DRAFT STAFF REPORT

EVALUATION OF WATER QUALITY CONDITIONS FOR THE SAN FRANCISCO BAY REGION

PROPOSED REVISIONS TO SECTION 303(d) LIST

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CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

San Francisco Bay Regional
Water Quality Control Board

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Table of Contents

Tables

Figures

Appendices

1 Introduction

One of the San Francisco Bay Water Board's functions is to evaluate the water quality condition of waters in the San Francisco Bay Region. To accomplish this goal, staff gathers and evaluates data that are the basis of its water quality assessments. This staff report presents the results of staff's review and consideration of the available water quality data for the Region, including data submitted by the public. One important outcome of the assessment process is the identification of water bodies that are being proposed for inclusion on the list of impaired water bodies. Under Federal Clean Water Act (CWA) regulations, the State is required every two years 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 met or expected to be met after implementation of technology based requirements of the CWA.

The 303(d) list of impaired waters must include a description of the pollutants causing the violation of water quality standards. As defined in CWA and federal regulations, water quality standards include the designated uses of a water body, the adopted water quality criteria, and the State's antidegradation policy. For water quality limited segments included on the 303(d) list, the state is required to develop a Total Maximum Daily Load (TMDL) to address the impairment. A TMDL is defined as the "sum of the individual waste load allocations for point sources and load allocations for non-point sources and natural background" (40 CFR130.2) such that the capacity of the water body to assimilate pollutant loadings (the loading capacity) is not exceeded. The federal requirement for setting priorities on which TMDLs will be developed is addressed in the State Water Board's *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Listing Policy) by the establishment of schedules for TMDL development.

The last review of the 303(d) list and update occurred in 2006. The review was based on the State Board's Listing Policy developed in 2004. For the 2008 update, the Regional Water Boards are considering for approval, recommendations on the conditions of waters in the Region, applying the 2004 Listing Policy in the process.

This staff report presents the current status of water quality in the San Francisco Bay Region for water bodies with readily available data, and identifies the methods and data used to evaluate water quality status. The report identifies the proposed additions, deletions, and changes to the 2006 303(d) list. The water quality assessments also result in the identification of water bodies where water quality standards are met or where not enough information is available to accurately assess water quality. The results of the water quality assessments are compiled into a statewide integrated report referred to as the 303(d)/305(b) Integrated Report (Integrated Report) by the State Board.

The State Board will include the Water Boards' listing/delisting recommendations in its preparation of the statewide 303(d) list for submission to the U.S. Environmental Protection Agency (U.S. EPA). The statewide 303(d) list will be part of the Integrated Report. The State Board's deliberative process will be conducted in 2009.

Appendix A of this staff report includes the public solicitation letters requesting that the public submit any and all available data to support the assessment of water quality in the Region. Appendix B provides a summary of the data received from the public and an assessment of data quality. Appendix C presents Fact Sheets for each recommendation to add a water body to the 303(d) list or to delist. Fact Sheets showing water bodies that support at least some beneficial uses are presented in Appendix D. Water bodies not listed due to insufficient information are in Appendix E. Appendix F is the revised 2006 303(d) list.

2 Listing Policy and Evaluation Criteria

The proposed 2008 303(d) list of impaired water bodies in the San Francisco Bay Region was developed in accordance with the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (listing policy) (SWRCB 2004). The listing policy establishes a standardized approach for developing California's section 303(d) list. It outlines an approach that provides the rules for making listing decisions based upon different kinds of data and establishes a systematic framework for statistical analysis of water quality data. The listing policy also establishes requirements for data quality, data quantity, and administration of the listing process. Decision rules for listing and delisting are provided for: chemical-specific water quality standards; bacterial water quality standards; health advisories; bioaccumulation of chemicals in aquatic life tissues; nuisances such as trash, odor, and foam; nutrients; water and sediment toxicity; adverse biological response; and degradation of aquatic life populations and communities.

Listing and delisting decisions were made in accordance with the listing policy, using all applicable narrative and numeric water quality criteria contained in the San Francisco Bay Basin Plan and in the California and National Toxic Rules. The listing policy specifies the frequency of exceedance of applicable water quality objectives that is necessary to make a determination that the water is impaired. When applying narrative water quality criteria, staff used guidelines developed by the U.S. EPA and other government agencies together with findings published in the scientific peer-reviewed literature to interpret data and evaluate the water quality conditions.

3 Information Received and Analyzed

3.1 Data solicitation

Federal regulation [(40 CFR § 130.7(b)(5)] states that "Each State shall assemble and evaluate all existing and readily available water quality-related data and information" when developing the 303(d) list. In December 2006, Water Board staff solicited the public to submit any and all water quality data to be considered in preparation of the 2008 303(d) list and 305(b) report. This solicitation established a data submittal deadline of February 28, 2007. On January 30, 2007, staff transmitted a notice clarifying that there were no limits on the type or format of data and information that the public could provide to the Water Boards for their assessment. The notices provided to the public can be found in Appendix A of this report.

Appendix B contains a summary of the data and information submitted to the Water Board for consideration in the 2008 303(d) listing process. We received 15 submissions in response to the data solicitation, including multiple requests to list water bodies, two requests to delist and/or not to list water bodies as well as data sets without any accompanying request to list or delist. Water Board staff evaluated the submitted data in accordance with the listing policy, taking into account spatial and temporal representativeness and quality (Appendix B). The submissions and listing requests covered four major categories of pollutants and stressors including (1) trash; (2) general water quality parameters such as dissolved oxygen and temperature; (3) nutrients and biostimulatory substances; and (4) suspended solids, sedimentation /siltation.

3.2 Data analysis and recommendations

The assessment process began by identifying and compiling all readily available water quality data as described above. Then, staff systematically reviewed these data sets. Due to the relatively limited number of data sets identified through the solicitation process, much of the effort focused on reviewing the available data collected by the Surface Water Ambient Monitoring Program (SWAMP) and the Regional Monitoring Program (RMP). Staff also developed an approach for interpreting the photographic and narrative documentation for trash relative to applicable water quality standards, consistent with the listing policy.

The SWAMP data include field surveys of water column chemistry, sediment chemistry, sediment toxicity, and water toxicity data as well as ancillary data on factors such as flows, biological community and physical habitat indicators. SWAMP was designed to provide information necessary to effectively manage the State's water resources and, subsequently, facilitate assessment of water quality under sections 305(b) and 303(d) of the Clean Water Act. Objectives of the program include: (1) assessing the physical, chemical, and biological condition of water bodies in the region in order to determine if water bodies are impaired and beneficial uses are being protected; (2) generating data and information during different seasonal conditions; and (3) generating data and information that is somewhat evenly distributed across a water body to provide a screening level assessment of water quality. These objectives ensure that the SWAMP data meet all quality requirements of the Listing Policy.

For the purpose of analyzing the data and developing the proposed revisions to the 303(d) list, the Listing Policy recommends a "line of evidence" approach to establish both whether a water body is impaired and what pollutant is causing the impairment. The lines of evidence in support of listing and/or delisting decisions for each affected water body are summarized in a water body-specific fact sheet (Figure 1, Appendix C). Fact sheets were developed for each water body for which sufficient data were available to evaluate during the review.

3.2.1 SWAMP data evaluation

Over the 5-year period (2001 – 2005) SWAMP conducted water quality monitoring in 37 watersheds in the region (SFBRWQCB 2007c, 2007d). Data were collected at multiple locations within each water body over three hydrologic cycles including the wet season (January through March), the spring/decreasing flow season (April through May) and the dry season (June through October). Altogether data from over 190 sampling locations were evaluated. Selected sites in each water body were sampled to determine benthic macroinvertebrate assemblages, temperature, dissolved oxygen, nutrients, trace metals, trace organic compounds, toxicity, and coliforms. Temporal variability in basic water quality (temperature, dissolved oxygen (DO), pH, and specific conductance) was determined by continuous deployment of field measurement devices. These continuous deployments typically lasted one to two weeks and were conducted three to four times per year. Water, sediment and tissue samples that were collected were analyzed to determine concentrations of more than 230 constituents.

The first step of the water quality assessment involved screening all the data against the available water quality criteria and guidelines. For pollutants with applicable numeric water quality criteria, the impairment status was evaluated by comparing the concentration data with existing water and sediment objectives and standards contained chiefly in the San Francisco Bay Basin Plan, California and National Toxic Rules and U.S. EPA guidelines. When only narrative water quality objectives existed, staff identified evaluation guidelines protective of the beneficial use and specified the conditions above which impacts were minimal. Table 1 and Table 2 show a complete list of numeric criteria and evaluation guidelines used in this assessment.

Table 1: Water quality thresholds for 303(d) data screening of freshwater creeks for selected beneficial uses including aquatic life, municipal and domestic supply (MUN), agricultural supply (AGR) and water contact recreation (REC1)

Analyte	*Description of Standard*	*Numeric Limit*	*Units*	*Reference*
Field measures				
Temperature	Maximum, salmonid	24	° C	USEPA, 1977
	7-day mean, coho	14.8	° C	Sullivan *et al.*, 2000
	7-day mean, steelhead	17	° C	Sullivan *et al.*, 2000
Oxygen, dissolved	Minimum, warmwater	5	mg/L	Basin Plan, 2007b
	Minimum, coldwater	7	mg/L	Basin Plan, 2007b
pH	Range	6.5 to 8.5	S.U.	Basin Plan, 2007b
specific conductance	Min for AGR	200	µS	Basin Plan, 2007b
	Max for AGR	3000	µS	Basin Plan, 2007b
	Max for MUN	900	µS	Basin Plan, 2007b
Nutrients				
Ammonia, unionized	Annual median	0.025	mg/L	Basin Plan, 2007b
Nitrate as Nitrogen	Maximum	0.16	mg/L	USEPA, 2000
Phosphorus, Total Phoshorus	Maximum	30	µg/L	USEPA, 2000
Salts – AGR only	***Salt thresholds apply only to waters with AGR beneficial use assigned.***			
Boron	Maximum	0.5	mg/L	Basin Plan, 2007b
Chloride	Maximum	142	mg/L	Basin Plan, 2007b
Metals	***Cadmium, copper, nickel, silver, and zinc values assume a hardness of 100 mg/L CaCO3. Values at other hardness levels must be calculated using formulas in the Basin Plan.***			
Arsenic, dissolved	1-hour average WQO	340	µg/L	Basin Plan, 2007b
	4-day average WQO	150		
Cadmium, total	1-hour average WQO	3.9	µg/L	Basin Plan, 2007b
	4-day average WQO	1.1		
Chromium VI, dissolved	1-hour average WQO	16	µg/L	Basin Plan, 2007b
	4-day average WQO	11		
Copper, dissolved	1-hour average WQO	13	µg/L	Basin Plan, 2007b
	4-day average WQO	9		
Lead, dissolved	1-hour average WQO	65	µg/L	Basin Plan, 2007b
	4-day average WQO	2.5		
Mercury, total	1-hour average WQO	2.4	µg/L	Basin Plan, 2007b
	4-day average WQO	0.025		
Nickel, dissolved	1-hour average WQO	470	µg/L	Basin Plan, 2007b
	4-day average WQO	52		
Selenium, total	4-day average WQO	5	µg/L	Basin Plan, 2007b
	1-hour average WQO	20		
Silver, dissolved	1-hour average WQO	3.4	µg/L	Basin Plan, 2007b
Zinc, dissolved	1-hour average WQO	120	µg/L	Basin Plan, 2007b
	4-day average WQO	120		
Metals -- MUN only	***These Metals thresholds apply only to waters with MUN beneficial use assigned.***			
Manganese, total	Maximum	50	µg/L	Basin Plan, 2007b
Mercury, total	Maximum	2	µg/L	Basin Plan, 2007b
Organics				
PCBs	Freshwater Criterion Continuous Concentration	0.014	µg/L	CTR
Chlorpyrifos	4-day average (chronic)	0.015	µg/L	CVRWQCB, 2006

Analyte	***Description of Standard***	***Numeric Limit***	***Units***	***Reference***
Field measures				
Dacthal (DCPA)	Instantaneous maximum AWQC	14300	µg/L	CVRWQCB. 2008
Diazinon	1-hour average	0.1	µg/L	SFBRWQCB, 2005
Disulfoton (Disyston)	Instantaneous maximum AWQC	0.05	µg/L	CVRWQCB. 2008
Endosulfan	Continuous 4-day average	0.056	µg/L	CTR
	Instantaneous maximum	0.22		CTR
HCH, gamma- (gamma-BHC, Lindane)	Maximum 1-hour average	0.95	µg/L	CTR
Parathion, methyl	Instantaneous maximum AWQC	0.08	µg/L	CDFG
Thiobencarb	Instantaneous maximum AWQC	3.1	µg/L	CDFG
Pathogens – Water Contact Recreation (REC1)				
E. coli (freshwater)	steady state (all areas)	126	MPN /100 mL	US EPA, 1986
	designated beach (max)	235		
Fecal coliform	geometric mean	200	MPN /100 mL	Basin Plan, 2007b
	90th percentile	400		
Total coliform	median	240	MPN /100 mL	Basin Plan, 2007b
	maximum	10000		
Coliforms – MUN only	***MUN thresholds are DOHS recommendations for surface water that serves as drinking water source.***			
Fecal coliform	geometric mean	<20	MPN /100 mL	Basin Plan, 2007b
Total coliform	geometric mean	<100		
Toxicity -- Basin Plan	***Two-sample t-tests (one-tailed, alpha = 0.05) were performed on station data versus control data.***			
For *Ceriodaphnia and Pimephales*, the null hypothesis tested was that the station response was less than (less growth, survival, etc) the control response.		80	%	Basin Plan (2007b) - "There shall be no chronic/acute toxicity in ambient waters." (3.3.18)
For Selenastrum, where we are testing that station responses are greater than (more growth) or less than (less growth) the control, these two-sample tests have an alpha of 0.10.		80	%	

CTR - (Federal Register, Part III; EPA; 40 CFR Part 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule. May 18, 2000)

CDFG - California Department of Fish and Game, Office of Spill Prevention and Emergency Response, Hazard Assessment and Water Quality Criteria documents for pesticides (various dates), http://www.cdpr.ca.gov/docs/sw/hazasm.htm

Table 2: Freshwater sediment quality pollutant thresholds for 303(d) data screening

SQG type:	**Probable effect concentration**		**Threshold effect concentration**		***Reference***
Analyte	*mg/kg*	*µg/kg*	*mg/kg*	*µg/kg*	
Metals					MacDonald et al. 2000
Arsenic	33		9.79		
Cadmium	4.98		0.99		
Chromium	111		43.4		
Copper	149		31.6		
Lead	128		35.8		
Mercury	1.06		0.18		
Nickel	48.6		22.7		
Zinc	459		121		
Organics					MacDonald et al. 2000
Anthracene		845		57.2	
Fluorene		536		77.4	
Naphthalene		561		176	
Phenanthrene		1170		204	
Benz(a)anthracene		1050		108	
Benzo(a)pyrene		1450		150	
Chrysene		1290		166	
Dibenz(a,h)anthracene				33	
Fluoranthene		2230		423	
Pyrene		1520		195	
PAH (total)		22800		1610	
PCB (total)		676		59.8	
Chlordane		17.6		3.24	
Dieldrin		61.8		1.9	
DDD (sum op + pp)		28		4.88	
DDE (sum op + pp)		31.3		3.16	
DDT (sum op + pp)		62.9		4.16	
DDT (total)		572		5.28	
Endrin		207		2.22	
Heptachlor epoxide		16		2.47	
HCH, gamma		4.99		2.37	

Toxicity	***Two-sample t-tests (one-tailed, alpha = 0.05) were performed on station data versus control data.***
For *Hyalella*, the null hypothesis tested was that the station response was less than (less growth, survival, etc) the control response. 80% of the control group was the threshold for sediment toxicity.	Basin Plan (2007b) - "There shall be no chronic/acute toxicity in ambient waters." (3.3.18)

3.2.2 Trash

Trash is not a new problem for the Bay Area, but it is a continuing problem both as an aesthetic nuisance, as a serious threat to aquatic life in tributaries, and as a threat to marine life in estuaries and oceans. Data suggest that plastic from trash persists for hundreds of years in the environment and can pose a threat to wildlife through ingestion, entrapment and entanglement, and this plastic can leach potentially harmful chemicals to the aquatic environment. During the 2002 303(d) listing update effort, staff discussed the water quality impacts associated with trash at some length (SFRWQCB 2001). Water Board staff found that trash threatened water quality in all urban creeks, lakes, and shorelines. Rather than listing all urban creeks at that time, the Water Board urged municipalities to implement trash control measures and assess trash impairments in their jurisdictions and document these assessments in annual reports submitted to the Board. Since 2002, Water Board staff has developed, refined, and implemented (2002 through 2005) a rapid trash assessment method as part of SWAMP (SFBRWQCB 2007a). Other local entities, e.g., the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) also collected trash assessment data. The water quality assessments for trash conducted for this 303(d) update are based on the results of the rapid trash assessment method and interpretation of data submitted by the public using a similar approach.

