoff and drainage.

E. City Engineer shall mean the City Engineer or his or her designee If there is no City Engineer, it shall mean the Public Works Division Manager or designee.

F. Authorized Enforcement Officer(s) shall mean those individuals designated by the City

Engineer to act as authorized enforcement officers. Such enforcement officers shall have the power to issue citations and notices to appear as provided for in Chapter 1.12 of this Code and Chapter 5c of Title 3, Part 2 of the Penal Code.

It is the intent of the City Council that the immunities prescribed in Section 853.6 of the Penal Code be applicable to public officers or employees acting in the course and scope of their employment pursuant to this chapter.

G. Best Management Practices or "BMPs" are schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to water courses, water bodies and wetlands. BMPs also include treatment requirements, operating procedures, design specifications, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

H. Storm Water System are those facilities within the City by which storm water may be conveyed to any stream, watercourse, other body of water or wetlands, including flood control channels, creeks, any roads with drainage systems, city streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains, storm water conveyance system or storm sewer system, which are not part of a Publicly Owned Treatment Works ("POTW") as that term in defined in 40 CFR Section 122.2.

I. Non-Storm Water Discharge is any discharge that is not entirely composed of storm water.

J. Premises shall mean any building, lot parcel, real estate, or land or portion of land, whether improved or unimproved including adjacent sidewalks and parking strips.

K. Facility shall mean any non-residential premises. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.030 Responsibility for Administration.

This chapter shall be administered for the City by the City Engineer. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.040 Construction and Application.

This chapter shall be construed as consistent with the requirements of the federal Clean Water Act and acts amendatory thereof or applicable implementing regulations, and NPDES Permit No. CA0029912 and any amendment, revision or reissuance of the permit. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.050 Discharge of Non-Storm Water.

A. The release of non-storm water discharges to the City's storm water system is prohibited.

B. The following discharges are exempt from the prohibition set forth in subsection A above:

1. The prohibition of discharges shall not apply to any discharge in compliance with a National Pollution Discharge Elimination System (NPDES) permit issued to the discharger and administered by the State of California under the authority of the United States Environmental Protection Agency.

2. Discharges from the following activities will not be considered a source of pollutants to the City's storm water system: water line flushing and other discharges from potable water sources, landscape irrigation and lawn watering, irrigation water, diverted stream flows, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation and footing drains, water from crawl space pumps, air conditioning condensation, springs, individual residential (including non-commercial community car washes) car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges or flows from fire fighting. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.060 Discharge in Violation of Permit.

Any discharge that would result in or contribute to a violation of NPDES Permit No. CA0029912 and any amendment, revision or reissuance thereof, either separately considered or when combined with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person (s) causing or responsible for the discharge, and such persons shall defend, indemnify and hold harmless the City in any administrative or judicial enforcement action relating to such discharge. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.070 Unlawful Discharge and Unlawful Connections.

It is unlawful to establish, use, maintain, or continue illicit drainage connections to the City's storm water system, and to commence or continue any illicit discharges to the City's storm water system. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.080 Reduction of Pollutants in Storm Water.

Any person engaging in activities which may result in pollutants entering the City's storm water system, shall undertake all practicable measures to reduce such pollutants. Examples of such activities include ownership and use of premises which may be a source of pollutants such as parking lots, gasoline stations, industrial facilities, business enterprises and dwelling units.

A. Littering No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, placed, left or maintained, any pollutant, refuse, rubbish, garbage, green waste such as branches, clippings and leaves, or other discarded or abandoned objects, articles, or other litter, in or upon any creek, street, alley, sidewalk, storm drain, inlet, catch basin, pipe or other drainage structures or other storm water system, business place, or upon any public or private plot of land in the City, so that the same might become a pollutant, except into approved disposal containers or in lawfully established waste disposal facilities.

The occupant or tenant, or in the absence of occupant or tenant, the owner or proprietor of any real property in the City in front of which there is a paved sidewalk shall maintain said sidewalk free of dirt or litter to the maximum extent practicable. Sweepings from the sidewalk shall not be swept or otherwise made or allowed to go into the gutter or roadway, but shall be disposed of in receptacles maintained as required for the disposal of solid waste.

B. Bodies of Water. No person shall throw or deposit any pollutant, or substance listed in paragraph A, in any fountain, pond, lake, stream, creek, or any other body of water in a park or elsewhere within the City of San Pablo.

C. Standard for Parking Lots, Paved Areas and Related Storm Water Systems. Persons owning, operating or maintaining a paved parking lot, the paved areas of a gas station, a paved private street or road, and related storm water systems, shall clean those structures as frequently and thoroughly as practicable in a manner that does not result in discharge of pollutants to the City's storm water system.

D. Best Management Practices for Construction Activities, New Developments and Redevelopments. All construction contractors performing work in the City shall conform to the requirements of the "Best Management Practices (BMPs) for Construction Sites and New Development" required by the City. As a minimum, such BMPs shall include provision for erosion control measures and filter materials placed to preclude an increase in debris and sediments entering the storm water system over "non-project" conditions. The City Engineer may establish controls on the volume and rate of storm water runoff from new developments and redevelopment as may be appropriate to minimize the discharge and transport of pollutants.

E. Notification of Intent and Compliance with General Permits. Each industrial discharger, discharger associated with construction activity or other discharger described in any general storm water permit addressing such discharges, as may be adopted by the United States Environmental Protection Agency, the State Water Resources Control Board, or the California Regional Water Quality Control Board, San Francisco Bay Region, shall provide notice of intent, comply with, and undertake all other activities required by any general storm water permit applicable to such discharges. Each discharger identified in an individual NPDES permit relating to storm water discharges shall comply with and undertake all activities required by such permit.

F. Compliance with Best Management Practices. Where best management practices guidelines or requirements have been adopted by any federal, state, regional, city and/or county agency, for any activity, operation, or facility which may cause or contribute to unlawful discharges, every person undertaking such activity or operation, or owning or operating such facility shall comply with such guideline or requirement.

G. Storm Water Pollution Prevention Plan. The City Engineer may require any business in the City that is engaged in activities which may result in unlawful discharges to develop and implement a Storm Water Pollution Prevention Plan, which must include an Employee Training Program. Business activities which may require a Storm Water Pollution Prevention Plan include

maintenance, storage, manufacturing, assembly, equipment operations, vehicle loading or fueling, or cleanup procedures which are carried out partially or wholly out of doors.

H. Coordination with Hazardous Materials Release Response Plans and Inventory. Any business subject to the Hazardous Materials Release Response and Inventory Plan, Division 20, Chapter 6.95 of the California Health and Safety Code (commencing with Section 25500), shall include in that Plan provision for compliance with this chapter, including the prohibitions on non-storm water discharges and, the requirement to reduce release of pollutants to the maximum extent practicable. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.090 Authority to Inspect.

Routine or area inspections shall be based upon such reasonable selection process as may be deemed necessary to carry out the objects of this chapter, including but not limited to random sampling and/or sampling in areas with evidence of storm water contamination, discharge of non-storm water to the storm water system, or similar factors. Such inspections may also be done in conjunction with routine inspections conducted by other public agencies such as the fire district, sewer district or health department.

A. Authority to Inspect, Sample and Establish Sampling Devices. With the consent of the owner or occupant or pursuant to a search or inspection warrant, if otherwise required by law, any authorized enforcement officer may carry out any inspection and sampling activities as may be necessary to enforce the provisions of this chapter and may establish on any property such devices as are necessary to conduct sampling or metering operations. During all inspections as provided herein, the officer may take any samples deemed necessary to aid in the pursuit of the inquiry or in the recordation of the activities on-site.

B. Notification of Spills. All persons in charge of a facility or responsible for emergency response for a facility have a personal responsibility to train facility personnel and maintain notification procedures to assure immediate notification is provided to the City of any suspected, confirmed or unconfirmed release of material, pollutants or waste creating a risk of discharge into the City storm water system.

As soon as any person in charge of a facility or responsible for emergency response for a facility has knowledge of any suspected, confirmed or unconfirmed release of non-storm water discharge entering the City storm water system, such person shall take all necessary steps to ensure the discovery and containment and clean up of such release and shall notify the City of the occurrences by telephoning (510) 215-3068. This notification requirement is in addition to and not in lieu of other required notifications.

C. Requirement to Test or Monitor. Any authorized enforcement officer may require that any person engaged in any activity or owning or operating any facility which may cause or contribute to illicit discharges undertake such monitoring activities and/or analysis and furnish such reports as the officer may specify. The burden, including costs, of these activities, analysis and reports shall bear a reasonable relationship to the need for the monitoring, analysis and reports and the benefits to be obtained. The recipient of such request shall undertake and provide the monitoring, analysis and reports required. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.100 Violations.

The violation of any provision of this chapter, or failure to comply with any of the mandatory requirements of this article shall constitute a misdemeanor or infraction, at the discretion of the authorized enforcement officer or city attorney, as provided for in Section 1.08.010B of this Code. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.110 Penalty of Violation.

A. Upon conviction of a misdemeanor, a person shall be subject to payment of a fine, or imprisonment, or both, not to exceed the limits set forth in California Government Code Section 36901.

B. Upon conviction of an infraction, a person shall be subject to payment of a fine, not to exceed the limits set forth in California Government Code Section 36900. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.120 Continuing Violation.

Every day that a violation of this chapter shall continue shall constitute a separate offense. Ord. No. 95-006, Enacted, 08/21/95)

8.40.130 Concealment.

Concealing, aiding, or abetting a violation of any provision of this chapter shall constitute a violation of such provision. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.140 Acts Potentially Resulting in Violation of Federal Clean Water Act and/or Porter-Cologne Act.

Any person who violates any provision of this chapter, and provision of any permit issued pursuant to this chapter, or who discharges waste or wastewater which causes pollution, or who violates any cease and desist order, prohibition, or effluent limitation, may also be in violation of the Federal Clean Water Act and/or Porter-Cologne Act and may be subject to the sanction of those Acts including civil and criminal penalties. Any enforcement actions authorized under this chapter may also include notice to the violation of such potential liability. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.150 Violations Deemed a Public Nuisance.

In addition to the penalties provided herein, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to the public health, safety and welfare, is declared and deemed a nuisance, and may be abated according to the procedures set forth in Chapter 2 of Title 8 of this Code, or any other applicable chapter, and a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken by the City Attorney. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.160 Civil Actions.

In addition to any other remedies provided in this chapter, any violation of this chapter may be enforced by civil action brought by the City. In any such action, the City may seek, as appropriate, any or all of the following remedies:

A. A temporary restraining order, preliminary and permanent injunction.

B. Reimbursement for the costs of any investigation, inspection, or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing administrative action under this chapter.

C. Costs incurred in removing, correcting, or terminating the adverse effect resulting from the violation.

D. Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life. Costs and damages under this subsection shall be paid to the City to be used exclusively for costs associated with monitoring and establishing storm water discharge pollution control system and/or implementing or enforcing the provisions of this article. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.170 Remedies Not Exclusive.

The remedies identified in this chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal. The remedies provided for herein shall be cumulative and not exclusive. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.180 Appeal.

Any person required to perform monitoring, analysis, reporting or corrective activities by any authorized enforcement officer who is aggrieved by this decision of the authorized enforcement officer may appeal such decision to the City Engineer within 10 days following the effective date of the decision in writing to the City Engineer. Upon receipt to such request, the City Engineer shall request a report and recommendation from the authorized enforcement officer and shall set the matter for hearing at the earliest practical date. At said hearing, the City Engineer may hear additional evidence, and may reject, affirm or modify the authorized enforcement officer's decision. The decisions of the City Engineer shall be final. (Ord. No. 95-006, Enacted, 08/21/95)

8.40.190 Judicial Review.

The provisions of Section 1094.6 of the California Code of Civil Procedure are applicable to judicial review of City Engineer determinations made pursuant to this chapter. (Ord. No. 95-006, Enacted, 08/21/95)

TITLE 13 PUBLIC SERVICES

CHAPTER 13.04 STORMWATER DRAINAGE
CHAPTER 13.08 UNDERGROUND UTILITY DISTRICTS
CHAPTER 13.10 SAN PABLO SOLAR UTILITY

CHAPTER 13.04 STORMWATER DRAINAGE[1]

13.04.010 Permit—Required to obstruct watercourses.

It is unlawful for any person to fill or obstruct any natural watercourse or any channel carrying stormwater unless a permit to do so has been obtained from the city engineer. (Prior code § 24.2: Ord. 202 § 1).