The data solicitation for this update resulted in the submission of a large quantity of trash-related data and accompanying requests for 303(d) listings. These data consisted mainly of photographs and narrative documentation on the status of trash levels for specific water bodies. In addition to these data, staff compiled and considered rapid trash assessment data collected by SWAMP as well as similar trash assessment data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). The two types of trash data, photographs and trash assessment results, required distinct evaluation methodologies described below. Because there are no numeric water quality criteria for trash, the trash data were reviewed according to the "weight of evidence" guidelines established in section 3.11 of the Listing Policy. After reviewing these data in accordance with the Listing Policy, there were several water bodies for which we did not have compelling evidence to place them on the 303(d) list. These water bodies are identified in Table 3 below. The water bodies recommended for placement on the 303(d) list for trash impairment are identified in Table 4 below, and the lines of evidence are described in detail in Appendix C.

Relevant Beneficial Uses and Water Quality Objectives

Several beneficial uses may be adversely impacted by trash, including recreation, aquatic life, wildlife habitat, and navigation. However, data were not readily available to allow staff to evaluate all beneficial uses possibly impaired by trash. Instead, we focused our review on evaluating impairment of non-contact water recreation (REC-2), and wildlife habitat (WILD) beneficial uses because these uses can be most easily evaluated through review of available trash data. Impairment of REC-2 can be readily evaluated based on the level of trash present. Impairment of WILD can be evaluated based on the level of certain types of trash associated with threat to wildlife, a beneficial use that implicitly includes aquatic life.

Beneficial uses adversely impacted by trash are, in turn, supported by the following set of narrative water quality objectives and basin plan prohibitions. The Basin Plan (Table 4-1,

Prohibition Number 7) prohibits discharge 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." The Basin Plan (Section 3.3.6) also has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Last, the Basin Plan (Section 3.3.13) has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."

Table 3: List of water bodies with insufficient evidence to establish trash impairment

Water Body	Designated/Potential Uses	Supporting Data
Adobe Creek	Non-Contact Recreation and Wildlife Habitat	RTA [1], Photos
Alamitos Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Alhambra Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Arroyo Corte Madera del Presidio	Non-Contact Recreation and Wildlife Habitat	Photos
Arroyo Los Positas	Non-Contact Recreation and Wildlife Habitat	RTA
Arroyo Mocho	Non-Contact Recreation and Wildlife Habitat	RTA
Arroyo Seco	Non-Contact Recreation and Wildlife Habitat	Photos
Barron Basin	Non-Contact Recreation and Wildlife Habitat	RTA
Berryessa Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Calabazas Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Corte Madera Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Lagunitas Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Las Trampas Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Lafayette Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Ledgewood Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Los Gatos Creek	Non-Contact Recreation and Wildlife Habitat	RTA, Photos
McCoy Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Pacheco Slough	Non-Contact Recreation and Wildlife Habitat	Photos
Randall Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Rodeo Creek	Non-Contact Recreation and Wildlife Habitat	RTA
San Gregorio Creek	Non-Contact Recreation and Wildlife Habitat	RTA
San Ramon Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Sulphur Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Thompson Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Upper Penitencia Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Vista Grande Canal	Non-Contact Recreation and Wildlife Habitat	Photos
Walnut Creek	Non-Contact Recreation and Wildlife Habitat	Photos
Wildcat Creek	Non-Contact Recreation and Wildlife Habitat	RTA
Yerba Buena Creek	Non-Contact Recreation and Wildlife Habitat	RTA

[1] RTA – Rapid Trash Assessment

Evaluation of Trash Assessment Results

The Water Board's rapid trash assessment method generates site-specific scores on a scale from 0 to 120, with higher scores indicating cleaner sites. The method also documents the number of pieces of trash per one hundred feet of stream or shoreline, and the rate of return of trash under different hydrologic conditions. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. When repeated several times throughout a year, this procedure allows for the assessment of temporal changes in impairment, usage patterns, and trash deposition rates under wet and dry weather conditions (SFBRWQCB 2007a).

The Rapid Trash Assessment (RTA) method evaluates six parameters of trash impacts (level of trash, number of items found, threat to wildlife, threat to human health, illegal dumping, and trash accumulation). For purposes of determining impairment status, Water Board staff evaluated the magnitudes of the "level of trash" and "threat to aquatic life" parameters. If the "level of trash" parameter score fell in the 'poor condition category' (scores 0-5), REC2 is deemed not supported. According to the RTA, the "poor condition" score corresponds to a level of trash that "distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). This score suggests that the site is being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." SCVURPPP developed a similar "level of trash" parameter that can be interpreted similarly. Water Board staff reason that if there is sufficient trash to "distract the eye on first glance" and there are substantial levels of litter and debris, then the non-contact beneficial use would be impaired.

The second RTA parameter considered is the "threat to aquatic life" category. If this parameter score fell in the 'poor condition' category (scores 0-5), then WILD is deemed not supported. According to the RTA, the 'poor condition' score corresponds to a "large amount (>50 pieces) of transportable, persistent, buoyant litter (such as hard or soft plastics, balloons, styrofoam, cigarette butts); toxic items (such as batteries, lighters, or spray cans); large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."

Water Board staff used the "threat to aquatic life" parameter to assess impairment to wildlife habitat beneficial uses (WILD) because the type of trash measured by this parameter is particularly problematic for wildlife (including aquatic life). The two primary problems that trash poses to wildlife are entanglement and ingestion. 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 is harmful to wildlife because it can cause wounds that can lead to infections or loss of limbs and also cause strangulation, suffocation, drowning, or escape from predators (EPA 2001). Ingestion of trash 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 (EPA 2001).

The Urban Rapid Trash Assessment (URTA) developed by SCVURPPP is a very slightly modified version of the original SWAMP RTA. It was modified to make it easier to apply in

urban creeks, and the way in which category scores are interpreted was also modified. However, the URTA has an identical parameter assessing threat to aquatic life (wildlife) by characterizing the amount of "Transportable, Persistent, Buoyant Litter." If the raw score for this parameter fell in the marginal urban or poor condition category (scores 0-10, corresponding to a count of 76-200 pieces of such litter), then WILD is deemed not supported.

Although Water Board staff only considered the "level of trash" and "threat to aquatic life" parameters for determining impairment status, the SWAMP and SCVURPPP trash assessment methods have four additional parameters that can provide additional information about both the condition and cause of the trash encountered during assessment (SFBRWQCB 2007a). The assessments include a parameter indicating the total number of trash items counted on the 100-foot stream reach, both above and below the high water line. This is an efficient parameter to use to obtain a rough comparison of the trash impacts between sites, but it can be misleading because sometimes trash items are broken into many pieces, thus inflating the count.

The "threat to human health" parameter accounts for the number of items that are dangerous to humans who wade or swim in the water, and the presence of pollutants that could accumulate in fish in the downstream environment, such as mercury. The worst conditions for this parameter have the potential for the presence of dangerous bacteria or viruses, such as with medical waste, diapers, and human or pet waste. The "illegal dumping and littering" parameter relates to direct placement of trash items at a site, with "poor" conditions assigned to sites that appear to be dumping or littering locations based on adjacent land use practices or site accessibility. Finally, the "accumulation of trash" parameter can be used to distinguish trash that is transported from upstream locations from dumped trash. This is accomplished by noting indications of age and transport. Faded colors, silt marks, trash wrapped around roots, and signs of decay suggest downstream transport, indicating that the local drainage system facilitates conveyance of trash to water bodies.

Evaluation of Photographic Evidence for Trash

Nearly 900 photos of trash impacts were submitted and evaluated to make impairment determinations. These photos presented a fundamental impairment assessment challenge. How to interpret what could be seen in the photos relative to beneficial use impairment. The method we employed was to view the photos as if the water body was being assessed according to the RTA procedure. One of the co-authors of the RTA inspected every photograph and attempted to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relates to impairment of REC2 and WILD, respectively. One of the first objectives of this photo inspection was to determine if the quantity and quality of the photos were sufficient to establish these parameter scores. Some photos were not clear enough to accomplish this.

In order to establish that the "Level of Trash" parameter was in the poor condition category, we required that reach-scale (i.e., showing most or all of the reach of the creek being photographed) and close-up photos of stream reaches must demonstrate a similar level of trashiness as the 'poor condition' category of the RTA assessment parameter. In other words, we determined if the visual impression of the photos was consistent with the visual impression the evaluator might have experienced during actual RTA assessments for locations scoring in

the ‘poor condition” category. A similar determination was made for each photo relative to the “threat to aquatic life” parameter.

Spatial and Temporal Representativeness of Trash Impairment

As a general rule, water bodies recommended for inclusion on the 303(d) list for trash are those for which there is evidence of trash problems persisting through space and time. We applied this rule to trash assessment data and photographic data. In order to recommend listing, we typically required both that the water body contain two or more sites that show evidence of trash impairment (according to assessment or photo documentation) and that evidence of trash impairment existed on two or more occasions. There were instances in which a listing recommendation was made based on data for multiple occasions but only at one location if there were no other data available, but these were very rare exceptions. For San Francisco Bay listings, if shoreline or creek mouth sites satisfied these data sufficiency requirements, we recommended that the applicable bay segment be listed. In fact, for the bay segments recommended for listing (Central and Lower), there were at least two shoreline or creek mouth locations with unacceptably high levels of trash (see Appendix C for details).

3.3 Fact sheet development

Water Board staff developed a fact sheet for each water body - pollutant combination that resulted in a listing or delisting recommendation, summarizing the data used to make the decision, the criteria used, and the basic water body characteristics (see Appendix C, D and E). Figure 1 shows a template provided by the State Board and lists all categories of information required to develop a fact sheet and characterize the cause of impairment.

Region:
Water Body Segment:

Pollutant:
Decision: *List/De-List*

Weight of Evidence
RWQCB Staff Recommendation

Line of Evidence:

Fraction:	*Options for this field are none, not recorded, total, dissolved (does not include suspended), and total dissolved.*
Matrix:	*Options for this field are tissue, water, sediment, N/A. This is the monitoring data sample medium.*
Beneficial use(s):	*Find appropriate beneficial use in your Region's Basin Plan.*
Water Quality Objective/Criteria:	*Find in Basin Plan or use CTR or other appropriate water quality objective or criterion and completely cite it here and reference where you found it.*
Evaluation Guideline:	*If the objective is narrative, use the appropriate evaluation guideline and completely cite it here and reference where you found it.*
Data Used to Assess Water Quality:	*Summarize data assessed here. What is the total number of samples? How many of these samples exceed the objective/criterion/guideline?*
Data References:	*Cite the data reference used for this assessment.*
Spatial Representation:	*Where were the samples collected? How many stations, etc?*
Temporal Representation:	*When were the samples collected? What was the sampling timeframe, etc?*
Water Body Specific Information:	*Environmental conditions or factors that might effect data used in assessment [e.g. Fire/Flood/Dry Year event, etc.]*
Data Quality Assessment	*Excellent, good, fair, poor, unknown, and none*
QAPP Information:	*Clearly describe the quality assurance plan or document that applies to the data used for this assessment. Reference the QA plan that was used. For example: "Quality Control for the chemical analysis portion of this study was conducted in accordance with Standard Operating Procedure QAQC001.00 (Segawa, 1995)."*

Figure 1: Fact sheet template for the 303(d) List

4 Listing Decisions

4.1 Proposed additions to the 303(d) list of impaired water bodies

Table 4 shows all proposed additions to the 303(d) list. Much more comprehensive information is available regarding these new proposed listings in the fact sheets provided in Appendix C. Locations of the water bodies evaluated as impaired during the 2008 listing period are shown in Figure 2 and Figure 3.

Table 4: Proposed 2008 additions to 303(d) list of impaired water bodies

Water Body	Beneficial Uses	Pollutant/ Cause of impairment
Almaden Lake	Commercial and Recreational Collection of Fish, Shellfish, or organisms	Mercury (tissue)
Almaden Reservoir	Commercial and Recreational Collection of Fish, Shellfish, or organisms	Mercury (tissue)
Arroyo Las Positas Creek	Warm Freshwater Habitat	Nutrient/Eutrophication Biological Indicators
Arroyo Mocho Creek	Cold Freshwater Habitat (potential)	Temperature
Codornices Creek	Cold Freshwater Habitat	Temperature
Kirker Creek	Warm Freshwater Habitat	Pyrethroids
Mount Diablo Creek	Cold Freshwater Habitat	Water Toxicity
Permanente Creek	Cold Freshwater Habitat	Selenium Water Toxicity
San Leandro Creek Lower	Warm Freshwater Habitat	Chromium VI
San Mateo Creek Lower	Wildlife Habitat	Sediment Toxicity
Stevens Creek	Cold Freshwater Habitat	Temperature
Suisun Creek	Cold Freshwater Habitat	Dissolved Oxygen
	Cold Freshwater Habitat	Temperature
Alameda Creek	Non-Contact Recreation and Wildlife Habitat	Trash
Baxter Creek	Non-Contact Recreation and Wildlife Habitat	Trash
Cerrito Creek	Non-Contact Recreation and Wildlife Habitat	Trash
Codornices Creek	Non-Contact Recreation and Wildlife Habitat	Trash
Colma Creek	Non-Contact Recreation and Wildlife Habitat	Trash
Coyote Creek	Non-Contact Recreation and Wildlife Habitat	Trash

Water Body	Beneficial Uses	Pollutant/ Cause of impairment
Damon Slough	Non-Contact Recreation and Wildlife Habitat	Trash
Grayson Creek	Wildlife Habitat	Trash
Guadalupe River	Non-Contact Recreation and Wildlife Habitat	Trash
Kirker Creek	Wildlife Habitat	Trash
Matadero Creek	Wildlife Habitat	Trash
Permanente Creek	Wildlife Habitat	Trash
Petaluma River	Non-Contact Recreation and Wildlife Habitat	Trash
Rindler Creek	Non-Contact Recreation and Wildlife Habitat	Trash
San Francisco Bay (Central) shoreline	Non-Contact Recreation and Wildlife Habitat	Trash
San Francisco Bay (Lower) shoreline	Non-Contact Recreation and Wildlife Habitat	Trash
San Francisquito Creek	Non-Contact Recreation and Wildlife Habitat	Trash
San Leandro Creek Lower	Non-Contact Recreation and Wildlife Habitat	Trash
San Mateo Creek	Non-Contact Recreation and Wildlife Habitat	Trash
San Pablo Creek	Non-Contact Recreation	Trash
San Tomas Creek	Wildlife Habitat	Trash
Saratoga Creek	Wildlife Habitat	Trash
Sausal Creek	Wildlife Habitat	Trash
Silver Creek	Wildlife Habitat	Trash
Stevens Creek	Wildlife Habitat	Trash
Strawberry Creek	Non-Contact Recreation and Wildlife Habitat	Trash

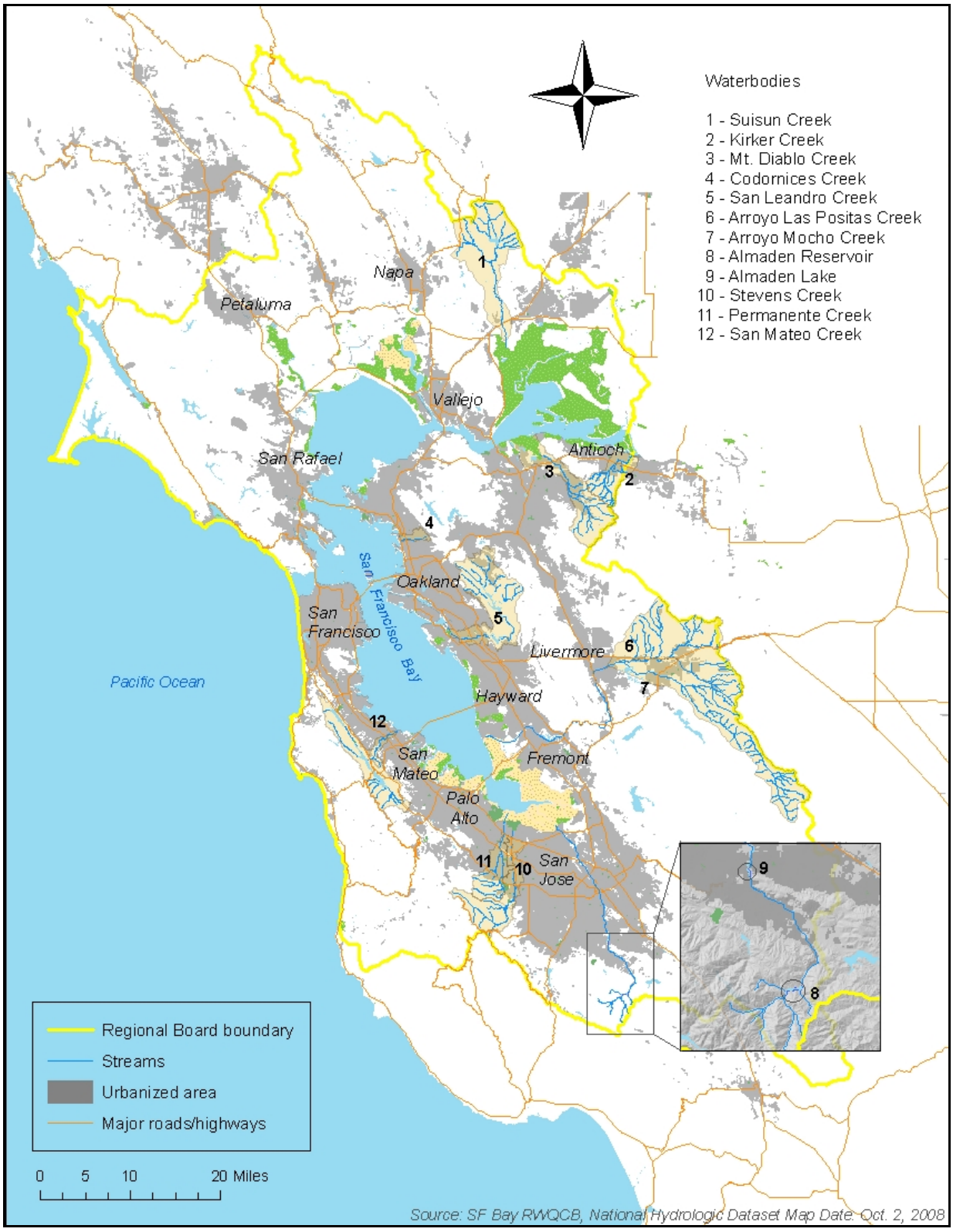

Figure 2: Proposed 2008 new 303(d) listings for toxicants and conventional pollutants

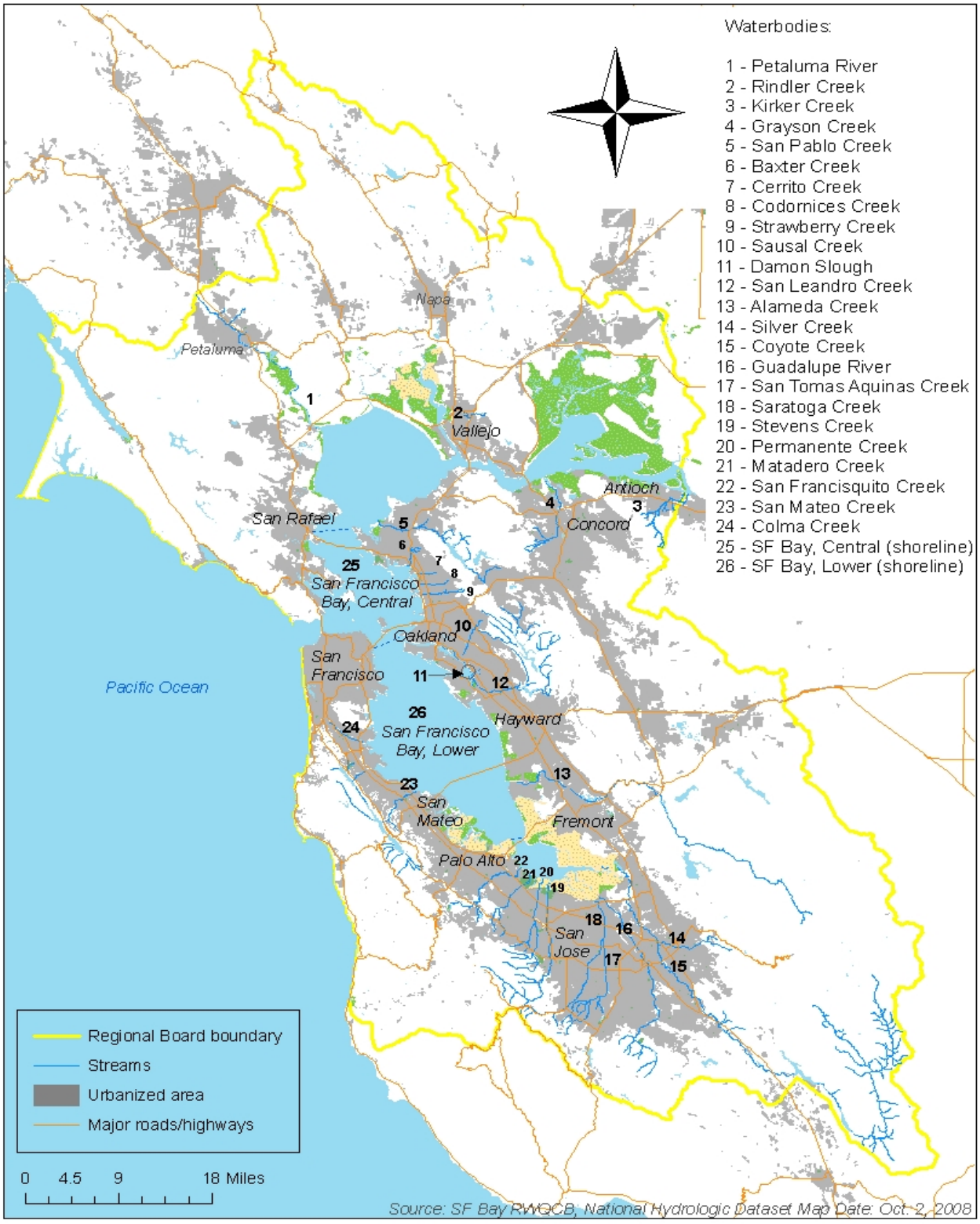

Figure 3: Proposed 2008 303(d) listings for trash

4.2 Proposed delisting and status change

Delist nickel in Sacramento San Joaquin Delta, San Pablo Bay, Suisun Bay

Based on the readily available data and information, there is strong justification for removing these water segment-pollutant combinations from the section 303(d) list in the Water Quality Limited Segments category. The Basin Plan contains nickel water quality objectives of 8.2µg/L as a 4-day average and 74µg/L as a 1-hour average. Data collected by the Regional Monitoring Program and Special Copper/Nickel study from 1993 through 2005 showed that none of the 59 analyzed water samples from the Sacramento San Joaquin Delta exceeded the water quality objectives, none of the 107 analyzed water samples from San Pablo Bay exceeded the water quality objectives, and none of the 96 analyzed water samples from Suisun Bay exceeded the objectives.

Change listing status: Castro Cove, Richmond (San Pablo Basin) - addressed by action other than TMDL

This water body was listed in 2006. Since that time a cleanup and abatement order (Order No. R2-2006-0078) requiring remediation of sediment contamination in the listed portion of Castro Cove was issued. The cleanup action involves removal of contaminated sediment and supports other abatement measures in place, such as the mercury TMDL approved by USEPA on February 12, 2008. Cleanup is underway and upon its completion it is expected that this water body will meet applicable water quality standards.

In November 2007, the Water Board received a Monitoring and Risk Management Plan which includes post-dredging confirmation monitoring to demonstrate that chemical contamination in the sediment has been reduced to levels that no longer pose unacceptable ecological risk. The cleanup completion is scheduled for 2010 and it is expected that this action will attain beneficial uses. Therefore, we recommend that Castro Cove be moved from the 303(d) list requiring a TMDL to the 303(d) list of water bodies being addressed by an action other than a TMDL.

4.3 TMDL schedule

All water body-pollutant combinations on the section 303(d) list are assigned with a proposed TMDL completion date. The maximum time that can elapse between 303(d) listing and TMDL completion is 13 years. Accordingly, we have assigned all new listings a TMDL completion date of 2021. This does not suggest that all new listings have the same priority, but rather that the factors determining TMDL priorities have not yet been evaluated as part of this listing process. These factors will be considered through our continuing planning process and with input from our Board and stakeholders. These factors include:

- Water body significance;
- Severity of pollution;
- Degree of impairment;
- Potential threat to human health and the environment;

- Water quality benefits of ongoing activities in the watershed;
- Potential for beneficial use protection and recovery;
- Degree of public concern;
- Availability of funding; and
- Availability of data and information to address the water quality problem.

4.4 Do-Not-List recommendations

This section presents two categories of water bodies for which a "do not list" decision was made. Table 5 lists good quality waters. For these waters there are sufficient data to determine that at least some beneficial uses are supported and no data are available that suggest non-attainment of beneficial uses. Fact sheets for each of these recommendations are included in Appendix D to this report.

Table 5: Do Not List recommendations: Some beneficial uses supported

Water Body	Designated/Potential Uses	Supporting Data
Easkoot Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen
Pine Gulch Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen
Redwood Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen
Rodeo Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen
Tennessee Valley Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen
Webb Creek	Aquatic Life/ Cold Freshwater Habitat	Benthic macroinvertebrate bioassessment
		Temperature
		Dissolved Oxygen

Table 6 lists water body-pollutant combinations, for which there was insufficient information to determine whether or not water quality standards are being attained. In some cases, there are a small number of water quality standard exceedances, but they are insufficient to demonstrate impairment in accordance with the listing policy. Thus, for these water body-

pollutant combinations, more data should be collected to allow for a definitive determination in a subsequent listing cycle. The fact sheets for these water body-pollutant combinations, other than for trash assessment, are provided in Appendix E.

Table 6: Do Not List recommendations: Insufficient information to determine if beneficial uses are attained

Water Body	Designated/Potential Uses	Supporting Data
Arroyo Viejo Creek	Aquatic Life/ Warm Freshwater Habitat	Toxicity sediment Cr , Cu, As, Ni – sediment
Audubon Canyon Creek	Aquatic Life/ Cold Freshwater Habitat	Nitrate
Codornices Creek	Aquatic Life / Warm Freshwater Habitat	Dissolved oxygen
Glen Echo Creek	Aquatic Life/ Warm Freshwater Habitat	Toxicity sediment Cr, Cu, Pb, Zn – sediment Cu, Pb, Ni, Zn – water
Lion Creek	Aquatic Life/ Warm Freshwater Habitat	Dissolved oxygen
Lobos Creek	Aquatic Life/ Warm Freshwater Habitat	Toxicity water Toxicity sediment
Morses Gulch Creek	Aquatic Life/ Cold Freshwater Habitat	Nitrate
Mt Diablo	Aquatic Life / Warm Freshwater Habitat	Dissolved oxygen
Peralta Creek	Aquatic Life / Warm Freshwater Habitat	Toxicity sediment Pyrethroids Diazinon
Stevens Creek	Aquatic Life / Warm Freshwater Habitat	Dissolved oxygen
Temescal Creek	Aquatic Life/ Warm Freshwater Habitat	Toxicity water Cu, Pb, Ni, Zn – water
Walker Creek	Aquatic Life / Cold Freshwater Habitat	Temperature

4.5 Editorial revisions to the 2006 303(d) list

In addition to the proposed status changing actions, we reviewed and clarified the decision language for water bodies on the 303(d) list adopted in 2006. In particular, careful consideration was given to updating the expected schedules for TMDL completion. In addition, the updated list reflects U.S. EPA approval of TMDLs adopted since the 2006 303(d) list was approved. All of these revisions are editorial in nature and do not change the listing status of any water body. These revisions to the 2006 303(d) list of impaired water bodies are shown in Appendix F.

5 303(d)/305(b) Integrated Report

The 303(d)/305(b) Integrated Report will be prepared by State Board based on the information submitted in this report and similar information prepared by all the other Regions. The Integrated Report will then be submitted to the U.S. EPA. All of the assessments reflected in the Fact Sheets included in this report will be used to determine which category to assign to the evaluated water bodies.

The US EPA defines five non-overlapping categories for use in the integrated assessment (USEPA 2005). These categories include:

Category 1: All designated uses are supported, no use is threatened;

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported (see Table 5 above);

Category 3: There is insufficient available data and/or information to make a use support determination (see Table 6 above);

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed;

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened, and a TMDL is needed (Table 4 above).

The 2008 Integrated Report adopted by State Board will include the 303(d) listing changes approved by the Water Board. Categories 4 and 5 reflect those water bodies placed on the 303(d) list.

6 References

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APPENDIX A

PUBLIC SOLICITATION
for Water Quality Information

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Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Executive Office

Tam M. Doduc, Board Chair
1001 I Street • Sacramento, California 95814 • (916) 341-5615
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5621 • http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

December 4, 2006

To: Interested Persons

NOTICE OF PUBLIC SOLICITATION OF WATER QUALITY DATA AND INFORMATION FOR 2008 INTEGRATED REPORT – LIST OF IMPAIRED WATERS AND SURFACE WATER QUALITY ASSESSMENT [303(d)/305(b)]

This letter initiates the solicitation period to request from interested persons data and information regarding water quality conditions in surface waters of California. Information gathered will be used to provide the basis both for identifying and listing impaired waters and for assessing overall surface water quality conditions in California.

Background Information
Every two years, the State of California is required by federal Clean Water Act section 303(d) and Title 40, Code of Federal Regulations section 130.7 to develop and submit to the U.S. Environmental Protection Agency (USEPA) for approval a list of polluted waters or water quality limited segments (distinct portions of rivers, streams, lakes, ocean waters, etc.). This list is commonly referred to as the "Section 303(d) List" or the "List of Impaired Waters." California's 2006 list has been adopted and is available at: http://www.waterboards.ca.gov/tmdl/303d_lists2006.html. The State Water Board's policy regarding listing criteria may be found at: http://www.waterboards.ca.gov/tmdl/303d_listing.html.

The list includes water bodies not meeting water quality standards (beneficial uses, water quality objectives/criteria and the State's anti-degradation policy) that are not, or are not expected to be, attained with the implementation of technology-based controls. In addition, currently-listed water bodies can be delisted when evidence reveals that such impacts have ceased, impacts never existed, or the water body is meeting water quality standards. As required by federal law, listed water bodies will be scheduled for development of total maximum daily loads (TMDLs) or other appropriate regulatory actions. A TMDL is the total maximum daily load of a pollutant that can be discharged daily into a given water body and still ensure the attainment of applicable water quality standards. In addition, Clean Water Act section 305(b) requires states to submit to USEPA for approval a report assessing statewide surface water quality.

2008 Integrated Report

For the 2008 update, the List of Impaired Waters and the Surface Water Quality Assessment will be combined into an Integrated Report. This Report is due to USEPA by April 1, 2008. The USEPA integrated reporting guidelines can be viewed at: http://www.epa.gov/owow/tmdl/2006IRG/report/2006irg-report.pdf

Development of Integrated Report
Data and information for the 2006 list were submitted to the State Water Resources Control Board (State Water Board). However, for the 2008 update, data and information are to be submitted to each Regional Water Quality Control Board (Regional Water Board), which will then compile and approve regional lists. Enclosure 1 provides Regional Water Board contact information. Enclosure 2 identifies each of the nine Regional Water Boards and some of the major water bodies within each Region. **To be considered in this review process, data and information must be submitted to the appropriate Regional Water Board no later than February 28, 2007.**

The State Water Board will compile the regional lists into a statewide list and consider it for adoption. Following State Water Board adoption, the list will then be combined with the Regions' surface water quality assessments into an Integrated Report, as described above, and submitted to USEPA for approval by April 1, 2008.