13.04.020 Permit—Required to construct drainage structures.

No person shall construct, reconstruct, alter, repair or install any drainage structure in any natural watercourse or channel carrying stormwater unless a permit to do so has been obtained from the city engineer. (Prior code § 24.3: Ord. 202 § 2).

13.04.030 Permit—Required to install bridges or culverts.

No person shall install any bridge or culvert across any drainage ditch or creek in the city unless he has secured a permit therefor from the superintendent of streets. Such permit shall be in writing and shall specify the materials and design which shall be used in the installation of such culvert or bridge. Any bridge or culvert which is installed without first securing a permit therefor, or which obstructs the free flow of drainage waters, shall be removed upon the order of the superintendent of streets. A copy of each permit issued pursuant to this section shall be filed with the city clerk. In the event the city commences an improvement program to install curbs and gutters in areas where such bridges or culverts are installed, all permits issued under this chapter may be revoked, and the city may remove such bridges or culverts in the course of construction of such improvement. (Prior code § 24.4: Ord. 182 § 1).

13.04.040 Permit—Application—Required—Contents.

Any person desiring to obtain a permit to construct, reconstruct or repair any drainage structure, or to alter or change any natural watercourse or natural drainage channel, or to fill or obstruct the same, shall file an application in writing therefor with the city engineer which shall state:

A. The name and address of the applicant, and if the applicant is a corporation, the names and addresses of the principal officers thereof;

B. The place where such construction, reconstruction, repair or alteration is to take place;

C. The type of construction to be used in such construction, reconstruction, repair or alteration, together with the materials to be used. (Prior code § 24.5: Ord. 202 § 4 (part)).

13.04.050 Permit—Application—Diagram of proposed work.

A diagram of the proposed work shall accompany the application required by Section 13.04.040 for a permit to construct, reconstruct or repair any drainage structure, or to alter or change any natural watercourse or natural drainage channel, or to fill or obstruct the same. (Prior code § 24.6: Ord. 202 § 4 (part)).

13.04.060 Permit—Issuance.

If the city engineer determines that the proposed structure, fill, alteration or repair for which a permit is required under this chapter will not interfere with the flow of natural stormwater and will not injure adjoining property, the city engineer shall issue a permit to do the proposed work in the manner specified in the application required by Section 13.04.040. (Prior code § 24.7: Ord. 202 § 4 (part)).

13.04.070 Obstruction of watercourse unlawful—Duty of property owner.

No person shall do anything to any watercourse or channel that will in any manner obstruct or interfere with the flow of water through such watercourse or channel, and any property owner, lessee or tenant of any property through which a natural watercourse or channel passes shall keep the same free from any obstructions that will in any manner prevent or retard the flow of water through such watercourse or channel, except that a watercourse or channel may be filled or altered if a permit to do so has been first obtained pursuant to Section 13.04.010. (Prior code § 24.1: Ord. 202 § 3).

CHAPTER 13.08 UNDERGROUND UTILITY DISTRICTS

13.08.010 Definitions.

Whenever the following words or phrases are used in this chapter, they shall have the respective meanings assigned to them as follows:

A. "Commission" means the Public Utilities Commission of the state.

B. "Underground utility district" or "district" means that area in the city within which poles, overhead wires, and associated overhead structures are prohibited as such area is described in a resolution adopted pursuant to the provisions of Section 13.08.030 of this chapter.

C. "Person" means and includes individuals, firms, corporations, partnerships, and their agents and employees.

D. "Poles, overhead wires and associated overhead structures" means poles, towers, supports, wires, conductors, guys, stubs, platforms, crossarms, braces, transformers, insulators, cutouts, switches, communication circuits, appliances, attachments and appurtenances located aboveground within a district and used or useful in supplying electric, communication or similar or associated service.

E. "Utility" includes all persons or entities supplying electric, communication or similar or associated service by means of electrical materials or devices. (Ord. 583 § 1, 1969).

13.08.020 Public hearing by council.

The council may from time to time call public hearings to ascertain whether the public necessity, health, safety or welfare requires the removal of poles, overhead wires and associated overhead structures within designated areas of the city and the underground installation of wires and facilities for supplying electric, communication, or similar or associated service. The city clerk shall notify all affected property owners as shown on the last equalized assessment roll and utilities concerned by mail of the time and place of such hearings at least ten days prior to the date thereof. Each such hearing shall be open to the public and may be continued from time to time. At each such hearing all persons interested shall be given an opportunity to be heard. The decision of the council shall be final and conclusive. (Ord. 583 § 2, 1969).

13.08.030 Council to designate by resolution.

If, after any such public hearing, the council finds that the public necessity, health, safety or welfare requires such removal and such underground installation within a designated area, the council shall, by resolution, declare such designated area an underground utility district and order such removal and underground installation. Such resolution shall include a description of the area comprising such district and shall fix the time within which such removal and underground installation shall be accomplished and within which affected property owners must be ready to receive underground service. A reasonable time shall be allowed for such removal and underground installation, having due regard for the availability of labor, materials and equipment necessary for such removal and for the installation of

ATTACHMENT B

CITY OF SAN PABLO

13831 San Pablo Avenue, Bldg. # 3
San Pablo, California 94806
(510) 215-3030 • Fax (510) 215-3031

PUBLIC WORKS DIVISION

Date: _____

Property Owner of Record: _____
Mail Address: _____
_____

Subject: Violation of City of San Pablo Municipal Code
Site Address: _____, San Pablo, CA
APN: _____
Violation Date: _____

This letter notifies you that the Codes checked below were observed to have been violated according to our inspection conducted on the above violation date in _____ Creek. The subject property includes the land to the nominal centerline of the creek. We understand that you may not have caused the observed violation, but as the property owner you are responsible for correcting the violation.

Pollutants/debris observed: _____
_____

City of San Pablo Municipal Code Sections.

8.20.020 ( ) Rubbish, tree trimmings or other debris on property (includes creeks & creek banks).

8.40.080.A ( ) Pollutants, refuse, rubbish, garbage, green waste such as branches, clipping leaves or other discarded or abandoned objects or other litter in or upon any creek or stormdrain.

13.04.070 ( ) Obstruction of Watercourse

8.40.050 ( ) Discharge of anything other than rainwater to the storm water system.

California Department of Fish and Game Code Sections.

5650 & 5652 ( ) Dumping where the materials can pass into the waters of the State (fine may be up to $25,000.00)

You are hereby notified that the observed violation on your property in the creek and on the creek banks must be removed within ___ days. . The property will be reinspected on _____, and if the observed debris and or dumped materials have not been removed you will be subject to fines and/or cleanup fees. If a City crew has to clean up the dumped materials, you will be billed for their time, estimated as approximately $_____. Non-payment of fees can result in a lien against your property. Thank you in advance for your cooperation. Your efforts will help reduce pollution in the creeks and the ocean.

Other Comments: _____. If you should have any questions please contact _____at (510) 215-_____.

_____
Angela L. El-Telbany, Assistant Civil Engineer/NPDES Coordinator

cc: Linda Miller, Code Enforcement
Tenant/Resident at Site (if applicable): _____

CITY OF SAN PABLO
WORK ORDER

DATE:_____

TO:_____ DIVISION: Public Works

FROM:_____ DEPARTMENT: Community Development

DESCRIPTION:

LOCATION:

NATURE OF WORK:

COMMENTS:

PERSON FAMILIAR WITH WORK: EXT.

DO NOT WRITE BELOW

DATE RECEIVED: *APPROVED ( )* *DISAPPROVED ( )*

COMPLETE BY:

COMMENTS:

SIGNATURE OF APPROVAL:

DATE RECEIVED:

DATE COMPLETED: *COMPLETED BY:*

COMMENTS:

Exhibit B: City Work Order Form

DAILY FIELD REPORT

Creek Cleanup - Wildcat Creek

Date: _____

By: _____

Crew

	StartTime	EndTime	Hours

Equipment Used

Location of Work

Comments:

Work Summary:

Debris Removed

	Cubic Yds	Tons
Shopping Carts		
Litter and Garbage		
Branches		
Tires		
Concrete		

Exhibit C: Daily Field Report Used During City Creek Cleanups

Photo 1: Wildcat Creek at Rumrill Boulevard Looking East, 10/02/01

Photo 2: Wildcat Creek at Davis Park Footbridge Looking East , 10/02/01

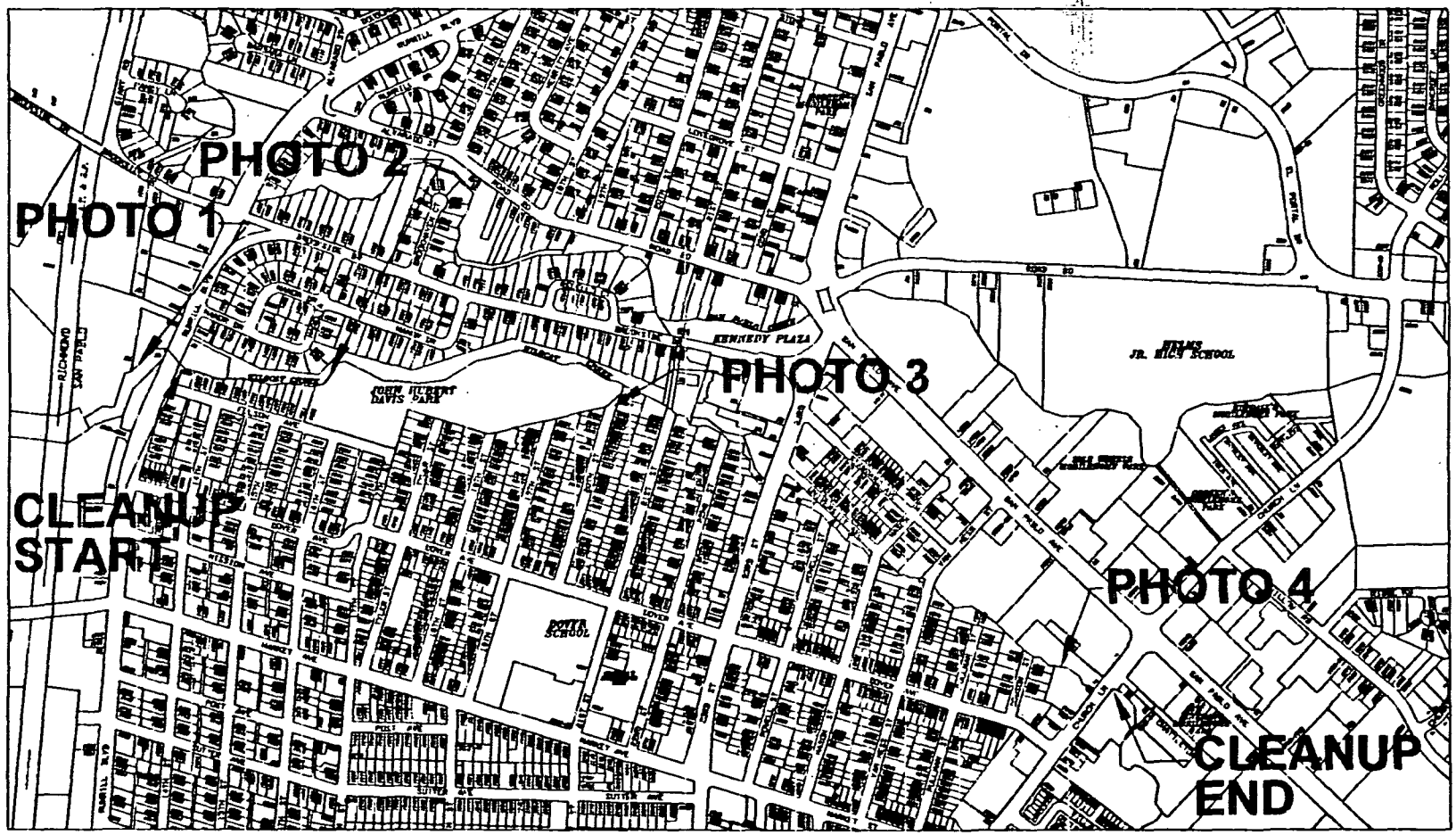
Exhibit D: Wildcat Creek Photos

Photo 3: Wildcat Creek at 20th Street Looking East, 10/02/01

Photo 4: Wildcat Creek Behind City Hall Looking West, 10/02/01

Exhibit E: Wildcat Creek Photos

CITY OF SAN PABLO



G. I. S. DISCLAIMER
GEOGRAPHIC INFORMATION SYSTEM PROGRAM SOFTWARE WAS USED TO PRODUCE THIS MAP.

SCALE: 1" = 500'