Since the data and information gathered in this solicitation will contribute to the preparation of a statewide assessment of surface water quality, please do not limit your data and information submissions to only those data that show standards are not met. Data that show standards are being met should also be submitted, as these data and information are extremely important to a proper understanding of the health of the waters of the State. More detailed information about the overall process and requirements for submitting water quality data and information can be found in Enclosure 3.

The tentative schedule for conducting the review and approval of portions of the Integrated Report is shown below. The schedule may change depending on the amount of data to be assessed and the resources available to perform the assessment.

Activity	Date
Beginning of solicitation period for data and information	December 2006
End of solicitation period for data and information	February 28, 2007
Regional Water Boards' approvals of the regional lists and water quality assessment	September 2007 through December 2007
Submittal of Regional Water Boards' portions of the List and Report to State Water Board	December 2007
State Water Board approval of statewide Integrated Report and submittal to USEPA	April 2008

Should you have questions regarding data or information you wish to submit or about this notice, please contact the respective Regional Water Board contact (see Enclosures 1 and 2). You may also contact Craig J. Wilson at the State Water Resources Control Board at 916-341-5560 (cjwilson@waterboards.ca.gov).

Sincerely,

Thomas Howard
Acting Executive Director

Enclosures

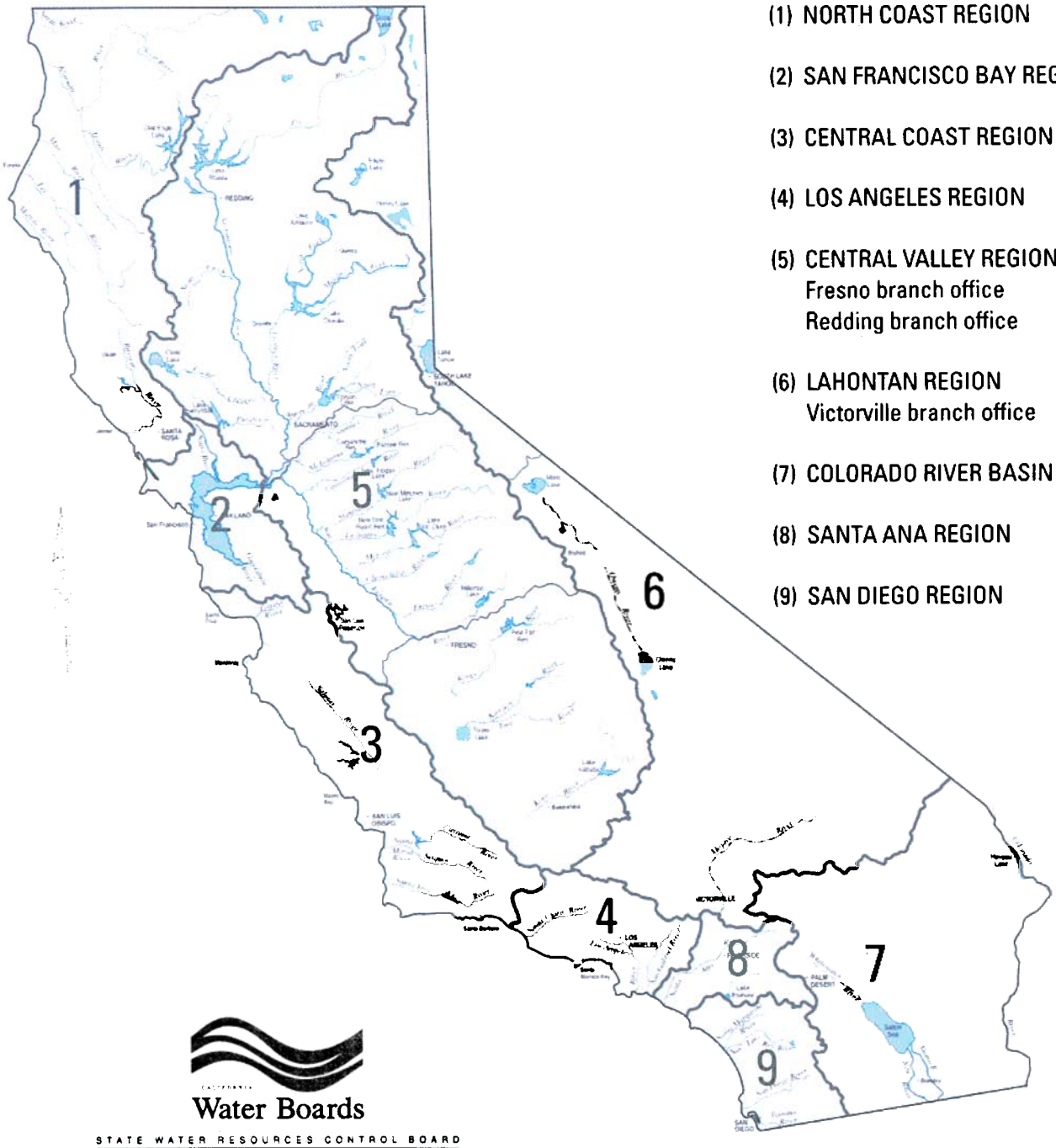
cc: Ms. Alexis Strauss, Director
Water Division (WTR-1)
U.S. Environmental Protection Agency,
Region 9
75 Hawthorne Street
San Francisco, CA 94105

All Regional Water Quality Control Boards

Regional Water Board Contacts
Integrated Report (List of Impaired Waters and Surface Water Quality Assessment)

Regional Water Board	Regional Water Board Address	Contact Name Phone Number e-mail address
(1) North Coast	5550 Skylane Blvd., Suite A Santa Rosa, CA 95403	Bruce Gwynne 707-576-2661 bgwynne@waterboards.ca.gov
(2) San Francisco Bay	1515 Clay St., Suite 1400 Oakland, CA 94612	Naomi Feger 510-622-2328 nfeger@waterboards.ca.gov
(3) Central Coast	895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401	Mary Adams 805-542-4768 madams@waterboards.ca.gov and Lisa McCann 805-549-3132 lmccann@waterboards.ca.gov
(4) Los Angeles	320 W. Fourth Street, Suite 200 Los Angeles, CA 90013	Deborah Neiter 213-576-6783 dneiter@waterboards.ca.gov
(5) Central Valley	11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114	Gene Davis 916-464-4687 gmdavis@waterboards.ca.gov and Joe Karkoski 916-464-4668 jkarkoski@waterboards.ca.gov
(6) Lahontan	2501 Lake Tahoe Blvd. So. Lake Tahoe, CA 96150	Judith Unsicker 530-542-5462 junsicker@waterboards.ca.gov
(7) Palm Desert	73-720 Fred Waring Drive, Suite 100 Palm Desert, CA 92260	Logan Raub 760-776-8966 lraub@waterboards.ca.gov
(8) Santa Ana	3737 Main Street, Suite 500 Riverside, CA 92501-3348	Pavlova Vitale 951-782-4920 pvitale@waterboards.ca.gov
(9) San Diego	9174 Sky Park Ct., Suite 100 San Diego, CA 92123-4340	Lesley Dobalian 858-637-7139 ldobalian@waterboards.ca.gov and Julie Chan 858-627-3926 jchan@waterboards.ca.gov

California Regional Water Quality Control Boards



(1) NORTH COAST REGION

(2) SAN FRANCISCO BAY REGION

(3) CENTRAL COAST REGION

(4) LOS ANGELES REGION

(5) CENTRAL VALLEY REGION
Fresno branch office
Redding branch office

(6) LAHONTAN REGION
Victorville branch office

(7) COLORADO RIVER BASIN REGION

(8) SANTA ANA REGION

(9) SAN DIEGO REGION

Water Boards

STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Specific information regarding this solicitation and the ensuing section 303(d) Listing/Delisting process:

1 The Regional Water Boards will utilize the existing statewide policy, "Water Quality Control Policy for Developing California's Clean Water Act section 303(d) List" (Listing Policy) to guide the solicitation, review, and assessment of supporting data and information and to decide which candidate water bodies are to be placed on or removed from the section 303(d) List. All readily available data and information submitted pursuant to this solicitation will be reviewed and assessed using the Listing Policy. Requirements for data and information specified in the Listing Policy — including those for quality control and assurance, temporal and spatial characteristics, and minimum sample sizes — will be followed when reviewing all data and information. The Listing Policy may be viewed at: http://www.waterboards.ca.gov/tmdl/303d_listing.html.

2. Any person including, but not limited to, private citizens, public agencies, local, State, and federal governmental agencies, non-profit organizations, and businesses possessing information regarding the quality of the State's waters, may contribute data and information pursuant to this solicitation. Data submitted may be in electronic format (see 6. and 7. below), narrative form (see 8. below) or photographic form (see 9. below).

3. All new available data and information will be considered. The following data need not be submitted to the Regional Water Boards for consideration:

    a. Data submitted as part of the 2006 section 303(d) List update;
    b. Data that are already in the Regional Water Boards' files (e.g., data submitted as part of a discharger's monitoring and reporting program). Note that data from State and federal agencies (e.g., the United States Geological Survey (USGS), the California Department of Pesticide Regulation, etc.) also need not be submitted, as the Regional Water Boards will be soliciting data from these agencies directly.

4. All new data and information must be received by the respective Regional Water Board (see Enclosures 1 and 2) by the close of business on February 28, 2007. Please note that any information received after February 28, 2007 will not be used for the 2008 section 303(d) List or for compiling the section 305(b) Report, but will be considered in developing the 2010 section 303(d) List and section 305(b) Report.

5. Any interested person may request reassessment of a water body on the existing section 303(d) List. The interested person must:

    a. Describe the reason(s) the listing is inappropriate and clearly state the reason the interested party would come to a different outcome, and
    b. Provide the data and information necessary to enable the Regional Water Board to conduct a complete reassessment.

6. Information (see 10. and 12. below) submitted should include the following

    a. The name of the person or organization providing the information;
    b. The name of the person certifying the completeness and accuracy of the data and information and a statement describing the standard's exceedances;
    c. Mailing address, telephone numbers, and email address of a contact responsible for answering questions about the information submitted;
    d. Identification of any specific software used to format the information and definitions for any codes or abbreviations used, if applicable;
    e. Bibliographic citations for all published information provided;

f. If computer model outputs are included in the information, provide bibliographic citations and specify any calibration and quality assurance information available for the model(s) used; and
g. The name and exact area of the water body the information concerns, including:

    i. Geographical Information System (GIS) data files (ArcGIS mxd or ArcView shapefiles); or
    ii. Very clear hard copy maps indicating the area the information concerns; (e.g., mark sample location on a USGS 7.5 minute topographic quad map along with the quad sheet name); or
    iii. Provide location latitude/longitude; and
    iv. Metadata for any GIS data must be included. The metadata must detail all the parameters of the projection, including datum.

7. Data (see 11. and 12. below) submitted should contain the following:

    a. To the extent feasible, all data submitted must be submitted in electronic form, i.e., in spreadsheet, database, or ASCII formats;
    b. A hard-copy of all data submitted should also be provided;
    c. References to Web sites will not be accepted *in lieu* of the actual data;
    d. Metadata for the field and lab data, i.e., when measurements were taken (date and time), locations (unique site code, latitude and longitude, and water body name), number of samples, analytes, units of measurement, methods, detection limits, and other relevant factors;
    e. The name and exact area of the water body the information concerns, including:

        i. GIS data files (ArcGIS mxd or ArcView shapefiles); or
        ii. Very clear hard copy maps indicating the area the information concerns; (e.g., mark sample locations on a USGS 7.5 minute topographic quad map along with the quad sheet name); or
        iii. Provide location latitude/longitude; and
        iv. Metadata for any GIS data must be included. The metadata must detail all the parameters of the projection, including datum.

    f. A copy of the quality assurance procedures including a Quality Assurance Project Plan (QAPP). A QAPP or equivalent document must be available and contain, at a minimum, the following:

        i. Objectives of the study, project, or monitoring program;
        ii. Methods used for sample collection and handling;
        iii. Field and laboratory measurement and analysis;
        iv. Data management, validation, and recordkeeping (including proper chain of custody) procedures;
        v. Quality assurance and quality control requirements;
        vi. A statement certifying the adequacy of the QAPP (plus name of person certifying the document); and
        vii. A description of personnel training.

    g. A site-specific or project-specific sampling and analysis plan for numeric data should also be available containing the following:

        Data quality objectives or requirements of the project;
        A statement that data quality objectives or requirements were achieved;

iii. Rationale for the selection of sampling sites, water quality parameters, sampling frequency and methods that assure the samples are spatially and temporally representative of the surface water and representative of conditions within the targeted sampling timeframe; and
iv. Documentation to support the conclusion that results are reproducible.

h Data from citizen volunteer water quality monitoring efforts require the name of the group and indication of any training in water quality assessment completed by members of the group. Data submitted by citizen monitoring groups should meet the data quality assurance procedures as detailed in the Listing Policy - section 6.1.4 and as shown above (7.g.).

8. For narrative and qualitative submittals, the submission must:

a. Describe events or conditions that indicate impacts on water quality;
b. Provide linkage between the measurement endpoint (e.g., a study that may have been performed for some other purpose) and the water quality standard of interest;
c. Be scientifically defensible;
d. Provide analyst's credentials and training;
e. Be verifiable by the State Water Board or Regional Water Board; and
f. Identify the name and exact area of the water body the narrative or qualitative information concerns, including:

i. GIS data files (ArcGIS mxd or ArcView shapefiles); or
ii. Very clear hard copy maps indicating the area the information concerns; (e.g., mark sampling locations on a USGS 7.5 minute topographic quad map along with the quad sheet name); or
iii. Provide location latitude/longitude; and
iv. Metadata for any GIS data must be included. The metadata must detail all the parameters of the projection, including datum.

9. For photographic documentation, the submission must:

a. Identify the date and time;
b. Identify the name and exact area of the water body the narrative or qualitative information concerns, including:

i. GIS data files (ArcGIS mxd or ArcView shapefiles); or
ii. Very clear hard copy maps indicating the area the information concerns; (e.g., mark photographic locations on a USGS 7.5 minute topographic quad map along with the quad sheet name); or
iii. Provide location latitude/longitude; and
iv. Metadata for any GIS data must be included. The metadata must detail all the parameters of the projection, including datum.

c. Provide a thorough description of photograph(s);
d. Describe the spatial and temporal representation of the photographs;
e. Provide linkage between photograph-represented condition and condition that indicates impacts on water quality;
f. Provide photographer's rationale for area photographed and camera settings used; and
g. Be verifiable by the State Water Board or Regional Water Board.

10. For purposes of this solicitation, "information" includes any documentation that a water body is or is not meeting, or is or is not likely to meet, existing water quality standards (i.e., beneficial uses of water, water quality objectives/criteria, and the State's non-degradation policy as listed

in the State's Water Quality Control Plans [Basin Plans], statewide water quality control plans [e.g., the California Ocean Plan], the California Code of Regulations, and pertinent federal laws and regulations).

11 "Data" are considered to be numeric information (i.e., measurements of specific physical, chemical, or biological characteristics in aquatic environments).

12. Data and information provided may pertain to individual water body segments, entire water bodies, or whole watersheds.

13. The section 303(d) List and the section 305(b) Report update efforts are not designed, intended, or able to change existing water quality standards. Persons interested in recommending changes to existing water quality standards should contact the respective Regional Water Board.

14. Please send all data and information to the respective Regional Water Board office. **Submittals should be addressed to the attention of the Regional Water Board contact listed in Enclosure 1.**

State Water Resources Control Board

Executive Office

Linda S. Adams
Secretary for
Environmental Protection

Tam M. Doduc, Board Chair
1001 I Street • Sacramento, California 95814 • (916) 341-5615
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5621 • http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

January 30, 2007

To: Interested Persons

CLARIFICATION OF NOTICE OF PUBLIC SOLICITATION OF WATER QUALITY DATA AND INFORMATION FOR 2008 INTEGRATED REPORT – LIST OF IMPAIRED WATERS AND SURFACE WATER QUALITY ASSESSMENT [303(d)/305(b)]

The intent of this letter is to clarify the Notice dated December 4, 2006 regarding the 2008 integrated report described above. There are no limits on the data and information that the public can provide to the Regional Water Quality Control Boards (Regional Water Boards) for their assessment as part of the development of the 2008 integrated report. Federal regulation [(40 CFR § 130.7(b)(5)] states that "Each State shall assemble and evaluate all existing and readily available water quality-related data and information to develop the list required by §§ 130.7(b)(1) and 130.7(b)(2)." The Regional Water Boards will accept any and all data and information.

As stated in the Notice dated December 4, 2006, all data previously submitted to the State Water Resources Control Board (State Water Board) for consideration during the 2006 listing cycle need not be re-submitted, as the State Water Board will make the data available to the Regional Water Boards for consideration for the 2008 integrated report. However, even though it is not necessary, the public may also re-submit such data.

Furthermore, Enclosure 3 of the Notice dated December 4, 2006 contained suggestions and staff preferences for format of data submittals. It was not then, and is not now, the intent of the State Water Board to limit submittals to these format suggestions. The Regional Water Boards will also accept Web addresses that link to actual data. As stated above and in the Notice dated December 4, 2006, all data will be considered.

Should you have questions regarding this clarification, please contact the respective Regional Water Board contact (see Enclosure). You may also contact Craig J. Wilson at the State Water Board at 916-341-5560 (cjwilson@waterboards.ca.gov).

Sincerely,

Thomas Howard
Acting Executive Director

Enclosure

cc: Ms. Alexis Strauss, Director
Water Division (WTR-1)
U.S. Environmental Protection Agency,
Region 9
75 Hawthorne Street
San Francisco, CA 94105

All Regional Water Quality Control Boards

Regional Water Boards
Section 303(d) List and Section 305(b) Report Contacts

Regional Water Board	Regional Water Board Address	Contact Name Phone Number e-mail address
(1) North Coast	5550 Skylane Blvd., Suite A Santa Rosa, CA 95403	Bruce Gwynne 707-576-2661 bgwynne@waterboards.ca.gov
(2) San Francisco Bay	1515 Clay St., Suite 1400 Oakland, CA 94612	Naomi Feger 510-622-2328 nfeger@waterboards.ca.gov
(3) Central Coast	895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401	Mary Adams 805-542-4768 madams@waterboards.ca.gov and Lisa McCann 805-549-3132 lmccann@waterboards.ca.gov
(4) Los Angeles	320 W. Fourth Street, Suite 200 Los Angeles, CA 90013	Deborah Neiter 213-576-6783 dneiter@waterboards.ca.gov
(5) Central Valley	11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114	Gene Davis 916-464-4687 gmdavis@waterboards.ca.gov and Joe Karkoski 916-464-4668 jkarkoski@waterboards.ca.gov
(6) Lahontan	2501 Lake Tahoe Blvd. So. Lake Tahoe, CA 96150	Judith Unsicker 530-542-5462 junsicker@waterboards.ca.gov
(7) Palm Desert	73-720 Fred Waring Drive Suite 100 Palm Desert, CA 92260	Logan Raub 760-776-8966 lraub@waterboards.ca.gov
(8) Santa Ana	3737 Main Street, Suite 500 Riverside, CA 92501-3348	Pavlova Vitale 951-782-4920 pvitale@waterboards.ca.gov
(9) San Diego	9174 Sky Park Ct., Suite 100 San Diego, CA 92123-4340	Lesley Dobalian 858-637-7139 ldobalian@waterboards.ca.gov and Julie Chan 858-627-3926 jchan@waterboards.ca.gov

APPENDIX B

SUMMARY OF DATA RECEIVED AND DATA QUALITY EVALUATION

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Summary of Data Received
as a Result of Solicitation Process in February 2007

REQUESTS TO LIST					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
Urban Creeks – Santa Clara Basin Adobe Creek, Alamitos Creek, Barron Creek, Berryessa Creek, Calabazas Creek, Coyote Creek, El Camino Storm Drain Channel, Guadalupe River, Los Gatos Creek, Silver Creek, Matadero Creek, Penitencia Creek, Permanente Creek, Randall Creek, Rodeo Creek, San Francisquito Creek, San Tomas Creek, Saratoga Creek, Stevens Creek, Thompson Creek	**Trash**	**SCURPPP:** Santa Clara Urban Runoff Pollution Prevention Program Photographic and narrative documentation of creeks impacted by trash including additional physical, chemical and biological data	1-3 locations on each water body	Data collected 1 to 3 times per location from 2004 through 2006	High – Quantitative Trash Assessment Methodology documented in separate report
Guadalupe River, Los Gatos Creek, Richmond Marsh, San Rafael Creek, Wildcat Creek, Stevens Creek	**Trash**	**Save the Bay** Photographic documentation and estimates of trash loads	1-4 locations on each water body	Data collected in January and February 2007	Medium – Quantitative assessment based on photographic documentation
Guadalupe River, Coyote Creek	**Trash**	**GCRCD**: Guadalupe-Coyote Resource Conservation District Photographic and narrative documentation of trash, debris, channel blockages, encampments and dumping	5 locations on Coyote Creek and 1 location on Guadalupe River	Data collected in March 2002, May 2005, and May 2006	Medium – Quantitative assessment based on photographic documentation
Bay area storm drain channels, creeks, wetlands and San	**Trash/Gross pollutants**	Roger B. James & Lawrence P. Kolb	1-5 locations on each water body	Data collected mainly in winter months from 1997-	Medium – Quantitative

REQUESTS TO LIST					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
Francisco Bay Damon Slough, Eastshore Park, Strawberry Creek, Temescal Creek, Adobe Creek, Alameda Creek, Alhambra Creek, Arroyo Seco, Coyote Creek, Richardson Bay shoreline, Aquatic Park Lagoon, Calabazas Creek, Colma Creek, Corte Madera Creek, Middle Harbor Park shoreline, Frontage Road Beach, Grayson Creek, Guadalupe River, Lafayette Creek, Lake Merritt, Las Trampas Creek, Ledgewood Creek, Matadero Creek, McCoy Creek, Pacheco Slough, Rindler Creek, San Leandro Creek, San Mateo Creek, San Rafael Creek, San Pablo Creek, San Ramon Creek, San Tomas Aquino Creek, Sausal Creek, Stevens Creek, Sulphur Creek, Vista Grande Canal, Walnut Creek, 54th Ave. Creek (tidal near Oakport)		Photographic and narrative documentation over a 10-year period		2007, majority in 2006 and 2007	assessment based on photographic documentation
Rodeo Creek	**Sediment**	**Muir Heritage Land Trust** No quantitative data, geomorphic assessment and creek analysis (*Geomorphic and Hydrologic Assessment of Fernandez Ranch* prepared by Watershed Sciences	N/A	N/A	No data submitted

REQUESTS TO LIST					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
Willow Creek (tributary of Wildcat Creek near Saratoga)	**Sediment**	Margaret Giberson of Los Gatos	Willow Creek	N/A	No data submitted. Old photographs (1985-1991, 2002) of sediment runoff
San Francisco Bay – areas adjacent to dredge material disposal sites	**Suspended sediment**	Fred Krieger of Berkeley Narrative evidence and references to USGS mapping, SFEI assessments of sediment loadings, RMP data and Herring White Paper	San Francisco Bay	N/A	No data submitted
Abbotts Lagoon and associated tributaries in Point Reyes National Park	**Biostimulatory substances, dissolved oxygen, un-ionized ammonia**	Fred Krieger of Berkeley Link to the USGS report http://pubs.usgs.gov/sir/2005/5261/sir_2005-5261.pdf *Assessment of Hydrologic and Water Quality Data Collected in Abbotts Lagoon Watershed, Point Reyes National Seashore, California, during Water Years 1999 and 2000*	Eleven monitoring locations including 3 locations in Abbotts Lagoon and 8 locations in unnamed tributaries draining into Abbotts Lagoon	Old data collected from November 1998 through August 1999. Quarterly sampling at the 3 lagoon sites and one perennial tributary and sampling of two storm events at several tributary sites	Old data. Medium quality – limited quality control procedures
Lake Chabot and its tributary Rindler Creek (Solano County)	**Trash, dissolved oxygen, sediment**	**Friends of Lake Chabot** Data not submitted, reference made to the data collected by the Vallejo Sanitation and Flood Control District	N/A	N/A	No data submitted
California Ocean Waters	**Carbon dioxide**	**Center for Biological**	N/A	N/A	No numerical data

REQUESTS TO LIST					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
		Diversity No data submitted. Scientific papers and supporting documentation on acidification of ocean waters			submitted

REQUESTS NOT TO LIST / DE-LIST / OTHER					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
Lake Merced	**Dissolved oxygen, pH**	**San Francisco Public Utilities Commission** Data submitted in support of not listing Lake Merced on the 303(d) list	Four monitoring locations in Lake Merced including 2 locations in South Lake Merced and 1 location in North and 1 in North East section of the lake.	DO and pH measured from 4 to 8 times a year over a period from 05/27/2004 to 12/20/2006	Quality control procedures unknown
Lake Del Valle Reservoir	**Basic water quality, conventional chemistry, E. coli, Total coliform, Giardia and Cryptosporidium**	**Alameda Food Control and Water Conservation District** Data submitted to document good quality of the drinking water supply. Request to modify the current 303(d) listing of the reservoir for Hg and PCBs to state that there is no threat to treated drinking	Seven monitoring locations at 3 water bodies - including 3 locations at the Lake Del Valle and 4 locations at major inputs to the South Bay Aqueduct	Samples collected from December 2005 through March 2006	Description of the QA/QC protocols not included

REQUESTS NOT TO LIST / DE-LIST / OTHER					
Water Body	**Pollutant/ Water quality parameter**	**Data Source**	**Spatial Representation**	**Temporal Representation**	**Data Quality**
		water supply.			
San Francisco Bay	**Selenium**	**Western State Petroleum Association** Request to de-list Literature review and interpretation of selenium concentration data in San Francisco Bay and the likely toxicological effects of selenium.	N/A	N/A	RMP data available – high quality
Mount Diablo Creek	**Temperature, dissolved oxygen, pH, conductivity, bacteria**	**Friends of Mount Diablo Creek** Data provided for ongoing assessment of Mount Diablo Ck.	Six sampling locations (3 sites on the main stem of Mount Diablo Ck and 3 sites on the local tributaries)	Physico-chemical parameters measured monthly from March 2006 through February 2007. E coli and total coliforms measured at 3 sites in July and August 2006	QA/QC protocols included
N/A	**Pesticides**	**DPR**[1]: Department of Pesticide Regulation - links to the Surface Water Database containing pesticides data for California waterways. **No specific data submitted.**	Contra Costa, San Mateo, Solano and Santa Clara County,	Old data (1992-1998)	High

[1] The database comprises a limited amount of pesticide data (diazinon, chloropyrifos, diuron, metha diuron) collected more than 10 years ago from 12 creeks within Region 2 boundaries. In 2005 the Water Board adopted a Water Quality Attainment Strategy and TMDL for Diazinon and Pesticide-Related Toxicity in Urban Creeks that addressed the observed pesticide impairment in all urban waterways within the Region 2. The TMDL was subsequently approved by the State Board and the U.S. EPA.

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APPENDIX C

WATERBODY FACT SHEETS
Supporting New 303(d) Listing and Delisting Recommendations

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Proposed 2008 303(d) listings

Water Body	Pollutant(s)
Alameda Creek	Trash
Almaden Lake	Mercury (tissue)
Almaden Reservoir	Mercury (tissue)
Arroyo Las Positas	**Nutrient/Eutrophication Biological Indicators** [Benthic-Macroinvertebrate Bioassessments Dissolved Oxygen Saturation | Low Dissolved Oxygen | Nitrate]
Arroyo Mocho	Temperature
Baxter Creek (Contra Costa County)	Trash
Cerrito Creek	Trash
Colma Creek	Trash
Codornices Creek	Temperature | Trash
Coyote Creek (Santa Clara Co.)	Trash
Damon Slough	Trash
Grayson Creek	Trash
Guadalupe River	Trash
Kirker Creek	Pyrethroids | Trash
Matadero Creek	Trash
Mt. Diablo Creek	Toxicity
Permanente Creek	Selenium | Toxicity | Trash

Petaluma River	Trash
Rindler Creek	Trash
San Francisco Bay, Central (shoreline)	Trash
San Francisco Bay, Lower (shoreline)	Trash
San Francisquito Creek	Trash
San Leandro Creek, Lower	Chromium | Trash
San Mateo Creek	Sediment Toxicity | Trash
San Pablo Creek	Trash
San Tomas Aquinas Creek	Trash
Saratoga Creek	Trash
Sausal Creek	Trash
Silver Creek (Santa Clara County)	Trash
Stevens Creek	Temperature | Trash
Strawberry Creek (Alameda County)	Trash
Suisun Creek	Low Dissolved Oxygen | Temperature

Alameda Creek — Trash

Decision ID: 7612

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence consist of inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. One line of evidence concerns the non-contact recreation beneficial use, and the other line of evidence concerns the wildlife beneficial use. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on a single date. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on a single date.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5339
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Non-Contact Recreation

Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the level of trash and threat to aquatic life parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. Valid results are available for Alameda Creek: Hesperian Blvd. on 1/11/2006, and Ahern Ave. on 1/11/2006. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Archive of Trash Photos for Alameda Creek submitted for 2008 303(d) list consideration Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the

	assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for two different locations in 2006. Both locations scored in the "poor condition" category for the "Level of Trash" parameter.
Temporal Representation:	Photographic evidence was collected for this waterbody in 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5346
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the level of trash and threat to aquatic life parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Alameda Creek: Hesperian Blvd. on 1/11/2006 and Ahern Ave. on 1/11/2006. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Archive of Trash Photos for Alameda Creek submitted for 2008 303(d) list consideration Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in

	concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for two different locations in 2006.
Temporal Representation:	Photographic evidence was collected for this waterbody in 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

Almaden Lake — Mercury (tissue)

Decision ID: 7613

Pollutant: Mercury (tissue)
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for listing under sections 3.5 and 3.1 of the Listing Policy. Under these sections, a single line of evidence is necessary to assess listing status.
One line of evidence is available in the administrative record to assess this pollutant. This line of evidence consists of fish tissue data collected by Tetra Tech, Inc. for the Santa Clara Valley Water District was collected in 2004 to support TMDL efforts in the Guadalupe River Watershed.
Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:
1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The available data satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. 20 of 20 samples exceeded the U.S. EPA fish tissue methylmercury criterion for the protection of human health, and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	5738
Pollutant:	Mercury (tissue)
Subgroup:	Pollutant-Tissue
Beneficial Use:	Commercial or recreational collection of fish, shellfish, or organisms
Matrix:	Tissue
Fraction:	None
Number of Exceedances:	20
Number of Samples:	20
Data Used to Assess Water Quality:	The 20 fish tissue samples were collected in 2004 to support development of the Guadalupe River watershed mercury TMDL. The fish were all largemouth bass ranging in lengths from 305 to 520 mm and weighing between 490 and 2380 grams. The mercury concentrations ranged from 1.1 to 3.78 mg/kg. All 20 fish tissue samples exceeded the criterion.
Data Reference(s):	Technical Memorandum 5.3.2 Data Collection Report, Volume II, prepared by

	TetraTech Inc. for Prepared for Santa Clara Valley Water District. February 8, 2005
Water Quality Objective/Criterion:	The Basin Plan contains the following objective: "Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." In 2001, U.S. EPA adopted a fish tissue methylmercury criterion of 0.3 mg/kg (in whole fish) for the protection of human health.
Water Quality Objective/Criterion Reference(s):	Water Quality Criterion For The Protection of Human Health: Methylmercury 2002 303(d) List Update Reference # 87 San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Evaluation Guideline Reference(s):	
Spatial Representation:	These fish were caught throughout the reservoir, and fish of this size integrate spatially because they consume prey from a wide spatial range.
Temporal Representation:	Fish tissue data were collected for this waterbody in late summer 2004. These adult fish integrate mercury concentrations over several years.
Environmental Conditions:	
QAPP Information:	There is a well-developed QA plan for these data Tetra Tech, Inc. (Tetra Tech) 2003. Technical Memorandum 7.4.2, Quality Assurance Plan, Prepared for Santa Clara Valley Water District. June 13.
QAPP Information Reference(s):	Technical Memorandum 7.4.2, Quality Assurance Plan, Prepared for Santa Clara Valley Water District. June 13

Almaden Reservoir — Mercury (tissue)