EXHIBIT F: MAP SHOWING PHOTO SITES AND LIMITS OF WILDCAT CREEK CLEANUP

WaterKeepers

October 15, 2001

Transmitted by email and by fax

Loretta Barsamian
Executive Officer
Regional Water Quality Control Board
San Francisco Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

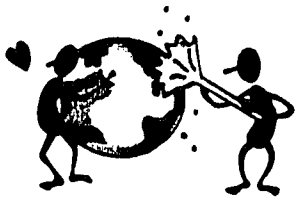
RE: Comments on Draft Staff Report, Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region

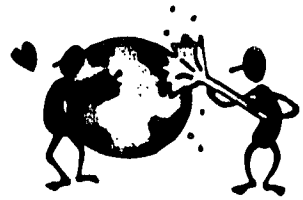
Dear Ms. Barsamian,

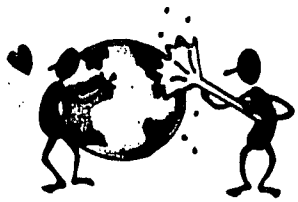
We appreciate the opportunity to share our concerns with you regarding your proposed Draft Staff Report, Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region ("Draft 303(d) List Report"). As the following comments detail, we are alarmed by Board staff's proposal to ignore or delay listing for scores of highly polluted waterways and urge you to reconsider its proposed list. We hope you will convene a public workshop to further consider these concerns and others.

As you know, including a waterway on the 303(d) List is the first step in the Clean Water Act's ("the Act") mandated process of establishing and implementing TMDLs to restore water quality. Section 303(d) of the Act requires the Water Board to identify any bays, rivers, creeks, segments of shoreline or other waterbodies that failed to meet water quality standards after Best Practicable Control Technologies were implemented for industrial facilities and after secondary sewage treatment was implemented for sewage treatment plants (CWA at Section 303(d)(1)(a) --technologies that were required to be in effect by July of 1977. San Francisco BayKeeper ("BayKeeper") and others have diligently collected scores of scientific studies which document numerous waterbodies in the Bay Area that frequently fail to meet water quality standards. Unfortunately, Board staff has proposed to ignore or delay listing nearly all of these creeks, Bay segments and stretches of coastline, depriving these waterways of legally mandated restoration and protection. Our specific concerns are described below:

Board staff should convene a public workshop to air concerns over its proposed list and explain its reasoning for excluding scores of polluted waterbodies.







JOIN US !

Wildcat Creek Cleanup

Seventh Annual Volunteer Event will be held
Saturday, October 20th
at Davis Park in San Pablo
9:00 a.m.-12:00 noon

RAIN OR SHINE !

FOOD , DRINKS, GLOVES AND LITTER BAGS WILL BE PROVIDED

For more information contact
Estuary Action Challenge at (510) 985-1602 or
the City of San Pablo at (510) 215-3066

(This Event is a joint effort between the City of San Pablo,
California Dept. of Resources, Recycling Division and Estuary Action Challenge)

Exhibit G: Flier for 7th Annual Wilcat Creek Cleanup, 2001

The revision of the 303(d) list is among the most important regulatory actions endeavored by the Board and warrants the most thorough possible outreach effort to involve Bay Area scientists and public interest groups. Over the last several weeks, BayKeeper initiated the process of contacting other local and regional environmental organizations to share information regarding the Draft 303(d) List Report. To our surprise, however, few Bay Area groups knew about the list or reported receiving Board staff's Draft 303(d) List Report. As of this date, there appears to be no mention of the this far-reaching regulatory effort on the Board's web page. BayKeeper received the proposed regulatory package by email only and received no paper copy. While we appreciate receiving the Board's documents electronically, other interested parties may not be able to accommodate large file attachments (or, more likely, didn't receive them). In light of the minimal distribution to interested parties and Board staff's decision to exclude nearly all the data it received from the public, we hope that you will convene a public workshop to discuss these issues further.

The proposal to *delist* the San Francisco Bay, North of Dumbarton Bridge, for copper and nickel is premature.

Last year the Board embarked upon a process to evaluate copper and nickel toxicity in the San Francisco Bay, North of the Dumbarton Bridge. This process was to include several rounds of water quality monitoring and a peer reviewed data analysis. Board staff also committed to accommodating public input as the process evolved and pledged to develop an "Action Plan" to ensure that a delisting decision does not result in further degradation of the Bay. Unfortunately, this process seems to have stalled. To date, there has been no stakeholder meeting since April; there has been no peer reviewed data analysis; and there has been no proposal for an Action Plan. Until this process is complete, there should be no proposal to take the San Francisco Bay off the 303(d) List for copper and nickel.

No rationale is given for ignoring many studies submitted to the Board in support of listing.

The Draft 303(d) List Report acknowledges that numerous scientific studies were received by the Water Board in support of consideration for listing but were not recommended for listing by the Board. Unfortunately, for many of these waterways, no explanation for the Board's decision against listing is evident in the Draft 303(d) List Report. We are particularly concerned that the Board has not listed any of the waterways identified in its own Regional Toxic Hotspot Cleanup Plan and that no explanation was provided for this decision. The Plan indicates that eight waterways in the Bay Area are polluted by various combinations of heavy metals, PCBs, pesticides and other contaminants. Failure to list waterbodies such as Islais Creek and Mission Creek, which are recognized Toxic Hotspots, not only deprives these waterways of needed protection, but deprives heavily impacted surrounding communities of a critical tool for reducing pollution their neighborhoods.

For each waterway that is not recommended for listing by the Draft 303(d) List Report but that was submitted for listing by the public or another agency, please specify why the waterbody is not recommended for listing.

Polluted waterbodies identified as "Toxic Hotspots" but not recommended for listing (partial list)*

Islais Creek	PCBs, chlordane, dieldrin, endosulfan sulfate, PAHs, anthropogenically enriched H2S & NH3 , toxicity
Mission Creek	Ag, Cr, Cu, Hg, Pb, Zn, chlordane, chlorpyrifos, dieldrin, mirex, PCBs, PAHs, anthropogenically enriched H2S & NH3, toxicity
Peyton Slough	Ag, Cd, Cu, Se, Zn, PCBs, chlordane, ppDDE, pyrene, toxicity
San Leandro Bay	Hg, Pb, Se, Zn, PCBs, PAHs, DDT, chlordane, dieldrin, ppDDE, hexachlorobenzene, heptachlor, chlorpyrifos
Stege Marsh	As, Cu, Hg, Se, Zn, chlordane, dieldrin, ppDDE, dacthal, endosulfan I, endosulfan sulfate, dichlorobenzophenone, heptachlor epoxide, hexachlorobenzene, mirex, oxadiazon, toxaphene, PCBs, toxicity
Castro Cove	Hg, Se, PAHs, dieldrin, toxicity
Pacific Dry Dock #1 (area in front of stormdrain)	Cu, Pb, Hg, Zn, TBT, ppDDE, PCBs, PAHs, chlorpyrifos, chlordane, dieldrin, mirex
Point Potrero/ Richmond Harbor	Hg, PCBs, Cu, Pb, Zn

* This list includes only those studies cited by the Regional Board in support of its Toxic Hotspots Program. Numerous other studies were submitted to the Board but inexplicably did not result in a recommendation for listing.

The Draft 303(d) List should not arbitrarily exclude wet weather data when evaluating coliform and E. coli contamination.

The Draft 303(d) List rationalizes not listing several Bay Area waterbodies for pathogens because staff have decided not to include wet weather data when considering water quality impairment (Draft 303(d) List Report at 4). The Report claims that there is less frequency of water contact recreation during the winter wet season and that "naturally occurring bacteria" can skew data during wet weather flows.

This reasoning is unsubstantiated, incorrect and irrelevant. The data show that contamination by coliform bacteria is highest during wet weather when urban runoff washes pathogens off the urban landscape, overwhelms sewage treatment plants, floods septic system leach fields and washes animal waste into our waterways. The report provides no evidence that these anthropogenic sources are not significant or even dominant during wet weather. Please explain if Board staff have evidence which shows these water quality violations to be caused by harmless "naturally occurring" pathogens. Regardless of whether or not "naturally occurring" bacteria are more prevalent during wet weather, human-caused sources of these pathogens are certainly highest during that

time and cannot be ignored. Furthermore, many users of our waterways spend *more time* in contaminated waterways during wet weather. The surfing season, for example, begins in October and extends through the Spring, during which time thousands of surfer-hours are logged in contaminated Bay Area coastal waters. These and other recreational users are at risk of getting sick from waterborne bacteria and viruses, which may cause nausea, diarrhea, flu, serious infections, or much worse.

These rationales for avoiding listing are also irrelevant to the mandate posed by the Clean Water Act. The Act requires listing for waterbodies that do not meet standards after the imposition of technology standards. No exception is authorized because one or more pollutant sources are inadequately understood or because of variable use by waterbody users.

The Board should be aware of the fact that the Central Valley Board considered similar data for may tributaries in its jurisdiction and recommended listing numerous waterbodies for pathogen contamination. No proposal was made by that Board to exclude wet weather data.

Waterbodies that should be listed for pathogens (partial list)*:

Pescadero Beach
San Gregorio Beach
Surfer's Beach**
Pacifica State Beach (better known as Linda Mar or San Pedro beach)**

* It is unclear from the Water Board staff's report which other waterways exceeded water quality standards for pathogens but were excluded because the violations occurred during wet weather.

** These are listed for "beach closures" but not for pathogens, making pathogen cleanup less likely.

The Draft 303(d) List Report fails to include several waterbodies that are impaired by trash.

BayKeeper and others submitted photographs and video footage documenting that at least six Bay Area creeks are full of trash, violating the Regional Board's water quality standard for this pollutant. According the Draft 303(d) List, Regional Board staff report visiting others waterways that are also seriously trashed. The Report agrees that degradation is serious, noting "There are excessive levels of trash in virtually all urbanized waterways of the San Francisco Bay Region." (Draft 303(d) List Report at 14). Board staff also agrees that the Board's own standard for trash is being violated, noting "Observations, photo and video documentations, and Coastal Cleanup Day data together provide a weight of evidence that not enough is currently being done to comply with the Basin Plan's Discharge Prohibition No. 7 (Table 4-1 of the Basin Plan)." In spite of this evidence, however, the Draft 303(d) List Report recommends not listing *any* Bay Area waterways for trash because the types of trash in Bay Area creeks have not been quantified, because Board staff were not presented with specific harmful impacts associated with trash and because Board staff believe that cities may not yet have implemented required cleanup programs.

These arguments defy law and commonsense. If the Board's water quality standard for trash is being violated for any waterway, then that waterway must be listed on the 303(d) List. Board staff acknowledge that certain creeks have indeed failed to meet this standard and so listing is required. The Draft 303(d) List Report acknowledges that trash currently impairs numerous beneficial uses including aquatic habitat, water contact recreation, non-contact water recreation and others.

Furthermore, the Draft 303(d) List Report's suggestion that some types of trash are more harmful than others is a distraction. No one should suggest that the trash in our creeks is somehow acceptable or that it complies with water quality standards. While an embedded shopping cart may provide needed habitat diversity, this is an unfortunate symptom of other water quality impacts such as channelization, straightening and loss of nearby vegetation and canopy. We are alarmed that the Board would suggest delaying regulatory action so that trash impacts can be "studied." The Draft 303(d) List Report acknowledges that much of the trash found in our waterways is harmful to aquatic life. Photographs submitted by BayKeeper and others clearly show that garbage-strewn creeks do not support recreational uses. We note that the presence of garbage in our creeks is also likely to exacerbate other water quality problems as community members perceive trashed waterways to be an acceptable place for the disposal of waste and wastewater.

Finally, the Draft 303(d) List Report's announcement that Section 303(d) requirements do not apply to waters where no "best available technology" effort, or something akin to it, has been implemented is disturbing (Draft 303(d) List Report at 4). Consider:

i. The Draft 303(d) List Report asserts that action under Section 303(d) of the Act is not yet required because some municipalities have not yet implemented "best available technology." Report at 14. Staff appears to be erroneously relying upon Section 303(d)(1)(a) of the Act. This provision requires listing for waters for which:

> "effluent limitations required by section 1311(b)(1)(A) and section 1311(b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters."

These provisions set forth respectively the "best available technology" standard applicable to industrial point sources and the secondary treatment standard applicable to POTWs. Thus any waterbody not meeting standards after implementation of secondary treatment by POTWs and best available technology by industrial point sources, must be listed. Moreover, the Act required these standards to be achieved in 1976. Does staff suggest that Bay Area POTWs and industrial facilities have not implemented these technology-based requirements? If they have, and a waterbody is not currently meeting standards, then listing must occur.

ii. Furthermore, listing is required now for these waters *because* existing efforts by cities have failed. The Clean Water Act specifically requires that waterways be listed if certain previously required technology-based efforts "are not stringent enough." This appears to be exactly what staff is suggesting in noting that local governments "do not believe that the performance standard has been fully

implemented, and that it is premature to list urban creeks as impaired by trash because the "best available technology" to control discharges of trash, whether structural or non-structural, has not been implemented." (Draft 303(d) list Report at 14). If local governments have not yet effectively controlled discharges of trash into their waterways, that is precisely why those waterbodies must now be listed.

iii. Regional Board staff must not reward compliance problems with a proposal to delay required cleanup processes. The technology-based requirements that the Draft 303(d) List Report suggests may not have been implemented were required to be implemented by July of 1976. Does the Draft 303(d) List Report indicate that Regional Board staff are aware of existing dischargers which have not yet met this requirement? Please explain. Similarly, municipalities in Santa Clara County are *already* required to control trash in their waterways to implement specific performance standards, as noted in the Draft 303(d) List Report, to control trash. Is Board staff aware of any permittees which are not in compliance with their permit? Indeed, is Board staff aware of any local governments which, as suggested in the Report, *have not yet even started* to control discharges of trash in local waterways? Please explain.

iv. Finally, Regional Board staff should be aware that a similar argument was made by the discharger in Dioxin/Organochlorine Center v. Clarke. (57 F.3d 1517 (9th Cir. 1995). In that case, the court ruled that the Act allows EPA to establish TMDLs for waters contaminated with toxic pollutants without prior development of Best Available Technology limits.

Waterbodies which should be listed for trash:

Guadelupe River
Guadelupe Creek
Coyote Creek
Silver Creek
San Leandro Creek
Glen Echo Creek
Portions of San Pablo Creek
Wildcat Creek
Arroyo Las Positas
"virtually all urbanized waterways of San Francisco"*

*the Draft 303(d) List Report states that "virtually all" urbanized waterways in the Bay Area contain unacceptable levels of trash.

The Draft 303(d) List Report unlawfully proposes to avoid listing Bay Area creeks for sediment.

Several studies were submitted to the Board showing evidence of excessive sedimentation and erosion in Bay Area creeks. Sedimentation and erosion processes are

known to destroy fish habitat and are recognized by the Board to threaten numerous waterways around the Bay Area: "All larger streams in the San Francisco Bay Region, without exception, have sediment-related impacts such a downcutting, bank erosion and sediment delivery from the hillslopes due to 150 years of intensive urban and agricultural land use." (Draft 303(d) List Report at 11). Water Board staff further acknowledges that several specific streams, for which evidence was submitted, are heavily impacted. The Draft 303(d) List Report notes that "dramatic changes due to erosion and sedimentation have been documented in the Novato Creek watershed." (Report at 22). Similarly, for Pilarcitos Creek, Board staff concur that "widespread occurrence of a large amount of fine sediment in and on the streambed reduces spawning success and juvenile rearing." (Report at 23). Similar evidence was presented for several other Bay Area creeks.

We are surprised and disappointed that the Draft 303(d) List Report doesn't recommend listing any of these waterbodies for sediment. Similar to the arguments made avoiding trash listings, the Report claims that uncertainty about sources, the presence of existing management efforts and lack of "explicit linkage" to beneficial use impacts preclude listing. Again, these arguments are incorrect and/or irrelevant.

i. Uncertainty about sources is irrelevant for listing purposes and is appropriately considered after listing during the establishment of a TMDL.

ii. No where does the Clean Water Act require "explicit linkage" to connect specific water quality violations to the impairment of beneficial uses, as Draft 303(d) List Report seems to require. For sediment, the Board's water quality standard prohibits sediment discharges that "cause nuisance or adversely affect beneficial uses." (San Francisco Bay Regional Water Quality Control Plan at 3-3). As described above, the Report acknowledges the findings of numerous submitted scientific studies that sedimentation and erosion have and are destroying aquatic habitat and impairing recreational use for specific waterbodies – thus listing is required for such waterbodies.

iii. The mere presence of existing regulatory efforts is certainly not a reason to delay or avoid listing. The report claims, for Novato Creek for example, that "Because there is a sediment management planning process underway, Regional Board staff believes that the best available technology has not yet been implemented to control the excess sediment in Novato Creek" (Draft 303 (d) List Report at 23). This is at best a dangerous red herring. As noted above, a listing is specifically required by the Act where specified technology standards have not ensured compliance with water quality standards; and, again, the specified technology standards generally *have* been implemented by industrial point sources and POTWs, yet water quality problems persist.

We note that if adopted, the logic presented in the Draft 303(d) List Report would preclude listing of any waterbody anywhere where some existing effort or program is underway to address water quality problems. Thus this interpretation is not only nonsensical, but it threatens the very core of the TMDL process.

Waterbodies that should be listed for sediment (partial list):*

"all larger streams in the San Francisco Bay Region"
Novato Creek
Pilarcitos Creek
Corte Madera Creek
Fairfax Creek
Pacheco Creek
San Anselmo Creek
San Antonio Creek

* other creeks were submitted to the Board for consideration but data was either not included or was deemed inadequate by the Board staff

The Draft 303(d) List Report arbitrarily concludes that certain data are too "old" to use for listing numerous creeks which are contaminated with heavy metals.

Nine Bay Area creeks received comprehensive water quality monitoring scrutiny in the early and mid-1990s and were found to routinely violate Basin Plan standards for cadmium, lead, copper, chromium, mercury and nickel.[1] The study, conducted by Woodward-Clyde for the Bay Area Stormwater Management Agencies Association, was published in October of 1996, less than five years ago. Evidently the Regional Board failed to consider this information when it is revised the 303(d) List in 1998 and now proposes to exclude this data because it is too old. The Board's failure to add all of these creeks to the 303(d) List now is particularly troubling in light of it's failure to require municipal stormwater programs to continue the ambient water quality monitoring which was abandoned by local governments soon after the release of the Woodward-Clyde data.

Heavy metals are persistent in the environment. The myriad of sources of these contaminants that existed in the mid-1990s (vehicle emissions, atmospheric deposition, and runoff from industrial facilities, among others) exist today. Thus far, no evidence has been presented which suggests that these waterways have improved in any way. In fact, at Coyote Creek a study published in 2000 documents water quality standard violations of the same toxic heavy metals that were documented in 1996, yet Board staff inexplicably do not list this waterway. Faced with compelling evidence that creeks were routinely violating water quality standards and no evidence of improvement, this data warrants listing of the South Bay waters.

Creeks that should be listed for heavy metals but which the Draft 303(d) List Report dismisses because data are too old:

Alameda Creek
Castro Valley Creek
Codornices Creek
Calabazas Creek
Coyote Creek

[1] San Francisco Bay Area Stormwater Runoff Monitoring Data Analysis, 1988-1995, Woodward-Clyde, October 15. 1996

Guadalupe River
Rheem Creek
San Lorenzo Creek
Walnut Creek

Your consideration of these concerns is greatly appreciated.

Best Regards,

Jonathan Kaplan

Cc: Joe Dillon, NMFS
Alexis Strauss, US EPA
Steve Moore, RWQCB
Bill Jennings, DeltaKeeper

WaterKeepers

November 6, 2001

Steve Moore
Regional Water Quality Control Board
San Francisco Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

RE: Supplemental comments to the Regional Board's draft 303(d) list report

Dear Steve,

Per your request, I have asked all the signatories listed on letter to the Board regarding this matter, dated the October 15, 2001 to fax me a signed copy of that letter. All of the signatories agreed to do this and the signed letters are enclosed.

Please contact me if you require any further materials related to our earlier comments.

Best Regards,

Jonathan Kaplan

Enclosure

notes that "all larger streams in the San Francisco Bay Region, without exception, have sediment-related impacts such a down-cutting, bank erosion and sediment delivery from the hill slopes due to 150 years of intensive urban and agricultural land use."[4] Yet the report proposes to avoid listing these waterbodies because of existing management efforts, lack of knowledge about sediment sources or lack of knowledge about more specific impacts. These concerns are irrelevant to the Board's mandate to list. The Board's water quality standard for sediment is to prohibit sediment discharges that "cause nuisance or adversely affect beneficial uses."[5]. Beneficial uses include habitat for aquatic life in Bay Area creeks, including many threatened or endangered species. Evidence of adverse effects on that habitat by sediment requires a waterway to be listed.

Regional Board staff claim that data are too "old" to list numerous Bay Area creeks which are contaminated with toxic heavy metals.

Nine Bay Area creeks received comprehensive water quality monitoring scrutiny in the mid-1990s and were found to routinely violate water quality standards for cadmium, lead, copper, chromium, mercury and nickel. The myriad of sources of heavy metals that existed in the mid-1990s (runoff from industrial facilities, vehicle emissions, and atmospheric deposition, among others) exist today and no evidence has been presented which suggests that these waterways have improved. In fact, a Coyote Creek study published in 2000 documents water quality standard violations of the same toxic heavy metals that were documented in 1996, yet Board staff inexplicably do not propose to list this waterway. Faced with compelling evidence that creeks were routinely violating water quality standards and no evidence of improvement, this data warrants listing by the Board.

Your consideration of these concerns is greatly appreciated.

Respectfully,

Olin Webb
Bayview-Hunters Point Community Advocates

Russel Long
Bluewater Network

Teresa Olle
California Public Interest Research Group

Kate Silberman
Center for Environmental Health

Jeff Marmar
Coalition for Better Wastewater Solutions

Marguerite Young
Clean Water Action

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[4] Draft 303(d) List Report at 11.

[5] San Francisco Bay Regional Water Quality Control Plan at 3-3.

October 15, 2001

Loretta Barsamian
Executive Officer
Regional Water quality Control Board, San Francisco Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

RE: Request to reconsider the Board staff's proposed list of impaired waters

Dear Ms. Barsamian,

On behalf of our collective members, we are writing to urge that your staff reconsider its recently circulated revisions to the 303(d) List of impaired waters ("Draft 303(d) List")[1]. We are concerned that the proposed list effectively ignores dozens of waterbodies that are clearly polluted and will delay essential cleanup action for years, if not indefinitely.