Decision ID: 7736

Pollutant: Mercury (tissue)
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for listing under sections 3.5 of the Listing Policy. Under this section, a single line of evidence is necessary to assess listing status.
There is one line of evidence available in the administrative record to assess this pollutant. This evidence is a mercury in fish tissue dataset collected in 2004 by Tetra Tech, Inc. for the Santa Clara Valley Water District to support TMDL efforts in the Guadalupe River Watershed.
Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:
1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The available data satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. 20 of 20 samples exceeded the U.S. EPA fish tissue methylmercury criterion for the protection of human health, and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	5739
Pollutant:	Mercury (tissue)
Subgroup:	Pollutant-Tissue
Beneficial Use:	Commercial or recreational collection of fish, shellfish, or organisms
Matrix:	Tissue
Fraction:	None
Number of Exceedances:	20
Number of Samples:	20
Data Used to Assess Water Quality:	The 20 fish tissue samples were collected in 2004 to support development of the Guadalupe River watershed mercury TMDL. The fish were all largemouth bass ranging in lengths from 330 to 500 mm and weighing between 520 and 2080 grams. The mercury concentrations ranged from 2.16 to 7.35 mg/kg. All 20 fish tissue samples exceeded the criterion.
Data Reference(s):	Technical Memorandum 5.3.2 Data Collection Report, Volume II, prepared by

	TetraTech Inc. for Prepared for Santa Clara Valley Water District. February 8, 2005
Water Quality Objective/Criterion:	The Basin Plan contains the following objective: "Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." The 2001 U.S. EPA adopted a fish tissue methylmercury criterion of 0.3 mg/kg (in whole fish) for the protection of human health.
Water Quality Objective/Criterion Reference(s):	Water Quality Criterion For The Protection of Human Health: Methylmercury 2002 303(d) List Update Reference # 87 San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Evaluation Guideline Reference(s):	
Spatial Representation:	These fish were caught throughout the reservoir, and fish of this size integrate spatially because they consume prey from a wide spatial range.
Temporal Representation:	Fish tissue data were collected for this waterbody in late summer 2004. These adult fish integrate mercury concentrations over several years.
Environmental Conditions:	
QAPP Information:	There is a well-developed QA plan for these data Tetra Tech, Inc. (Tetra Tech) 2003. Technical Memorandum 7.4.2, Quality Assurance Plan, Prepared for Santa Clara Valley Water District. June 13.
QAPP Information Reference(s):	Technical Memorandum 7.4.2, Quality Assurance Plan, Prepared for Santa Clara Valley Water District. June 13

Arroyo Las Positas

Nutrient/Eutrophication Biological Indicators
[Benthic-Macroinvertebrate Bioassessments | Dissolved Oxygen Saturation | Low Dissolved Oxygen | Nitrate]

Decision ID: 7578

Pollutant: Benthic-Macroinvertebrate Bioassessments | Dissolved oxygen saturation | Low Dissolved Oxygen | Nitrate

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.11 of the Listing Policy. Under sections 3.2 and 3.11, water segments shall be evaluated to determine whether the weight of evidence demonstrates that a water quality standard is not attained.
Four lines of evidence are available in the administrative record to assess this pollutant: (1) low dissolved oxygen measurements from continuous dissolved oxygen records, (2) supersaturated dissolved oxygen measurements from continuous dissolved oxygen records, (3) measurements of nitrate as N concentrations in water, and (4) samples of benthic macroinvertebrate assemblages.
Based on the readily available data for this water body, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:
1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Minimum dissolved oxygen measurements were below the warm-water water quality objective of 5 mg/L in 4 out of 9 sampling events. Using table 3.2 of the listing policy, a minimum of 5 exceedances are needed to list this waterbody on the 303(d) list with a minimum sample size of 5. However, additional water quality information indicates that this water body is impaired by low dissolved oxygen levels as a result of widespread eutrophic conditions. Under section 3.11, these additional factors shall be considered in a weight of evidence approach in the decision to list a water body as impaired.

4. Supersaturated dissolved oxygen levels greater than 200% were observed in 5 out of 9 deployments, including a maximum value of 395%, indicating tremendous oxygen production by algae (eutrophication).

5. Eight out of 8 nitrate samples had concentrations greater than the guideline of 0.5 mg/L to prevent nuisance algae growth. Additionally, 8 out of 8 nitrate samples had concentrations greater than the guideline of 2.0 mg/L to protect aquatic life from nitrate toxicity. These high nitrate concentrations can promote the growth of periphyton that can cause nuisance and adversely affect beneficial uses.

6. Benthic macroinvertebrate (BMI) assemblages were significantly altered relative to reference conditions, indicating that controllable water quality factors have resulted in significant alterations in the community ecology of receiving waters. These alterations are most likely the result of low levels of dissolved oxygen, which is a result of eutrophication. Of the 6 sites where BMI were sampled, dissolved oxygen was also measured at 4 sites. Three of these sites had dissolved oxygen levels <5 mg/L.

7. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	4813
Pollutant:	Benthic-Macroinvertebrate Bioassessments
Subgroup:	Population/Community Degradation
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	-N/A
Fraction:	None
Number of Exceedances:	7
Number of Samples:	7
Data Used to Assess Water Quality:	Benthic macroinvertebrates were sampled from 7 sites in the Arroyo Las Positas watershed in April 2001 by the SWAMP program. Benthic macroinvertebrate assemblage metrics were well outside the range of scores for minimally disturbed reference sites. Taxa richness scores at all 7 sampled sites in the Arroyo Las Positas watershed ranged from 11 to 16 taxa, whereas taxa richness values at reference sites ranged from 28 to 59. No taxa that are sensitive to pollution were present in any of the samples, indicating that pollution has resulted in significant alterations of community ecology.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Water Quality Objective Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are outside the range of scores for minimally disturbed reference sites indicate significant alterations in community ecology. Taxa richness values at reference sites sampled by the SWAMP program between 2001 and 2003 ranged from 28 to 59.
Evaluation Guideline Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek.

	Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were sampled from 7 sites throughout the watershed. Five sites were sampled on the main stem of Arroyo Las Positas, and 2 sites were sampled on Altamont Creek, the major perennial tributary of Arroyo Las Positas.
Temporal Representation:	Benthic macroinvertebrates were sampled once in April, 2001.
Environmental Conditions:	Arroyo Las Positas flows west through the eastern Livermore valley before its confluence with Arroyo Mocho in eastern Pleasanton. The lower and middle sections of the stream and Altamont Creek flow through the northern portion of the city of Livermore, a city of 82,000 people. The upper watershed is primarily used for cattle grazing. The main stem of Arroyo Las Positas is almost completely devoid of riparian vegetation as a result of extensive channel alteration.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	4810
Pollutant:	Low Dissolved Oxygen
Subgroup:	Pollutant-Water
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	4
Number of Samples:	9
Data Used to Assess Water Quality:	Data used to evaluate dissolved oxygen were collected by SWAMP in 2002. In 4 out of 9 deployments, minimum dissolved oxygen levels fell below the objective of 5 mg/L. Minimum values were nearly anoxic (0.56 mg/L) at one site in the summer season. Low dissolved oxygen concentrations generally occurred during the night and early morning hours. Continuous depressed levels of dissolved oxygen (< 5.0 mg/L) lasted from over 5 hours (dry season, downstream location) to 12 hours and 45 minutes (dry season, Altamont Creek upstream of confluence with Arroyo Las Positas). Dissolved oxygen levels fell below 5 mg/L during one additional deployment in the upstream section of Arroyo Las Positas. The longest duration of suppressed oxygen levels lasted for over 12 hours and the patterns of dissolved oxygen concentrations at this location followed closely that of Altamont Creek. Although these measurements support the listing decision and indicate that dissolved oxygen levels are the cause of the impairment, they cannot be used directly because of the marginal (by +/- 0.4%) exceedance of the quality assurance requirements.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 5.0 mg/L minimum for waters designated as warm freshwater habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of

	the dissolved oxygen content at saturation.
Water Quality Objective Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at five sites. Three of these sites were located on the mainstem of Arroyo Las Positas, while one site each was located on Altamont Creek and Arroyo Seco, two major tributaries. The lowest dissolved oxygen levels were measured at site ALP105 on Altamont Creek. Low dissolved oxygen levels also occurred in the mainstem of Arroyo Las Positas during the summer season.
Temporal Representation:	The SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in each of three different seasons: winter (March 2002; 3 sites, 1 site meeting quality assurance (QA) requirements), spring (April 2002; 5 sites, 4 sites meeting QA requirements), and summer (late June and late July 2002; 5 sites, 4 sites meeting QA requirements).
Environmental Conditions:	Arroyo Las Positas flows west through the eastern Livermore valley before its confluence with Arroyo Mocho in eastern Pleasanton. The lower and middle sections of Arroyo Las Positas and Altamont Creek flow through the northern portion of the city of Livermore, a city of 82,000 people. The upper watershed is primarily used for cattle grazing. The lowest and highest dissolved oxygen levels were measured in a section of Altamont Creek that contained very high amounts of benthic algae and was located downstream of a golf course and small eutrophic pond. The main stem of Arroyo Las Positas is almost completely devoid of riparian vegetation as a result of extensive channel alteration and incision.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	4811
Pollutant:	Dissolved oxygen saturation
Subgroup:	Pollutant-Water
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	5
Number of Samples:	9
Data Used to Assess Water Quality:	Data used to evaluate dissolved oxygen was collected by SWAMP. Supersaturated dissolved oxygen levels greater than 200% were observed in 5 out of 9 deployments, including a maximum value of 395%, indicating tremendous oxygen production by algae (eutrophication). Supersatured conditions always occurred during the daylight hours. The maximum diurnal range in dissolved oxygen was greater than 30 mg/L, higher than any values ever reported in the literature (Kent et al. 2005).
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board Algal productivity and nitrate assimilation in an effluent dominated concrete lined

	stream. Journal of the American Water Resources Association: 41: 1109-1128.
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota.
Water Quality Objective Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Dissolved oxygen supersaturation above 200 percent results in mortality of fish due to gill and skin lesions from gas bubble disease (Woodbury 1942, Renfro 1963, Weitkamp and Katz 1980).
Evaluation Guideline Reference(s):	A sudden mortality of fishes acoompanying a supersaturation of oxygen in Lake Waubesa, Wisconsin. Trans. Am. Fish. Soc. 71: 112-117 A review of dissolved gas supersaturation literature. Trans. Am. Fish. Soc. 109:659-702 Gas-bubble mortality of fishes in Galveston Bay, Texas. Trans. Am. Fish Soc. 92:320-322
Spatial Representation:	Dissolved oxygen was measured at five sites. Three of these sites were located on the mainstem of Arroyo Las Positas, while one site each was located on the major tributary. The highest dissolved oxygen levels were measured at site ALP105 on Altamont Creek, a major tributary to Arroyo Las Positas.
Temporal Representation:	The SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in each of three different seasons: winter (March 2002; 3 sites, 1 site meeting QA requirements), spring (April 2002; 5 sites, 4 sites meeting QA requirements), and summer (late June and late July 2002; 5 sites, 4 sites meeting QA requirements).
Environmental Conditions:	Arroyo Las Positas flows west through the eastern Livermore valley before its confluence with Arroyo Mocho in eastern Pleasanton. The lower and middle sections of Arroyo Las Positas and Altamont Creek flow through the northern portion of the city of Livermore, a city of 82,000 people. The upper watershed is primarily used for cattle grazing. The lowest and highest dissolved oxygen levels were measured in a section of Altamont Creek that contained very high amounts of benthic algae and was located downstream of a golf course and small eutrophic pond. The main stem of Arroyo Las Positas is almost completely devoid of riparian vegetation as a result of extensive channel alteration and incision.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	4812
Pollutant:	Nitrate
Subgroup:	Pollutant-Water
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	Dissolved
Number of Exceedances:	8
Number of Samples:	8
Data Used to Assess Water Quality:	Eight out of 8 nitrate samples had concentrations greater than 0.5 mg/L. Eight out of 8 nitrate samples also had concentrations greater than 2.0 mg/L. The highest

	concentrations (8.04 mg/L and 6.52 mg/L) occurred at the same site (ALP110; Arroyo Las Positas, just upstream of Altamont Creek) in January and April 2002, and were among the highest nitrate concentrations measured by SWAMP in the SF Bay Region.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota.
Water Quality Objective Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	1. Total nitrogen levels greater than 0.5 mg/L can result in large masses of nuisance algae unless other factors limit algae growth (Bowie et al. 1985; Biggs 2000). Since nitrate is one component of total nitrogen in water, nitrate levels should also be less than 0.5 mg/L. 2. Nitrate (NO3-N) concentrations above 2.0 mg/L can cause toxicity in a variety of freshwater organisms (Camargo et al. 2005).
Evaluation Guideline Reference(s):	Eutrophication of streams and rivers: dissolved nutrient-chlorophyll relationships for benthic algae. J. N. Am. Benthol. Soc. 19:17-31 Rates, Constant, and Kinetics Formulations in Surface Water Quality Modeling, 2nd Edition. EPA/600/3-85/040. USEPA Environmental Research Laboratory, Athens, GA Nitrate toxicity to aquatic animals: a review with new data for freshwater invertebrates. Chemosphere 58:1255-67
Spatial Representation:	Nitrate was sampled at four sites in the watershed, including two main stem sites and two sites on Altamont Creek, an important tributary.
Temporal Representation:	Water samples were collected for nitrate analyses during three sampling events. The same four sites were sampled during each sampling event. Data are evaluated from the January 2002 and April 2002 sampling events only. Laboratory methods used on samples collected during September 2001 did not meet QA requirements, so this data has not been considered.
Environmental Conditions:	Arroyo Las Positas flows west through the eastern Livermore valley before its confluence with Arroyo Mocho in eastern Pleasanton. The lower and middle sections of the stream and Altamont Creek flow through the northern portion of the city of Livermore, a city of 82,000 people. The upper watershed is primarily used for cattle grazing. The main stem of Arroyo Las Positas is almost completely devoi of riparian vegetation as a result of extensive channel alteration and incision.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Arroyo Mocho — Temperature

Decision ID: 7571

Pollutant: Temperature, water
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceed the water quality objective.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Temperature measurements at 6 out of 12 continuous deployments exceeded the 14.8 °C evaluation guideline used to interpret the water quality objective for waters designated as cold water habitat and this exceeds the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	4789
Pollutant:	Temperature, water
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	6
Number of Samples:	12
Data Used to Assess Water Quality:	Comprehensive water quality assessment was conducted at the Arroyo Mocho watershed as part of SWAMP assessment. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at five locations throughout the watershed.