As you know, Section 303(d) of the Clean Water Act requires your agency to list any waterbodies for which best-available-technology regulatory schemes have failed to ensure compliance with water quality standards. Such listing triggers a mandatory duty by your agency to ensure that all sources of impairing pollutants are reduced to a level that will not result in water quality violations. In addition, listing provides additional regulatory protection from new or increased discharges of problem pollutants.

Unfortunately, the Draft 303(d) List proposed by your staff ignores many highly polluted creeks, stretches of shoreline and San Francisco Bay segments. Of more than seventy waterways submitted to the Board with evidence for listing, only about a half dozen appear on the proposed list (though we support the Board's proposal to list several additional beaches that were not submitted). We also urge the Board not to delist the San Francisco Bay North of the Dumbarton Bridge for copper and nickel, at least until a thorough assessment is complete. These concerns are discussed in more detail below:

The proposal to *delist* the San Francisco Bay, North of Dumbarton Bridge, for copper and nickel is premature.

Last year the Board embarked upon a process to evaluate copper and nickel toxicity in the San Francisco Bay, North of the Dumbarton Bridge. This process was to include several rounds of water quality monitoring and a peer reviewed data analysis. Board staff also committed to accommodating public input as the process evolved and pledged to develop an "Action Plan" to ensure that a delisting decision does not result in further degradation of the Bay. Unfortunately, this process seems to have stalled. To date, there has been no stakeholder meeting since April; there has been no peer reviewed data analysis; and there has been no proposal for an Action Plan. Until this process is complete, there should be no proposal to take the San Francisco Bay North of the Dumbarton Bridge off the 303(d) List for copper and nickel.

[1] Draft Staff Report, Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region for Revising the 303(d) List of Impaired Waterbodies, August 24, 2001.

No rationale is given for ignoring many studies submitted to the Board in support of listing.

The Draft 303(d) List Report acknowledges that numerous scientific studies were received by the Water Board in support of consideration for listing but were not recommended for listing by the Board. Unfortunately, for many of these waterways, no explanation for the Board's decision against listing is evident in the Draft 303(d) List Report. We are particularly concerned that the Board has not listed any of the waterways identified in its own Regional Toxic Hotspot Cleanup Plan and that no explanation was provided for this decision. The Plan indicates that eight waterways in the Bay Area are polluted by various combinations of heavy metals, PCBs, pesticides and other contaminants. Failure to list waterbodies such as Islais Creek and Mission Creek, which are recognized Toxic Hotspots, not only deprives these waterways of needed protection, but deprives heavily impacted surrounding communities of a critical tool for reducing pollution their neighborhoods.

Water Board staff propose to arbitrarily exclude wet weather data when evaluating coliform and E. coli contamination.

Water Board staff argue that there is less frequency of water contact recreation during the winter wet season and that "naturally occurring bacteria" can skew data during wet weather flows. This reasoning is unacceptable. The data show that contamination by coliform bacteria is highest during wet weather when urban runoff washes pathogens off the urban landscape, overwhelms sewage treatment plants, floods septic system leach fields and washes animal waste into our waterways. Furthermore, many water users, such as surfers, spend *more time* in contaminated waterways during wet weather. The Clean Water Act requires listing of the waterway on the 303(d) List if it is not meeting water quality standards, regardless of the source.

The Draft 303(d) List fails to list *any* waterways for trash, in spite of overwhelming evidence that many Bay Area creeks are full of garbage.

The Draft 303(d) List Report confirms that evidence submitted by the public and its own data indicate that "there are excessive levels of trash in virtually all urbanized waterways of the San Francisco Bay Region."[2] The Report also acknowledges that not enough is currently being done to comply with water quality standards for trash.[3] Yet, the report fails to propose any waterbodies for listing due to trash, recommending instead to wait several more years to see if other efforts correct the problem, and suggesting that more study be conducted to evaluate the "types" of trash now strewn in Bay Area creeks.

We find these arguments lacking. In fact, where previous or existing management efforts have failed to keep trash out of our creeks, listing is now explicitly required by the Clean Water Act. We are also alarmed by staff's speculation that some types of trash are more harmful than others, which seems to imply that creeks full of certain types of garbage are acceptable.

The Draft 303(d) List fails to include Bay Area creeks that are impaired by sediment pollution.

[2] Draft 303(d) List Report at 14.
[3] ibid

Sedimentation and erosion processes are known to destroy fish habitat and are recognized by the Board to threaten numerous waterways around the Bay Area. The Draft 303(d) List itself notes that "all larger streams in the San Francisco Bay Region, without exception, have sediment-related impacts such a down-cutting, bank erosion and sediment delivery from the hill slopes due to 150 years of intensive urban and agricultural land use."[4] Yet the report proposes to avoid listing these waterbodies because of existing management efforts, lack of knowledge about sediment sources or lack of knowledge about more specific impacts. These concerns are irrelevant to the Board's mandate to list. The Board's water quality standard for sediment is to prohibit sediment discharges that "cause nuisance or adversely affect beneficial uses."[5]. Beneficial uses include habitat for aquatic life in Bay Area creeks, including many threatened or endangered species. Evidence of adverse effects on that habitat by sediment requires a waterway to be listed.

Regional Board staff claim that data are too "old" to list numerous Bay Area creeks which are contaminated with toxic heavy metals.

Nine Bay Area creeks received comprehensive water quality monitoring scrutiny in the mid-1990s and were found to routinely violate water quality standards for cadmium, lead, copper, chromium, mercury and nickel. The myriad of sources of heavy metals that existed in the mid-1990s (runoff from industrial facilities, vehicle emissions, and atmospheric deposition, among others) exist today and no evidence has been presented which suggests that these waterways have improved. In fact, a Coyote Creek study published in 2000 documents water quality standard violations of the same toxic heavy metals that were documented in 1996, yet Board staff inexplicably do not propose to list this waterway. Faced with compelling evidence that creeks were routinely violating water quality standards and no evidence of improvement, this data warrants listing by the Board.

Your consideration of these concerns is greatly appreciated.

Respectfully,

Olin Webb
Bayview-Hunters Point Community Advocates

Russel Long
Bluewater Network ← no signatures verified (see attached)

Teresa Olle
California Public Interest Research Group

Kate Silberman
Center for Environmental Health

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[4] Draft 303(d) List Report at 11.

[5] San Francisco Bay Regional Water Quality Control Plan at 3-3.

Jeff Marmar
Coalition for Better Wastewater Solutions

Marguerite Young
Clean Water Action

Michael Warburton
Community Water Rights Project

Arthur Feinstein
Golden Gate Audubon

Alex Lantsberg
India Basin Neighborhood Association

Jean Choi
The Ocean Conservancy (formerly Center for Marine Conservation)

W.F. "Zeke" Grader, Jr.
Pacific Coast Federation of Fisherman's Associations

Jonathan Kaplan
San Francisco BayKeeper, a project of WaterKeepers Northern California

Michael Paquet
San Francisco Chapter Surfrider Foundation no signature verified (see attached)

Jane Morrison
San Francisco Tomorrow

David Lewis
Save the Bay

Marylia Kelley
Tri-Valley CAREs

Josh Bradt
Urban Creeks Council

Henry Clark
West County Toxics Coalition

Jeff Marmar
Coalition for Better Wastewater Solutions

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Sedimentation and erosion processes are known to destroy fish habitat and are recognized by the Board to threaten numerous waterways around the Bay Area. The Draft 303(d) List itself notes that "all larger streams in the San Francisco Bay Region, without exception, have sediment-related impacts such a down-cutting, bank erosion and sediment delivery from the hill slopes due to 150 years of intensive urban and agricultural land use."[4] Yet the report proposes to avoid listing these waterbodies because of existing management efforts, lack of knowledge about sediment sources or lack of knowledge about more specific impacts. These concerns are irrelevant to the Board's mandate to list. The Board's water quality standard for sediment is to prohibit sediment discharges that "cause nuisance or adversely affect beneficial uses."[5]. Beneficial uses include habitat for aquatic life in Bay Area creeks, including many threatened or endangered species. Evidence of adverse effects on that habitat by sediment requires a waterway to be listed.

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Center for Environmental Health

[4] Draft 303(d) List Report at 11.

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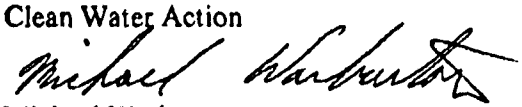

Michael Warburton
Community Water Rights Project

Arthur Feinstein
Golden Gate Audubon

Alex Lantsberg
India Basin Neighborhood Association

Jean Choi
The Ocean Conservancy (formerly Center for Marine Conservation)

W.F. "Zeke" Grader, Jr.
Pacific Coast Federation of Fisherman's Associations

Jonathan Kaplan
San Francisco BayKeeper, a project of WaterKeepers Northern California

Michael Paquet
San Francisco Chapter Surfrider Foundation

Jane Morrison
San Francisco Tomorrow

David Lewis
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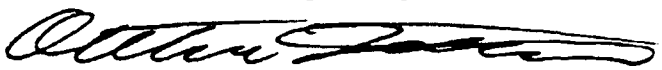

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Urban Creeks Council

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Henry Clark Henry Clark
West County Toxics Coalition

evidence of the potential for PAH compounds to exacerbate the toxicity of dioxins and certain PCBs.[2] The lack of analysis for potential additive and synergistic toxicity is a fatal flaw in the draft's analysis.

3. PAH compounds: The draft staff report correctly lists PAHs as pollutants of potential concern. It also reaffirms the listing of PCBs and dioxins as pollutants with the potential to cause or contribute to such violations. However; it wrongly concludes that PAHs do not have the potential to cause or contribute to violations of water quality standards in the Bay. Indeed, the draft seems to conclude that its proposal not to list PAHs – in the absence of this analysis of additive/synergistic toxicity – is a close call. This is one example of the error caused by failure to address additive/synergistic toxicity adequately. PAHs have the potential to contribute to the toxicity of dioxins and certain PCBs, as discussed above. Thus, PAHs should be listed.

4. Copper and nickel: The draft proposes to de-list the Bay for copper and nickel. This proposal does not have adequate scientific support for at least two reasons. First, although Spehar and Fiandt showed these and other metals can cause both additive and synergistic toxicity in various aquatic species, and they are known to be present in the Bay with combinations of the same other toxic metals (see e.g., RMP data), the draft does not address additive or synergistic toxicity adequately. Second, the draft appears to rely largely on bioassay results without including more powerful methods for determining the potential toxicity of copper in its analysis. Specifically, it does not appear to mention existing data that suggest: (1) copper toxicity may cause effects in the open ocean below concentrations found in the Bay; (2) dissolved copper concentrations in the Bay appear elevated above those in less urbanized/industrialized major estuaries; and (3) species believed to be most vulnerable to copper toxicity are reduced in abundance in the parts of the Bay with the highest sustained copper levels.[3] In the absence of Regional Board consideration of these data supporting the potential for continued copper and nickel toxicity in the Bay, it must reasonably be concluded that the proposal to remove these toxics from the action list is unsupported.

5. Dioxins and dioxin-like PCBs: The proposed list contains an error in the priority ranking for dioxins and dioxin-like PCBs. The Regional Board will recall that USEPA, after extensive review of the evidence, determined that these pollutants warrant a high priority ranking for the same Bay segments that now contain this error. There is no discussion of the ranking of these pollutants or of any new information relating to them in the draft staff report or list. Thus, the error must be a simple typographic error. In any case, it must be corrected, as the draft and proposal provide no support whatsoever for any decision to downplay these high priority pollutants.

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[2] This scientific paper appeared in *Environmental Science and Technology volume 35, number 18, which was published* September 15, 2001. It was not available to CBE before that date, and is attached hereto.

[3] See: Coale, 1991. *Limnol. Oceanogr.*, 36(8): 1851-1864; Luoma, 1992; and Karras, 1992. CBE has previously submitted these documents to the Regional Board (see e.g., comments on Order 01-067).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

OCT 15 2001

COMMUNITIES FOR A BETTER ENVIRONMENT

October 15, 2001

Loretta Barsamian, Executive Officer
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: **List of impaired water bodies pursuant to Clean Water Act section 303(d); Regional Board draft staff report and proposed revised list**

Dear Ms. Barsamian:

Thank you for this opportunity to comment on the Regional Board's draft analysis of pollutants and water bodies that violate or threaten to violate water quality standards in the San Francisco Bay Basin, and its proposed list of these pollutants and waters. Communities for a Better Environment respectfully submits the following comments:

1. Polybrominated diphenyl ethers (PBDEs): The staff report correctly identifies PBDEs as pollutants of concern because they are persistent, bioaccumulative toxic chemicals that are increasing in the Bay based on existing data. However, it proposes to defer action to protect the Bay's environmental health from these pollutants for at least four more years. Existing data indicate that concentrations of PBDEs are high and doubling every two to five years in Bay aquatic life, and numerous data collected in Europe and North America support this observation of exponentially increasing PBDE pollution.[1] Thus, existing data indicate that this persistent toxic pollution problem could more than double in severity before the Board's next scheduled review of action on this matter. Therefore, the proposed deferral is inconsistent with the precautionary principle as well as other criteria.

2. Narrative criteria, additive toxicity, and synergistic toxicity: The staff report's analysis of the potential for violations of narrative water quality standards criteria due to combinations of pollutants is missing and/or inadequate. Numerous studies in the Board's possession, including those by former Regional Board staff member Dr. Susan Anderson, sediment toxicity studies under the Regional Monitoring Program, and Spehar and Fiandt (1996 – previously submitted by CBE) confirm that additive and/or synergistic toxicity occurs due to combinations of pollutants found in the Bay. Further, evidence such as that submitted by CBE supports the potential for increasing additive toxicity from combinations of PBDEs, PCBs, and dioxins in the Bay. (See: CBE, 2000 – attached.) As a final example, Eljarrat et al. (2001) provides clear

[1] CBE submitted our enclosed report documenting the exponential increase in PBDE contamination, and the potential for serious cumulative environmental health effects from this pollution, to the Regional Board in December, 2000, and asked Assistant Executive Officer Lawrence Kolb to review this pollution problem and analyze the Board's response at that time. As a courtesy to staff a second copy of the report is attached.

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BAYVIEW HUNTERS POINT COMMUNITY ADVOCATES
5021 Third Street
San Francisco, CA 94124
PHONE 415 647-2862 FAX 415 671-2863

October 15, 2001

Loretta Barsmaian, Executive Officer
Regional Water Quality Control Board, SF Region
1515 Clay St, Suite 1400
Oakland, CA 94612

Dear Ms. Barsamian,

It has recently come to our attention that the staff of the Regional Water Quality Control Board has removed Islais Creek from the proposed list of impaired waterways. We are strongly dismayed by the environmental injustice of this proposal and insist that Islais Creek be added to the 303(d) list. We further demand that a workshop be held in the Bayview Hunters Point community prior to the finalization of any decisions regarding Islais Creek. Finally, we believe that Yosemite Slough, between Candlestick State Park and Hunters Point Shipyard, be listed as an impaired waterway.

We have two major concerns. First, is the issue of process. This proposal has been made without any community involvement or consultation. We became aware of it only through the efforts of the Alliance for a Clean Waterfront, San Francisco BayKeeper and other colleagues in San Francisco's environmental community. It is unconscionable that staff would make this proposal without first speaking with the community that would be most impacted by this decision. we believe that the Regional Board must hold at least one meeting in the Bayview Hunters Point community prior to making any decisions regarding issues affecting the people or environmental of this neighborhood.

Our second concern deals with the substance of this decision. Islais Creek has long been a known toxic hot spot impacted by decades of combined sewage overflows and other sources. Preliminary studies by the Regional Board have confirmed that the creek is highly polluted and deserves being listed on the 303(d) list. As you may know, Bayview Hunters Point is overwhelmingly made up of people of color and is recognized throughout the region as an environmental justice community. Our residents have been disproportionately impacted by the pollution of the Bay and Creeks and the removal of Islais Creek from consideration for the 303(d) list would only continue this historical insult.

Finally, we believe that Yosemite Slough should be added to the 303(d) list. The Slough is visibly polluted and adjoins a heavily contaminated Superfund site. While the Board has not undertaken any investigations, it stands to reason that this degraded waterway is at least as polluted as other listed waterways. We insist that a thorough investigation is needed for this area.

The Bayview Hunters Point Community Advocates is a non-profit community based organization made up of long time African-American residents and friends of San Francisco's Bayview Hunters Point neighborhood. Among our goals is to improve the involvement of community residents in decisions regarding our environment. To that end, we respectfully request that the Advocates be added to all Board notification lists regarding activities in San Francisco.

Sincerely,

Olin Webb
Executive Director

Thank you, again, for this opportunity to comment on your identification and priority ranking of pollution problems that the public, and the Bay, depend upon the Regional Board to address for environmental health. The public notice documents indicate that the Regional Board will decide its next steps in this review after receiving comments: please inform CBE of your staff's conclusions regarding our comments at the time this next decision is made. I am available to discuss these issues with you and your staff if desired, and look forward to working with the Regional Board for environmental health and justice in San Francisco Bay.

Sincerely,

Greg Karras
Senior Scientist

Enclosures: CBE, 2000. *Bromine Toxics Rising*
Eljarrat et al., 2001.

Alameda Countywide
Clean Water Program
A Consortium of Local Agencies
951 Turner Court, Hayward CA 94545-2698
(510) 670-5543 FAX (510) 670-5262

October 15, 2001

Ms. Loretta Barsamian
Executive Officer
Regional Water Quality Control Board Suite 1400
1515 Clay St.
Oakland CA 94612

Subject: Comments on Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads

Dear Ms. Barsamian:

This letter provides comments on Steve Moore's draft staff report regarding updating the 303(d) list of impaired water bodies. We believe that the draft staff report strikes a reasonable balance between being too conservative by listing many of the Basin Plan's waterbodies as impaired by numerous pollutants for which there is little data and being too lax by not proposing improvements in the listings. The following provides some additional comments for your consideration.

Retain and Formalize the Threatened Impairments to Water Quality List

Although we understand that it is not a required part of the 303(d) listing process, the ACCWP supports the Regional Board's proposed concept to initiate a new list of waterbodies whose water quality may be threatened by specific pollutants. The draft staff report proposes that waterbodies and pollutants on this list will require the collection of additional information over the next several years so that a decision may be made either to move the waterbody/pollutant to the 303(d) list or to remove the waterbody/pollutant from the threatened list. The creation of this list is consistent with the recent recommendations of the National Research Council.

We recommend that the Regional Board's new approach to establishing a threatened list be established in a formal policy/resolution of the Regional Board. This will offer an opportunity for all of the affected parties to comment on this new approach and for the Regional Board to formally adopt the approach.

The new policy/resolution could also include the results of a more thorough evaluation of the pros and cons of different ways to collect information on waterbodies and pollutants on the threatened list. One possibility would be to include this as part of the information to be collected as part of the work being planned as part of Water Quality Attainment Strategies MOU among the Regional Board, BASMAA and BACWA. Another possibility would be to reprioritize some of the work that the Regional Monitoring Program does so that the needed information is collected. Regardless of how the problem of information collection is eventually resolved, it is necessary to allow for a reasonable period of time to collect the needed information. The NRC report suggests that if a determination is not made at the completion of one cycle

through a five-year rotating basins assessment, then those threatened impairments on the preliminary list would move to the 303(d) impaired list.

We do not agree with the following wording from the staff report that proposes that this process would take one 303(d) listing cycle, which may be as short as two years:

"As such, impairment determinations will be rendered during the next listing cycle for all the water body/pollutant combinations listed below, absent any information between 2000 and the year of the next 303(d) action." (page 20).

Proceed with the Delisting of Copper and Nickel

We support the report's recommendation to list copper and nickel in San Francisco Bay on the threatened list rather than the impaired list based on the well-documented scientific studies that have been conducted. This change will allow us to continue our monitoring and pollutant reduction activities while at the same time avoiding the administrative burden of developing a TMDL.

Provide More Specificity to Trash Listing

Based on our experience, the increased emphasis on better controlling trash is worthwhile. Some of the questions that will need to be addressed include the following:

1. The draft staff report's Table 3 lists the proposed creeks that would be on the threatened list for trash, but there is no comparable list for urban shorelines. What specific areas are being proposed as threatened?
2. The staff report states, "Regional Board staff have noted excessive levels of trash in water bodies during initial field reconnaissance activities associated with the Surface Waters Ambient Monitoring Program (SWAMP) in March 2001." What are the criteria the Regional Board staff used to decide what is excessive? Is this primarily a visual determination?
3. Which of the municipal stormwater programs' current performance standards for trash meet best available technology to control trash discharges, or do the performance standards need to be modified?
4. How much trash originates from the discharge of stormwater versus the direct deposition or wind blown accumulation of trash onto local waters or floodplains?
5. How are different types of trash evaluated in terms of their potential impacts to beneficial uses?

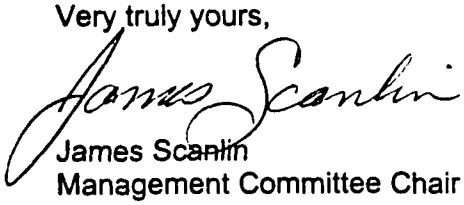
Recognize the Need to Refine Beneficial Use Determinations

The draft staff report mentions that a number of urban creeks will be added to the Basin Plan in the near future, "...especially in the San Mateo Bayside and East Bay drainages." (page 16). We believe that it will become increasingly important to recognize finer distinctions of beneficial uses than are currently provided in the Basin Plan. These subcategories of use are increasingly important in complex creek systems that include relatively intact headwater areas and highly altered main stems. It may also be appropriate to adopt seasonal uses for ephemeral creeks or sections of creeks. It is likely that there are limitations on what level of beneficial uses may be realistically achieved in urban creeks. There is also an issue of whether the new beneficial use listings would be classified as existing or designated uses as defined by

40 CFR 131.1; this is especially important where the creeks would be recommended for listing as impaired following designation.

We appreciate your consideration of our comments. If you have any questions, please call me.

Very truly yours,



James Scanlin
Management Committee Chair

cc: Steve Moore

DEPARTMENT OF PUBLIC WORKS
Larry A. Patterson, P.E., Director

330 West 20th Avenue
San Mateo, California 94403-1388
Telephone (650) 522-7300
FAX: (650) 522-7301
www.ci.sanmateo.ca.us

October 15, 2001

Ms. Loretta Barsamian
Executive Officer
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Proposed Section 303(d) Listing of Marina Lagoon

Dear Ms. Barsamian,

The City of San Mateo requests that the RWQCB consider delaying the addition of Marina Lagoon to the 303(d) list for total and fecal coliform or E. coli. Although bacteriological water quality objectives and criteria were exceeded at Marina Lagoon, further research should be conducted to determine whether the beneficial use of Marina Lagoon is impaired. In addition, the City proposes to conduct a sanitary survey to investigate and eliminate potential controllable sources of bacteria in Marina Lagoon. Besides identifying potential sources within the lagoon watershed, the survey would include characterization of the bay water intake at O'Neill Slough, which is the primary source of water year-round and flows through the neighboring city of Belmont before entering Marina Lagoon at the city limit line.

San Mateo County Environmental Health Department will continue posting signs warning of contaminated water when water quality criteria are exceeded.

Thank you for your consideration of this request.

Very Truly Yours,

Larry Patterson
Director of Public Works

cc: Steve Moore, RWQCB

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Campbell · Cupertino · Los Altos · Los Altos Hills · Los Gatos · Milpitas · Monte Sereno · Mountain View · Palo Alto
San Jose · Santa Clara · Saratoga · Sunnyvale · Santa Clara County · Santa Clara Valley Water District

October 15, 2001

Ms. Loretta Barsamian
Executive Officer
Regional Water Quality Control Board Suite 1400
1515 Clay St.
Oakland CA 94612

Subject: Comments on Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads

Dear Ms. Barsamian:

This letter provides comments (Attachment 1) on the RWQCB's draft staff report regarding updating the 303 (d) list of impaired water bodies. We believe that the overall process that your staff has developed to prepare the draft list is a significant improvement over the past methods used by the State to develop the 303(d) list and other listings such as the 304 (l) list. Our challenge will be to link future listings/de-listing to the data and analysis envisioned as part of the recently signed MOU for jointly working on TMDLs. This linkage will be another major step towards including "good science" within the water quality decision-making process.