	The measured temperatures ranged from 6.1°C to 27.72 °C and varied with season and location. The 14.8 °C criterion for coho salmon was exceeded in 6 out of 12 continuous temperature deployments and the 17 °C criterion for steelhead was also exceeded in 6 out of 12 deployments. High water temperatures exceeding 24 °C, that is a maximum short exposure temperature for survival of salmonids (EPA 1977) were also measured at three monitoring locations at lower and upper reaches of the Creek during spring and summer seasons. At the monitoring site in the lower reach of the Arroyo Mocho Creek high temperature persisted for up to 5.75 hours during spring while at the middle and upper reach it lasted from 5 to more than 9 hours.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average fish growth compared to optimal conditions.
Evaluation Guideline Reference(s):	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at five sites located on the mainstem of Arroyo Mocho Creek. The highest temperatures were recorded at the monitoring location southeast of Livermore in August 2004. High temperatures also occurred in the lower reach of the Creek during the spring season of 2004.
Temporal Representation:	In 2004 and 2005 the SWAMP Program performed continuous monitoring of temperature at 15 minute intervals for periods of 1-2 weeks in each of three different seasons: winter (5 sites), spring (5 sites), and summer dry season (2 sites).
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Baxter Creek (Contra Costa County) Trash

Decision ID: 7634

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence is available in the administrative record to assess this pollutant. The lines of evidence consist of interpretation of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology to assess both non-contact recreation and wildlife beneficial uses.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.
2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on five different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on five different dates.
3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metrics) in more than one location or on more than one date.
4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5212
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Non-Contact Recreation
Matrix: Not Specified

Fraction:	None
Number of Exceedances:	5
Number of Samples:	8
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2004 and June and August 2005 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in three different locations in 2004 and 2005. Two locations scored in the "poor condition" category for the "Level of

	Trash" parameter associated with this beneficial use.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2004 and June and August 2005.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

LOE ID:	5276
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	8
Number of Samples:	8
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2004 and June and August 2005 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye

	on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in three different locations in 2004 and 2005. Two locations scored in the "poor condition" category for the "Level of Trash" parameter associated with this beneficial use.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2004 and June and August 2005.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Cerrito Creek — Trash

Decision ID: 7635

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. One line of evidence concerns the non-contact recreation beneficial use, and the second concerns the wildlife beneficial use. Both lines of evidence involve interpretation of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.
2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at one location on three different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on three different dates.
3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.
4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5347
Pollutant: Trash
Subgroup: Pollutant-Nuisance

Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and threat to aquatic life (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2004 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams

Spatial Representation:	RTA data were collected for this waterbody in one location in 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

LOE ID:	5349
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for level of trash (relating to REC2) and threat to aquatic life (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2004 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain

	substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in one location in 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Colma Creek — Trash

Decision ID: 7636

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. One line of evidence concerns the non-contact recreation beneficial use, and the second line of evidence concerns the wildlife habitat beneficial use. Both lines of evidence involve inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on three different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on six different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5282
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Wildlife Habitat
Matrix: Not Specified

Fraction:	None
Number of Exceedances:	8
Number of Samples:	8
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Colma Creek: Mitchell Ave. on 12/31/2002, 12/10/03, 1/6/2005, 2/3/2006, 4/1/2006 Utah Ave. Bridge on 1/29/2002, 12/31/2002, 2/3/2006, 4/1/2006 Pedestrian Crossing Bridge on 12/31/2002 There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	Archive of Trash Photos for Colma Creek submitted for 2008 303(d) list consideration Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or

	soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2002 through 2006. Three locations scored in the "poor condition" category for the "threat to aquatic life" parameter.
Temporal Representation:	Photographic evidence was collected for this waterbody on six separate dates from 2003 through 2006. Data from six sampling dates scored in the "poor condition" category for the "Transportable, Persistent, Buoyant Litter" parameter.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5279
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	8
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Colma Creek: Mitchell Ave. on 12/31/2002, 12/10/03, 1/6/2005, 2/3/2006, 4/1/2006 Utah Ave. Bridge on 1/29/2002, 12/31/2002, 2/3/2006, 4/1/2006 Pedestrian Crossing Bridge on 12/31/2002 This waterbody had level of trash parameter scores in the poor category

	(indicating impairment of non-contact water recreational beneficial uses) at more than one location and on three different dates.
Data Reference(s):	Archive of Trash Photos for Colma Creek submitted for 2008 303(d) list consideration Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2002 through 2006. Two locations scored in the "poor condition" category for the "Level of Trash" parameter.
Temporal Representation:	Photographic evidence was collected for this waterbody on six separate dates from 2003 through 2006. Data from three sampling dates scored in the "poor condition" category for the "Level of Trash" parameter.
Environmental Conditions:	

QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

Codornices Creek

Temperature | Trash

Decision ID: 9163

Pollutant: Temperature, water

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceed the water quality objective.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Temperature measurements at 6 out of 11 continuous deployments exceeded the 17 °C evaluation guideline used to interpret the water quality objective for waters designated as cold water habitat and this exceeds the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	8555
Pollutant:	Temperature, water
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	6
Number of Samples:	11
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Codornices Creek watershed as part of SWAMP study in 2004-2005. Continuous field monitoring at 15 minute

	increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at three locations. Continuous monitoring sondes were deployed 11 times at 3 monitoring locations during wet, spring and two dry seasons. The measured temperatures ranged from 8.9°C to 21.5 °C and varied with season and location. During both dry season deployments at all 3 monitoring locations the 7-day mean temperature threshold for steelhead was exceeded. In total, the 17 °C criterion was exceeded in 6 out of 11 deployments. The durations of the temperature exceedances ranged from 19 to over 125 hours.
Data Reference(s):	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Evaluation Guideline Reference(s):	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at three sites located on the mainstem of Codornices Creek that are representative of the entire creek length. The highest temperatures were recorded at the most downstream monitoring station in September 2004.
Temporal Representation:	In 2004 and 2005 the SWAMP Program performed continuous monitoring of temperature at 15 minute intervals for periods of 1-2 weeks in each of three different seasons: winter (3 sites), spring (2 sites), and two summer dry seasons (3 sites each season).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID:	7637
Pollutant:	Trash
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence. One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology. Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. Data have been evaluated that supports this decision. 2. The Rapid Trash Assessment methodology results showed that this waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) on three different dates. 3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date. 4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy. 5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5366
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	4
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for level of trash (relating to REC2) and threat to aquatic life (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2004 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for

	the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in one location in 2004. This location scored in the "poor condition" category for the "threat to aquatic life" parameter.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2004. Data from all three months scored in the "poor condition" category for the "threat to aquatic life" parameter.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Coyote Creek (Santa Clara Co.) Trash

Decision ID: 7659

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. The first line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

The second line of evidence consists of inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic and trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had “level of trash” parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at four locations and on a single date. This waterbody also had “transportable, Persistent, Buoyant Litter” parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four locations and on two different dates.

3. Photographic evidence has been evaluated that supports this decision.

4. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had “level of trash” parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at six locations on eight different dates. This waterbody also had “threat to aquatic life” parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at seven different locations on nine different dates.

5. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

6. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

7. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5405
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	10
Number of Samples:	10
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following: Williams Street on 2/21/2005 Various locations on 2/3/2006 Between Montague Expressway and Highway 237 on 2/14/2007 Downstream of Highway 280 on 5/22/2005 At San Antonio St. on 4/27/2005 At Santa Clara St. on 5/20/2006 At the Julian St. Bridge on 3/24/2002, 5/6/2006, and 1/21/2007 At Mabry Rd. on 2/1/2004, and 5/6/2006 This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at seven different locations on nine different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Coyote Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

Reference(s):	
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 8 different locations spanning dates from 2002 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on nine separate dates from 2002 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5404
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	4
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban

	Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. This waterbody had level of trash parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at four locations and on a single date. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date. These results are available for field visits/trash surveys conducted in October 2004 and March 2005 at four separate locations according to the Urban Rapid Trash Assessment (URTA) methodology.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Urban Rapid Trash Assessment (URTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. The URTA defines poor condition for this parameter as a level of trash that "distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in four locations in 2004 and 2005.
Temporal Representation:	URTA data were collected for this waterbody on two separate dates, October 2004 and March 2005.
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

LOE ID:	5406

Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	9
Number of Samples:	10
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following: Williams Street on 2/21/2005 Various locations on 2/3/2006 Between Montague Expressway and Highway 237 on 2/14/2007 Downstream of Highway 280 on 5/22/2005 At San Antonio St. on 4/27/2005 At Santa Clara St. on 5/20/2006 At the Julian St. Bridge on 3/24/2002, 5/6/2006, and 1/21/2007 At Mabry Rd. on 2/1/2004, and 5/6/2006. This waterbody had level of trash parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at six locations on eight different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Coyote Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain

	substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 8 different locations spanning dates from 2002 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on nine separate dates from 2002 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5401
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	4
Number of Samples:	4
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items

	found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in four locations in October 2004 and March 2005 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four locations and on two different dates.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in four locations in 2004 and 2005.
Temporal Representation:	URTA data were collected for this waterbody on two separate dates, October 2004 and March 2005.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Damon Slough

Trash

Decision ID: 7638

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence involve inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology both to develop Category 1 (Level of Trash, linked to non-contact beneficial use) and Category 3 (Threat to Aquatic Life, linked to wildlife habitat beneficial use) scores for each photograph.
Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations on nine different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on ten different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5407
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified

Fraction:	None
Number of Exceedances:	16
Number of Samples:	16
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Damon Slough: Damon Slough on 12/20/02, 1/1/97, 3/10/99, 12/10/03, 12/16/04, 1/5/05, 12/19/05, 1/11/06, 3/29/06, 4/1/06, and 2/23/07 Coliseum on 12/19/05, 1/11/06, 3/29/06, 4/11/06, and 2/23/07 San Leandro Channel and Bay on 1/5/05 and 1/11/06 This waterbody had threat to aquatic life parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on ten different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Damon Slough submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to

	aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2001 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on ten separate dates from 1997 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5408
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	12
Number of Samples:	16
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Damon Slough: Damon Slough on 12/20/02, 1/1/97, 3/10/99, 12/10/03, 12/16/04, 1/5/05, 12/19/05, 1/11/06, 3/29/06, 4/1/06, and 2/23/07 Coliseum on 12/19/05, 1/11/06, 3/29/06, 4/11/06, and 2/23/07 San Leandro Channel and Bay on 1/5/05 and 1/11/06 This waterbody had level of trash parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three

	locations on nine different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Damon Slough submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2001 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on ten separate dates from 1997 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology.

Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

Grayson Creek — Trash

Decision ID: 7643

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on two different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5409
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2

Number of Samples:	5
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. This waterbody had threat to aquatic life parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on two different dates.
Data Reference(s):	Archive of Trash Photos for Alameda Creek submitted for 2008 303(d) list consideration Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Grayson Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this

	waterbody for five different locations spanning dates from 2006 through 2007. The assessments were conducted at the following locations: Elinora Drive Bridge, trail between Center Ave. and 2nd Ave., Center Ave. Bridge, Pacheco Blvd., and Imhoff Drive Bridge.
Temporal Representation:	Photographic evidence was collected for this waterbody on four separate dates from 2006 and 2007 including: Elinora Drive Bridge on 4/3/2006, 1/4/2007, 2/13/2007 Trail between Center Ave. and 2nd Ave. on 4/3/2006, 12/8/2006, 2/13/2007 Center Ave. Bridge on 2/13/2007 Pacheco Blvd. on 1/4/2007 Imhoff Drive Bridge on 4/3/2006
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

Guadalupe River — Trash

Decision ID: 7660

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. The first line of evidence concerns the non-contact recreation beneficial use, and the second line of evidence concerns the wildlife habit beneficial use.

Both lines of evidence make use of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) as well as inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic and trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had “level of trash” parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations and on three different dates. This waterbody also had “transportable, Persistent, Buoyant Litter” parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four locations and on four different dates.

3. Photographic evidence has been evaluated that supports this decision.

4. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had “level of trash” parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at more than five locations on six different dates. This waterbody also had “threat to aquatic life” parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at more than six different locations on seven different dates.

5. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment

metrics) in more than one location or on more than one date.

6. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

7. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5478
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	8
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in September 2004, an unknown date in 2005, and November 2006 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations and on three different dates.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

Reference(s):	
Evaluation Guideline:	If the Urban Rapid Trash Assessment (URTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. The URTA defines poor condition for this parameter as a level of trash that "distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in five locations in 2004 through 2006.
Temporal Representation:	URTA data were collected for this waterbody on five separate dates from September 2004 through November 2006.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.
QAPP Information Reference(s):	

LOE ID:	5480
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	7
Number of Samples:	8
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following Guadalupe River locations: Multiple locations on 2/1/2004, 2/18/2005, and 2/2/2006 San Jose Airport on 2/18/2005 Alma Ave. on 2/24/2007 Malone Ave. on 2/24/2007 Between Tasman and Trimble on 2/19/2007 75 yards upstream of I880 on 1/22/2007 At the Montague Expressway on 5/8/2006 This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at five locations on six different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process

	Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
	Archive of Trash Photos for Guadalupe River submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for more than seven different locations spanning dates from 2004 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on seven separate dates from 2004 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5477
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	7
Number of Samples:	8
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in September 2004, an unknown date in 2005, and November 2006 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four locations and on four different dates.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006

Spatial Representation:	URTA data were collected for this waterbody in five locations in 2004 through 2006.
Temporal Representation:	URTA data were collected for this waterbody on five separate dates from September 2004 through November 2006.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

LOE ID:	5479
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	8
Number of Samples:	8
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following Guadalupe River locations: Multiple locations on 2/1/2004, 2/18/2005, and 2/2/2006 San Jose Airport on 2/18/2005 Alma Ave. on 2/24/2007 Malone Ave. on 2/24/2007 Between Tasman and Trimble on 2/19/2007 75 yards upstream of I880 on 1/22/2007 At the Montague Expressway on 5/8/2006 This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at more than six different locations on seven different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Guadalupe River submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses."

	Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for more than seven different locations spanning dates from 2004 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on seven separate dates from 2004 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

Kirker Creek

Pyrethroids | Trash

Decision ID: 7583

Pollutant: Pyrethroids

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. Four lines of evidence are available in the administrative record to assess this pollutant. This water body experience sediment and water toxicity. It has been documented that high concentrations of pyrethroids contribute or are the most likely cause of the toxic effect.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Four sediment samples exhibited significant amphipod toxicity and the benthic community is considered to be degraded. The number of samples with detected significant sediment and water toxicity exceeds the allowable frequency listed in Table 3.1 of the Listing Policy. An additional analysis of toxicity units (TU) indicates that the likely cause of observed sediment toxicity is pyrethroid pesticides.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	5341
Pollutant:	Sediment Toxicity
Subgroup:	Pollutant-Sediment
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Unknown
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	1
Number of Samples:	1

Data Used to Assess Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in 2003. The sample displayed statistically significant toxicity during the 10-day Hyalella azteca test and exhibited 100% mortality.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity was evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329.
Spatial Representation:	Sample was collected at the lower part of the Kirker Creek watershed.
Temporal Representation:	Sample was collected during spring season of 2003.
Environmental Conditions:	Data are representative of the lower watershed (floodway) with the monitoring site located below predominantly residential and industrial areas.
QAPP Information:	Samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	5348
Pollutant:	Pyrethroids
Subgroup:	Pollutant-Sediment
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Unknown
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water Quality:	Amweg et al. (2006) interpreted results of toxicity testing and sediment pyrethroid concentrations of seven compounds in three samples from Kirker Creek. Total pyrethroid concentrations at Kirker Creek samples were more than 50% higher than the concentrations detected in other six East Bay area creeks that were studied. The pyrethroid concentrations in Kirker Creek samples ranged from 66.1 to 186.2 ng/g. Also the spring sample contained the highest concentration of any

	single pyrethroid (deltamethrin) measured reaching the value of 57 ng/g. The Kirker Creek samples had estimated TUs within the range of 5.67-7.2. Based on this analysis the study concluded that there was good evidence for the role of pyrethroids in the observed toxicity.
Data Reference(s):	Pyrethroid insecticides and sediment toxicity in urban creeks from California and Tennessee. Environmental Science and Technology, 40(5): 1700-1706
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Pyrethroid oncentration data and analysis of toxicity units (TU) were used to determine whether pyrethroids could be linked to the observed toxicity to Hyalella azteca. Amweg et al. (2006) determined that samples with less than 1 TU were nontoxic and those with TU grater than 2 were consistently toxic.
Evaluation Guideline Reference(s):	Pyrethroid insecticides and sediment toxicity in urban creeks from California and Tennessee. Environmental Science and Technology, 40(5): 1700-1706
Spatial Representation:	Data were collected at sampling locations at the lower part of Kirker Creek.
Temporal Representation:	Samples were collected during spring and summer seasons of 2004. The last sampling event (late October 2004) occurred after the first rain of the season to capture the potential effects of dry season pesticide use.
Environmental Conditions:	Data are representative of the lower watershed (floodway) with the monitoring site located below predominantly residential and industrial areas.
QAPP Information:	Pyrethroid Insecticides and Sediment Toxicity in Urban Creeks from California and Tennessee, (Amweg et al., 2006).
QAPP Information Reference(s):	Pyrethroid insecticides and sediment toxicity in urban creeks from California and Tennessee. Environmental Science and Technology, 40(5): 1700-1706

LOE ID:	5345
Pollutant:	Sediment Toxicity
Subgroup:	Pollutant-Sediment
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Unknown
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water Quality:	Data used to evaluate sediment toxicity comprise three sediment samples collected in 2004 to determine pyrethroids toxicity in urban-dominated creeks as described in Amweg et al. (2006). All samples displayed statistically significant toxicity during the 10-day Hyalella azteca test and showed the highest mortality rates among all seven creeks studied in the East Bay area.
Data Reference(s):	Pyrethroid insecticides and sediment toxicity in urban creeks from California and

	Tennessee. Environmental Science and Technology, 40(5): 1700-1706
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329.
Spatial Representation:	Data were collected at sampling locations at the lower part of Kirker Creek.
Temporal Representation:	Samples were collected during spring and summer seasons of 2004. The last sampling event (late October 2004) occurred after the first rain of the season to capture the potential effects of dry season pesticide use.
Environmental Conditions:	Data are representative of the lower watershed (floodway) with the monitoring site located below predominantly residential and industrial areas.
QAPP Information:	Samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	5340
Pollutant:	Toxicity
Subgroup:	Pollutant-Water
Beneficial Use:	Warm Freshwater Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	2
Number of Samples:	5
Data Used to Assess Water Quality:	Five samples were collected in 2003 to evaluate water toxicity. Two samples collected during winter wet season were acutely toxic to Ceridaphnia with one sample causing 100% mortality. Selenastrum growth was significantly lower than the control in four out of five samples. On average all samples displayed statistically significant water column toxicity at least to one of the test organisms.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.