Further, as we move forward on the implementation of various steps to resolve and/or further understand the water quality problems, we believe that we need to continue to find the proper balance between the command and control processes historically utilized by the Regional Board and the local watershed-based stakeholder decision processes that are fostered by locals and regulatory agencies, such as those underway in the South Bay.

We trust that your staff will continue to participate fully with the local stakeholder process. It is these stakeholder processes which enable the full range of resources to be utilized in solving local water quality issues. We genuinely look forward to ongoing collaboration efforts as we move forward towards our mutual goals.

We appreciate your consideration of our comments and the changes you made to the previous draft version of this proposed amendment. If you have any questions, please call me.

Sincerely,

Adam W. Olivieri, Dr.PH, P.E.
Program Manager

cc: Management Committee
Steve Moore, RWQCB

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ATTACHMENT 1
SUMMARY OF SCVURPPP QUESTIONS/COMMENTS ON SFRWQCB 2001 303(d) LISTING

The following provides some additional comments for your consideration:

1. We concur with the de-listing of copper and nickel for the South San Francisco Bay below the Dumbarton Bridge:

We concur with the RWQCB staff recommendation to de-list copper and nickel for the lower South Bay. Sufficient data and analysis have been gathered and prepared since the early 1990's to support your staff's recommendation. These data were further supported by the recently completed Lower South Bay Impairment Assessment work conducted under the auspices of the Santa Clara Basin Watershed Management Initiative. We believe that it is important that the municipal agencies focus their efforts on pollutants that are a problem.

2. We believe that the Regional Board needs to develop a formal policy and guidance for the threatened listings

The draft staff report proposes to add a new category to the listing entitled "threatened impairments." Along with this distinction, comes the expectation that additional information will need to be collected over the next several years so that a decision may be made either to move the waterbody/pollutant to the 303(d) list or to remove the waterbody/pollutant from the threatened list. This expectation requires resources, generally required from local public agencies.

While we agree with your staff approach relative to the creation of this new listing category and recognize that it is consistent with the recent recommendations of the National Research Council, it is not part of US EPA's current guidance and regulations. Further, it is new to the State listing process. We do not believe that the either of these points should deter you from proceeding with this approach, especially since the California Water Code (CWC Section 13267) gives you ample ability to follow this course. However, consistent with the CWC we recommend that the Regional Board's new approach to establishing a threatened list be established in a formal policy by a Regional Board resolution. This will offer an opportunity for all of the affected parties to comment on this new approach and for the Regional Board to formally adopt the approach consistent with State water quality regulations.

A formal analysis would allow for a thorough evaluation of the pros and cons of different ways to collect information on waterbodies and pollutants on the threatened list. For example, one possibility is prioritization of the data needs as part of the anticipated resource needs for the Water Quality Attainment Strategies MOU. Another possibility is to reprioritize some of the work that the Regional Monitoring Program does so that the needed information is collected through that effort. Because significant resources are being required of local agencies by the Regional Board to address a number of issues (i.e., local monitoring programs in NPDES permits, RMP resource needs, MOU resource needs, and the recent request for resources to assist the RWQCB staff with its Surface Waters Ambient Monitoring Program), it is paramount that a clear and open public policy discussion occurs to identify the total expected resource needs, how the needs are to be met, as well as how public input will be sought and included regarding prioritization of monitoring efforts.

3. We disagree with the Staff's default position to list where data are not available

The staff report contains the following staff position: "As such, impairment determinations will be rendered during the next listing cycle for all the water body/pollutant combinations listed below, absent any information between 2000 and the year of the next 303(d) action." (Page 20). We believe that this proposed position would be inconsistent with the spirit and intent of the California Water Code and would hinder the collaborative process to work on these issues. Further, it clearly acknowledges the need for the public discussion recommended above.

4. We support the staff recommendation on trash

We agree with the staff's recommendation for addressing trash and agree that the increased emphasis on better controlling trash is a worthwhile effort. In this regard, as part of the SCVURPPP continuous improvement process, initiated a specific project entitled " Drainage Retrofit for Litter Control." A key purpose of the project is to create an inventory of high-use and high litter areas based on local agency staff knowledge. In addition, two of the Co-permittees (i.e., the SCVWD and the City of San Jose) have made a commitment to "evaluate and improve coordination" between their existing agency programs related to management of trash in creeks. While both agencies have ongoing programs that address the trash issue, we believe that better collaboration can enhance the effectiveness and efficiency of their efforts to keep trash out of the creeks. The SCVWD and the City of San Jose are currently working on developing partnerships in many areas of maintenance activities and will present their plan for improved coordination of trash management in creeks in their FY 2002-2003 work plans to be submitted by March 1, 2002.

5. Remove diazinon from the 303(d) list and place it on the threatened list

Because U.S. EPA's decision in 2000 to phase out the urban use of diazinon over the next few years, it makes sense to delist diazinon as an impairing pollutant for all of the creeks listed in the Basin Plan and for San Francisco Bay. As the staffs report states, the Clean Water Act defines impaired waters as those that are not expected to meet water quality standards after best available technology controls are implemented. We believe that phasing out or limiting the use of a pesticide should be considered equivalent to best available technology. In addition, the staffs report on page 5 states that one of the listing factors for 303(d) waterbodies/pollutants is:

"3. Beneficial uses are impaired or are expected to be impaired within the listing cycle (i.e. in next four years)."

All sales and distribution of diazinon for outdoor use will end in August 2003, so that it makes sense to delist this pesticide as causing impairment. U.S. EPA concluded, "Phasing out the non-agricultural outdoor uses of diazinon should significantly improve urban river and stream quality and reduce risks to birds and aquatic life."[1] The placement of diazinon on the threatened list marks the appropriate level of concern for this pesticide.

[1] U.S. EPA December 5, 2000. Questions & Answers Diazinon Revised Risk Assessment and Risk Mitigation Measures.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

WATER QUALITY BUREAU
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GENERAL MANAGER

ANDREW F. DEGRACA
BUREAU MANAGER

October 15, 2001

Mr. Steven Moore
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, No. 1400
Oakland, California 94612

Re: Comments to Proposed Section 303(d) List

Dear Mr. Moore:

Thank you for the opportunity to comment on the Board's proposed revisions to the Section 303(d) list of impaired water bodies. For reasons stated in the discussion that follows, the SFPUC respectively requests that Lake Merced not be included on the preliminary list of impaired water bodies. Additional comments are also provided addressing the listing of Baker Beach due to elevated coliform bacteria. Previous studies have shown that the source of these bacteria is Lobos Creek. For this reason the SFPUC requests that Lobos Creek be listed in lieu of Baker Beach. Accordingly, the SFPUC staff would like to meet with representatives of the Board to discuss conditions at both Lake Merced and Baker Beach and the basis for this request.

Lake Merced

Lake Merced has been proposed for inclusion on the Clean Water Act 303 (d) list as a threatened water body due to low dissolved oxygen and elevated pH concentrations. The San Francisco Bay Basin Plan Objective for dissolved oxygen in cold freshwater habitat (>7.0 mg/l) and pH (<8.5), were not achieved in 36% of the surface samples reported from Lake Merced. According to the Basin Plan, beneficial uses for Lake Merced include cold freshwater habitat, warm freshwater habitat, and fish spawning.

1.] Dissolved Oxygen levels

Five of the fourteen or 36% of the surface dissolved oxygen measurements taken over the last three years in Lake Merced by SFPUC staff were less than 7.0 mg/L but had values ranging from 5.9 to 6.9 mg/L. These dissolved oxygen concentration levels do not preclude the use of the Lake to support cold or warm water fish habitat. Rainbow trout, considered a cold water fish are planted by the California Department of Fish and Game (DF&G), live in Lake Merced and support a classic "put and take" sport fishery. Due to the lack of appropriate spawning sediments, stream flow and other conditions, rainbow trout do not reproduce within the Lake. No natural self-sustaining cold water fishery exists within Lake Merced.

Warm freshwater habitat, according to the Basin Plan, "supports bass, bluegill and other panfish and the Basin Plan objective for dissolved oxygen in warm freshwater habitat is > 5 mg/l. This criterion was achieved in all measurements taken at the lake over the last three years.

Based on the information presented above, we would request that the listing of Lake Merced for non-achievement of the dissolved oxygen for cold water fish habitat (primarily spawning conditions) be re-considered.

2.] pH Conditions

The proposed Clean Water Act 303 (d) list includes the North Lake as a threatened water body for non-attainment of the Basin Plan Objective for pH (>8.5). The proposed listing states that 36% of samples at North Lake exceeded the Basin Plan objective. A review of the limnology data for Lake Merced indicates that pH measurements greater than 8.5 actually occurred in only 24% of samples collected during the period of September 1997 – December 2000. Due to the extensive bluegreen algae population that persists all year, it is not surprising that high pH levels are observed. As photosynthetic activity increases, the bluegreen algae take up carbon dioxide. This results in the prevention of the formation of weak carbonic acid, and subsequently increases the pH towards the alkaline end of the scale.

This condition will continue to persist unless controlled by the periodic addition of an algaecide. If the bluegreen algae population growth was controlled periodically, pH levels less than 8.5 would be possible.

3.] Increased Monitoring

Since 1997 limnology monitoring at Lake Merced has been conducted quarterly. The document recommends that increased monitoring for dissolved oxygen and pH be performed at Lake Merced to assess impairment. In order to comply with this request limnology monitoring will be increased from quarterly to every other month with additional sample points selected at East Lake and North Lake for surface pH and dissolved oxygen measurements. The recommendation to take dissolved oxygen and pH measurements at pre-dawn hours and in the late afternoon is not considered feasible at this time. The level of increased monitoring proposed however, should provide the additional information necessary to assess conditions at the lake.

Baker Beach

The Draft Report recommends listing the Pacific Ocean at Baker Beach (mouth of Lobos Creek) in San Francisco for high coliform bacteria counts. Impairment is based on the site's failure to comply with California Ocean Plan water contact standards (Total

Coliform Objective 80th percentile .1000). The Draft Report also indicates that the assessment was made on dry season data (May-October) to avoid natural factors (presumably rainfall), which may confound bacterial indicator results.

The SFPUC collects bacteria samples along Baker Beach three times per week year round. There are two permanent stations located at Baker Beach, one at the point where Lobos Creek drains into the Pacific Ocean (mouth of Lobos Creek), and the second approximately 150 yards to the west at a point where the City's combined sewer system submerged overflow discharge pipe from the Sea Cliff II pump station enters the Pacific Ocean. Approximately 150 to 170 samples are collected at each station each year.

Recent bacteria monitoring (since 1999) at Baker Beach indicates that the Lobos Creek station had intermittent elevated coliform measurements, however, samples collected on those same days at the site 150 yards to the west, opposite the City's CSS pump station were not elevated. The data also show that the majority of elevated counts near the Lobos Creek drainage occur between May and October during dry weather. Independent studies conducted by the SFPUC and the Golden Gate National Recreation Area (GGNRA) National Park Service (NPS) indicate the source of elevated coliform bacteria on Baker Beach is directly due to outflow from Lobos Creek.

Lobos Creek is a perennially flowing creek located entirely within the Presidio in San Francisco. Flow from the Creek is diverted and used as drinking water for the GGNRA Presidio facilities. The upper drainage is fenced off from human contact to protect the source of drinking water, however there is evidence that local residents use the area to exercise dogs. There is also evidence of household debris in and alongside the Creek in areas where the fencing is damaged. Activities from feral animals and wildlife may also impact bacteria water quality along the Creek.

The water from Lobos Creek not diverted for treatment, flows across the sands on Baker Beach to the Pacific Ocean. On occasion this flow creates a small pond of water on the beach, which has been used by children and is an attractant to shorebirds. Investigative studies in the watershed of the Creek indicate that bacteria counts are elevated throughout the drainage including the point at which the Creek emerges from underground. The naturally elevated bacteria counts from the Lobos Creek drainage and the additional bacterial input from shorebirds directly influence the total coliform bacteria concentrations collected from the Pacific Ocean at that site. Although the source of elevated coliform counts in the Ocean is known (Lobos Creek), the source of elevated counts in Lobos Creek is unknown. We recommend that it is more appropriate to list Lobos Creek as an impacted water body due to elevated coliform bacteria measurements than that portion of Baker Beach and the Pacific Ocean tributary to the flow. We are willing to collaborate with the federal agencies governing the Presidio and have jurisdiction over the watershed of Lobos Creek to resolve this persistent problem.

Again thank you for the opportunity to comment on the Board's proposed revisions to the Section 303(d) list. Please do not hesitate to contact me at (650) 652-3125 if you would like to further discuss this matter or other Lake Merced issues. SFPUC staff will contact you later in the month to arrange a meeting to discuss the recommendations made in this comment letter.

Sincerely,

James J. Salerno
Environmental Services Manager

cc: Andrew DeGraca
Michael Carlin
David Dingman
Arlene Navarret
John Roddy
Joan Ryan
Reading File

via SFB → 1. JRW
2. SMM

Alliance for a Clean Waterfront

41 Sutter Street, Box 1364 San Francisco, CA 94104

October 15th, 2001

Loretta Barsamian, Executive Officer
Regional Water Quality Control Board, San Francisco Region
1515 Clay St, Suite 1400
Oakland, CA 94612

Re: Proposed revisions to Section 303(d) for San Francisco Bay Region

Dear Ms. Barsamian:

The Alliance for a Clean Waterfront is a coalition of 14 environmental organizations founded 4 years ago to focus on water quality issues in the City and County of San Francisco. We are extremely perturbed at the Staff Report issued on August 24th of this year on proposed additions to the list of impaired water bodies required by the EPA.

Specifically, we feel that Mission Creek and Islais Creek on the east side of San Francisco warrant inclusion in the impaired waterway list In studying your draft report, both water bodies meet the listing and evaluation criteria. Yosemite Creek in San Francisco also merits review by the regional board. We believe that Yosemite is an impaired creek, and that full study is warranted to support that belief. A coalition of community groups recently received Cal-Fed grant funding to study and clean up the creek.

According to your listing factors on Page 5, "Effluent limitations and other pollution control requirements... are not stringent enough to assure protection of beneficial uses and attainment of SWRCB and RWQCB objectives " Outfalls from the City's combined sewer system are located on both waterways, and annual overflows are allowed under the RWQCB's permit. Even though the system operates under the board's requirements, both waterways still exceed standards for heavy metals, PAHs, and enriched H2S and NH3.

On Page 8, Data Quality Evaluation, "only data of higher overall level of information were used to make 303(d) listings or de-listings." These waterways were evaluated in the RWQCB's own 1999 report "Final Regional Toxic Hotspot Cleanup Plan". This plan received a grade of 4, the highest grade for quality of data. Yet this report was not used to add any waterways added to the impaired list.

Priority Ranking Several of the priorities cited on Page 8 of this report apply to these waterways;

- degree of impairment or threat. Both waterways exceeds standards for numerous pollutants, and pose a significant health threat to nearby fishing piers, kayakers, and swimmers, as well as to the more than 60 species of birds and fish that feed on these waterways.

- Conformity with related activities in the watershed. Both waterways are in areas where significant planning and development efforts are underway. At Mission Creek, the 300 acre Mission Bay redevelopment plan includes significant restoration of the creek. Moreover, the increasing popularity of this waterway because of its proximity to Pacific Bell Park makes its listing even more critical. Islais Creek has been the object of extensive community scrutiny, as several construction - related facilities are being moved to its shoreline. Local agencies are so concerned about the condition of the Creek that they are conducting intensive planning efforts to improve conditions.

A major omission in the draft report is the absence of environmental justice as a priority for inclusion in the new standards. In San Francisco, both Islais and Yosemite Creek flow through the Bayview Hunters Point neighborhood, a part of the City that has long been the dumping ground for polluted industry and toxic waste. Our government must be proactive in alleviating the disproportionate burden placed on this and other impacted communities around the Bay.

The current draft report is inadequate. It gives only a general description of the listing process, and fails to explain why seemingly eligible waterways were excluded. Public input was solicited, but was not included or responded to in the draft. Your decision-making process remains a mystery, rather than being seen as a natural outgrowth of the process and your budget limitations.

A more comprehensive draft would contain, at minimum, a table listing the waterways that were nominated for inclusion, with a ranking according to the factors discussed on the report – listing factors, evaluation criteria, and data quality evaluation. The issue of environmental justice must also be factored into the criteria

We would appreciate it if you would include our organization on your mailing list for future notices on this issue.

Sincerely,

Jeff Marmer, Chair
Sewage and Stormwater Committee

Jennifer Clary, Chair
Alliance Steering Committee

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October 16, 2001

Steve Moore, P.E.
Policy and Planning Division
S.F. Bay Regional Water Quality Control Board (RWQCB)
1515 Clay St., #1400
Oakland, CA 94612

Re: Draft Staff Report On Proposed Revisions to Section 303(d) List

Dear Mr. Moore:

Thank you for the opportunity to review the proposed revisions to the State of California's Section 303(d) list of impaired water bodies. The Lake Merritt Institute (LMI) has reviewed the proposed changes to the Lake Merritt listing and has enclosed a list of comments, which seek additional clarification regarding these changes.

As you may know, the LMI is a nonprofit organization founded in 1992 and dedicated to the restoration, maintenance, and enhancement of Lake Merritt, the nation's oldest wildlife refuge. With support from the City of Oakland, the LMI regularly coordinates the work of 140 volunteers to remove trash and debris from the lake and to conduct urban runoff education within the watershed.

With the original listing of the lake in 1999, the LMI stepped up its efforts to address pollution within Lake Merritt. The Institute is pleased to be working cooperatively with the City as part of the Lake Merritt Water Quality Review Committee and is pleased with the initial efforts made by the Committee to address the problem of pollution at the lake.

The enclosed comments concern areas that the LMI believes to be in need of clarification. If you have any questions regarding them, please feel free to contact me by phone at 415/904-5229.

Sincerely,

John Bowers
Member, Board of Directors

Enclosure

October 9, 2001

Ms. Loretta Barsamian
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay St.
Oakland, CA 94612

Dear Ms. Barsamian:

The Contra Costa Clean Water Program received the *Draft Staff Report on Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maxim Daily Loads (TMDLs) for the San Francisco Bay Region* (Draft Staff Report) on August 27, 2001. This report contains Regional Board Staff recommendations for revisions to the list of impaired water bodies in the San Francisco Bay Area, as instructed by the United States Environmental Protection Agency (EPA) and the Federal Water Pollution Control Act. This letter contains a response to the revisions relevant to the co-permittees of the Contra Costa Clean Water Program. A total of three (3) proposed revisions will be addressed:

- Urban Creeks Diazinon Refined Listing;
- Implementation of a "Threatened List"; and,
- Trash in Urban Creeks, Lakes, and Shorelines.

Urban Creeks Diazinon Refined Listing

In 1998 a "weight of evidence" approach, which includes the use of toxicity testing, chemical specific testing, and bioassessments, was used by Regional Board Staff to determine toxicity related to Diazinon; and, inevitably to list a variety of San Francisco Bay Area urban streams as impaired for that substance. This approach was not only used in listing those streams where empirical data was collected, but extrapolated to all "urban creeks" described in the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). A total of thirty-six (36) "urban creeks" within the San Francisco Bay Area were listed as impaired by Diazinon. Of these creeks, seven (7) are located in Contra Costa County.

As was surely discussed in the 1998 listing, one must be cautious when extrapolating empirical data collected from a few creeks to all "urban creeks". A statistically sufficient amount of data must be collected to determine if a given number of samples are truly representative of an entire population. A power analysis or another relevant statistical application must be conducted if one wishes to extrapolate data collected from a few "urban creeks" to all "urban creeks". To our knowledge, no such statistical test was conducted in the 1998 listing.

The lack of statistical evidence supporting a listing of all "urban creeks" as impaired by Diazinon is exacerbated as one increases the number of creeks in the entire population, while continuing to use the limited data set used in 1998. The Draft Staff Report suggests increasing the number of "urban creeks" listed as impaired by Diazinon. It is our opinion that adding additional creeks requires additional data to support the listing. No such data is evident in the bibliography in the Draft Staff Report. One can not simply add additional creeks to the current population of "urban creeks" and expect the data generated before 1998 to support this listing. We suggest appropriate statistical tests be conducted to determine if an actual "weight of evidence" to support additional listings is apparent.

Additionally, the term "urban creek" is not clearly defined. No indication of what defines a creek as "urban" is apparent in the Basin Plan or the Draft Staff Report. The term "urban creek" must be defined if staff intends to use the title as a criterion for listing. A simple definition of percent of watershed imperviousness could be used in determining if a creek is urbanized. We suggest a clear and concise definition of "urban creek" should be included in the Basin Plan and the Draft Staff Report. Until then, any San Francisco Bay Area Creek can be defined as "urban", making the listing inappropriate at best.

Implementation of Threatened List

Stormwater programs throughout the Bay Area have been seeking guidance from the Regional Board on priority setting related to water quality data collection and determining beneficial use impairment for a number of years. The development of a threatened list provides a "yellow light" of caution for stormwater programs, making it easier to set priorities of our very limited resources. We support the development of a threatened list and look forward to setting attainable goals regarding the recommended listing of threatened water bodies relevant to the Program.

Additionally, we applaud the recommendation to de-list copper and nickel for all bay segments. This recommendation proves that Bay Area water quality agencies and the Regional Board can cooperatively work toward better characterization of our water bodies. We look forward to future joint efforts.

Trash in Urban Creeks, Lakes, and Shorelines

The Program recognizes large quantities of trash in water bodies can impair a number of beneficial uses. The Program also recognizes a number of streams within the Bay Area

have large quantities of trash in them. This is evident in the data (i.e. volumes of trash collected and video documentation) submitted to the Regional Board from various agencies and non-profit organizations during the public solicitation for water quality data. That said, there are a number of issues the Program would like to see addressed before recommending to the EPA that all "urban creeks" be listed as threatened for trash.

First, as previously mentioned, a definition of what constitutes an "urban creek" must be defined. Second, no weight of evidence analysis is apparent in the Draft Staff Report. Trash data and video documentation were only submitted for a few creeks in the Bay Area, and again the approach is to assume that all "urban creeks" are threatened by trash using evidence from a few water bodies. Additionally, Regional Board staff have also decided to use anecdotal evidence observed during field reconnaissance to determine if a creek is threatened by trash. This begs the question:

What constitutes a water body as impaired/threatened by trash?

The Draft Staff Report cites the narrative objective within the Basin Plan: "Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations that cause a nuisance". However, no guidance is given on what concentrations of trash actually cause a nuisance. Until some acceptable quantified strategy is developed to determine at what volume and types of trash cause a majority of the problems in local waterways, pollution prevention goals and objectives cannot be developed. It is the Program's recommendation the Regional Board reconsider listing all "urban creeks" as threatened by trash until quantifiable assessment methods are developed and the term "urban" is defined.

We thank you for this opportunity to comment on the Draft Staff Report and look forward to continuing our relationship of working cooperatively to determine the health of watersheds within Contra Costa County through water quality monitoring and assessment strategies and reducing/eliminating pollutants from entering the storm drain system by developing and implementing best management practices to the maximum extent practicable. Please feel free to contact me at (925) 313-2373 or Chris Sommers at (925) 313-2364 regarding these matters.

Yours very truly,

Original signed by

Donald P. Freitas
Program Manager