	There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Water toxicity was evaluated according to the SWAMP methodology. The U.S.EPA whole effluent toxicity protocol (U.S.EPA 1994) was used to test the effect of water samples on three freshwater test organisms. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether water exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. Third Edition. July 1994
Spatial Representation:	Data were collected at two sampling locations: 1) just below the grazed rangeland in the upper reach of the Creek and 2) at the floodway area draining highly urbanized and industrial parts of the Kirker Creek watershed.
Temporal Representation:	Samples were collected during spring, summer and winter wet seasons of 2003.
Environmental Conditions:	
QAPP Information:	Samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID:	7644
Pollutant:	Trash
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence. One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology. Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on two different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5410
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	6
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March and July 2003, and February 2004 according to the Rapid Trash Assessment methodology. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on two different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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."

	Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in two different locations in 2003 and 2004.
Temporal Representation:	RTA data were collected for this waterbody in March and July in 2003 and February 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Matadero Creek — Trash

Decision ID: 7645

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.
2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at two locations and on two different dates in 2005 and 2006.

Lines of Evidence:

LOE ID:	5481
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	5
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and

	characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in February 2005, May 2006, June 2006, and November 2006 according to the Urban Rapid Trash Assessment (URTA) methodology
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in two locations in 2005 and 2006.
Temporal Representation:	URTA data were collected for this waterbody on five different dates in 2005 and 2006.
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Mt Diablo Creek — Toxicity

Decision ID: 9807

Pollutant: **Toxicity**
Final Listing Decision: **Decision in Progress**
Last Listing Cycle's Final Listing Decision: New Decision
Revision Status Original

Weight of Evidence: This pollutant is being considered for listing under section 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. One line of evidence are available in the administrative record to assess this pollutant. This water body experiences toxicity.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Two out of 4 water samples exhibited significant chronic toxicity to Ceriodaphnia and two other test organisms showed diminished growth. The number of samples with detected significant water toxicity exceeds the allowable frequency listed in Table 3.1 of the Listing Policy and the sediment toxicity is also observed.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID: 8541

Pollutant: Toxicity
LOE Subgroup: Pollutant-Water

Beneficial Use: Cold Freshwater Habitat

Number of Samples: 4
Number of Exceedances: 2

Data and Information TOXICITY TESTING

Type:	
Data Used to Asses Water Quality:	Four samples were collected in 2003 to evaluate water toxicity at two monitoring locations at the mouth of Mount Diablo Creek and at Mitchell Canyon, the upstream tributary. The toxicity tests included survival and reproduction of Ceriodaphnia, survival and growth of fathead minnow, and growth of Selenastrum. Statistically significant chronic effects on Ceriodaphnia reproduction were observed in 2 out of 4 samples collected at both locations during winter wet season. In addition, one sample caused significant mortality and another caused a decrease in growth in fathead minnow. Selenastrum growth was also significantly reduced in one sample collected during winter wet season.
Data Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Water toxicity was evaluated according to the SWAMP methodology. The U.S.EPA whole effluent toxicity protocol (U.S.EPA 1994) was used to test the effect of water samples on three freshwater test organisms. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether water exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. Third Edition. July 1994
Spatial Representation:	Data were collected at two sampling locations representative of the lower reach of the creek (2 samples) and the upstream tributary (2 samples).
Temporal Representation:	SWAMP samples were collected during winter wet season (January) and spring season (April) of 2003.
Environmental Conditions:	The lower reach data are representative of heavily urbanized area dominated by the city of Concord. The tributary stream of Mitchell Canyon drains in its upper portion the area within the Mt. Diablo State Park.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Permanente Creek

Selenium | Toxicity | Sediment Toxicity | Trash

Decision ID: 7651

Pollutant: Selenium, Total

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.1 of the Listing Policy. Under section 3.1 a single line of evidence is necessary to assess listing status. Two lines of evidence are available in the administrative record to assess this pollutant.

A sufficient number of samples exceed the NTR total selenium criterion for continuous concentration (chronic). Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy. 3. Six of 12 samples exceeded the NTR criterion for total selenium and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	4790
Pollutant:	Selenium, Total
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	Total
Number of Exceedances:	3
Number of Samples:	6
Data Used to Assess Water Quality:	Water quality assessment was conducted at two sampling locations in the Permanente Creek watershed as part of SWAMP assessment. The aim of the monitoring was to determine patterns of water quality, protection of beneficial uses and potential impacts of land use and water management. Sampled parameters included physical and biological indicators, conventional water quality, water metals and toxicity as well as sediment metals and toxicity. Three out of six samples collected at two monitoring locations during 2002

	exceeded the NTR continuous total selenium concentration criterion.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	NTR total selenium criterion for continuous concentration (chronic objective) in water for the protection of aquatic life is 5.0 µg/L (Water Quality Control Plan (Basin Plan) 2007, Table 3-4). The criterion is linked and applicable in streams with waters that support cold water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Evaluation Guideline Reference(s):	
Spatial Representation:	Data were collected at two sampling locations representative of upper reach of the creek (3 samples) and the lower reach at the bottom of the watershed (3 samples).
Temporal Representation:	Samples were collected during spring, dry and wet season of 2002.
Environmental Conditions:	The lower reach data are representative of the predominantly urbanized area with a highly modified channel draining into South San Francisco Bay.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	5765
Pollutant:	Selenium, Total
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	Total
Number of Exceedances:	3
Number of Samples:	6
Data Used to Assess Water Quality:	SCVURPPP (2007) monitoring program of Santa Clara Basin creeks collected water quality data at two monitoring locations corresponding to the SWAMP sampling points. Three out of six samples collected in 2005, 2006 and 2007 exceeded the NTR continuous total selenium concentration criterion.
Data Reference(s):	Monitoring and Assessment Summary Report: Santa Clara Basin Creeks (2002-2007). Watershed Monitoring and Assessment Program
Water Quality Objective/Criterion:	NTR total selenium criterion for continuous concentration (chronic objective) in water for the protection of aquatic life is 5.0 µg/L (Water Quality Control Plan (Basin Plan) 2007, Table 3-4). The criterion is linked and applicable in streams with waters that support cold water ecosystems, including preservation or

	enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Evaluation Guideline Reference(s):	
Spatial Representation:	Data were collected at two sampling locations representative of upper reach of the creek (2 samples) and the lower reach at the bottom of the watershed (4 samples).
Temporal Representation:	SCVURPPP samples were collected during dry and wet seasons from 2005 through 2007.
Environmental Conditions:	The lower reach data are representative of the predominantly urbanized area with a highly modified channel draining into South San Francisco Bay.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Decision ID:	9171
Pollutant:	Toxicity
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. Two lines of evidence are available in the administrative record to assess this pollutant. This water body experiences toxicity. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy. 3. Six out of 6 water samples exhibited significant chronic toxicity to Selenastrum and the benthic community was considered to be degraded. The number of samples with detected significant water toxicity exceeds the allowable frequency listed in Table 3.1 of the Listing Policy and the sediment toxicity is observed. 4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	8571
Pollutant:	Toxicity
Subgroup:	Pollutant-Water

Beneficial Use:	CO - Cold Freshwater Habitat
Aquatic Life Use:	
Matrix:	Water
Fraction:	None
Number of Exceedances:	6
Number of Samples:	6
Data Used to Asses Water Quality:	Six samples were collected in 2002-2003 to evaluate water toxicity at two monitoring locations at the most downstream and upstream reaches of the creek. The toxicity tests included survival and reproduction of Ceriodaphnia, survival and growth of fathead minnow, and growth of Selenastrum. In all six samples at both locations, during all 3 seasons Selenastrum growth was significantly reduced. Selenastrum growth on average did not exceed 60.9% of the control with one sample from the downstream location exhibiting only 44.6% growth compared to control. At one station during winter Ceriodaphnia had significant mortality.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board.
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Water toxicity was evaluated according to the SWAMP methodology. The U.S.EPA whole effluent toxicity protocol (U.S.EPA 1994) was used to test the effect of water samples on three freshwater test organisms. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether water exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. Third Edition. July 1994
Spatial Representation:	Data were collected at two sampling locations representative of upper reach of the creek (3 samples) and the lower reach at the bottom of the watershed (3 samples).
Temporal Representation:	SWAMP samples were collected during spring, dry and wet season of 2002-2003.
Environmental Conditions:	The lower reach data are representative of the predominantly urbanized area with a highly modified channel draining into South San Francisco Bay.
QAPP Information:	Samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

LOE ID:	8574
Pollutant:	Sediment Toxicity
Subgroup:	Pollutant-Sediment
Beneficial Use:	Cold Freshwater Habitat
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	1
Number of Samples:	1
Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in 2002. The sample displayed statistically significant toxicity during the 10-day Hyalella azteca test and exhibited diminished growth at 72.1% of control. In addition, many organic contaminants were found in the sediment above Threshold Effect Concentrations (TEC). Chlordane was particularly elevated above the Probable Effects Concentration (PEC) of 17.6 ug/kg.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board.
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity was evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation ($\alpha = 0.05$) and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329.
Spatial Representation:	Data were collected at one sampling location at the lower part of Permanente Creek.
Temporal Representation:	Sample was collected during the dry summer season of 2002.
Environmental Conditions:	The lower reach data are representative of the predominantly urbanized area with a highly modified channel draining into South San Francisco Bay.
QAPP Information:	Samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Decision ID:	7646
Pollutant:	Trash
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence. One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology. Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. Data have been evaluated that supports this decision. 2. The Rapid Trash Assessment methodology results showed that this waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at the only location surveyed in this waterbody on four different dates. 3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date. 4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy. 5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5368
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	4
Number of Samples:	4
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing

	determination. These results are available for field visits/trash surveys conducted in March, July, and October 2003, and March 2004 according to the Rapid Trash Assessment methodology. There were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody at one location in 2003 and 2004. This location scored in the "poor condition" category for the "threat to aquatic life" parameter.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and October in 2003 and March 2004. Data from all four months scored in the poor condition category for the threat to aquatic life parameter.
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Petaluma River — Trash

Decision ID: 7647

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence consist of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology. These data have been compared to evaluation guidelines to assess protection of the non-contact recreation beneficial use and the wildlife habitat beneficial use.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at a single location on three different dates. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at four different locations on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5482
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Wildlife Habitat
Matrix: Not Specified
Fraction: None
Number of Exceedances: 10

Number of Samples:	16
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2003, and January and February of 2004 according to the Rapid Trash Assessment methodology. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at four different locations on three different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in four different locations in 2003 and 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2003, and January, February 2004.
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

LOE ID:	5483
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance

Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	16
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, July, and November 2003, and January and February of 2004 according to the Rapid Trash Assessment methodology. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at a single location on three different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in four different locations in 2003 and 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, July, and November in 2003, and January, February 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Rindler Creek — Trash

Decision ID: 7648

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant in this waterbody. One line of evidence concerns the non-contact recreation beneficial use, and the second concerns the wildlife habitat beneficial use. Both lines of evidence rely on inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations on three different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5504
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified

Fraction:	None
Number of Exceedances:	4
Number of Samples:	4
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Rindler Creek: Rindler Creek Headwaters (Benicia Road and Columbus Parkway) on 5/14/2003 and 4/1/2006 At Marine World Parkway on 5/14/2003 and 4/1/2006 At Lemon Street Ditch on 5/14/2003 At Austin Creek Pump station on 5/14/2003 At White Slough, Sonoma Blvd. on 5/14/2003 At Lake Dalwigk and 1 km upstream on 4/18/2005 and 5/14/2003. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on three different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Rindler Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score.

	If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for seven different locations spanning dates from 2003 through 2006.
Temporal Representation:	Photographic evidence was collected for this waterbody on three separate dates from 2003 through 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5506
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	4
Number of Samples:	4
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Rindler Creek: Rindler Creek Headwaters (Benicia Road and Columbus Parkway) on 5/14/2003 and 4/1/2006 At Marine World Parkway on 5/14/2003 and 4/1/2006 At Lemon Street Ditch on 5/14/2003

	At Austin Creek Pump station on 5/14/2003 At White Slough, Sonoma Blvd. on 5/14/2003 At Lake Dalwigk and 1 km upstream on 4/18/2005 and 5/14/2003. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations on three different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Rindler Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for seven different locations spanning dates from 2003 through 2006.

Temporal Representation:	Photographic evidence was collected for this waterbody on three separate dates from 2003 through 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

San Francisco Bay, Central (shoreline) — Trash

Decision ID: 7654

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence rely on inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on two different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at eight different locations on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5509
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	8

Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations along the Bay shoreline: Virginia St., Eastshore State Park on 12/15/2006 Mouth of Strawberry Creek, Berkeley on 12/15/2006 Mouth Temescal Creek, 12/15/06 Powell St., Emeryville on 12/15/2006 Frontage Road Beach, north of Ashby St. on 12/15/2006 Bayfront Park in Richardson Bay on 1/24/2003 Enchanted Knolls Park on 1/24/2003 Richmond Field Station unknown date in 2007 This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on two different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for San Francisco Bay submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category

	(scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 8 different locations spanning dates from 2003 through 2007.
Temporal Representation:	The photographic evidence inspected spans dates between January 2003 through February 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5508
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	8
Number of Samples:	8
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations along the Bay shoreline: Virginia St., Eastshore State Park on 12/15/2006 Mouth of Strawberry Creek, Berkeley on 12/15/2006 Mouth Temescal Creek, 12/15/06 Powell St., Emeryville on 12/15/2006 Frontage Road Beach, north of Ashby St. on 12/15/2006

	Bayfront Park in Richardson Bay on 1/24/2003 Enchanted Knolls Park on 1/24/2003 Richmond Field Station unknown date in 2007 This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at eight different locations on three different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for San Francisco Bay submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 8 different locations spanning dates from 2003 through 2007.

Temporal Representation:	The photographic evidence inspected spans dates between January 2003 through February 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

San Francisco Bay, Lower (shoreline) — Trash

Decision ID: 7652

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence rely on inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on two different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two location on four different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5511
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	5

Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations along the Bay shoreline: Mouth of Ryder Ct. Park on 12/10/2003 and 4/1/2006 Tidal Area, near mouth at Oakport on 12/10/2003, 12/16/2004, 1/5/2005, 12/19/2005, 3/29/2006, 2/23/2007 This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations on two different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for San Francisco Bay submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the

	assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 2 different locations spanning dates from 2003 through 2007.
Temporal Representation:	The photographic evidence inspected spans dates between January 2003 through February 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5510
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	5
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations along the Bay shoreline: Mouth of Ryder Ct. Park on 12/10/2003 and 4/1/2006 Tidal Area, near mouth at Oakport on 12/10/2003, 12/16/2004, 1/5/2005, 12/19/2005, 3/29/2006, 2/23/2007 This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at two location on four different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for San Francisco Bay submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for 2 different locations spanning dates from 2003 through 2007.
Temporal Representation:	The photographic evidence inspected spans dates between January 2003 through February 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

San Francisquito Creek — Trash

Decision ID: 7655

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence rely on data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at different four locations and on four different dates. This waterbody also had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four different locations and on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5537
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	23
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban

	Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in February 2005, July 2005, May 2006, October 2006, May 2007, September 2007, and October 2007 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at four different locations and on three different dates.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in six locations from 2004 through 2006.
Temporal Representation:	URTA data were collected for this waterbody on seven separate dates, 2004 through 2006.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

LOE ID:	5538
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance

Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	7
Number of Samples:	23
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in February 2005, July 2005, May 2006, October 2006, May 2007, September 2007, and October 2007 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at different four locations and on four different dates.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Urban Rapid Trash Assessment (URTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. The URTA defines poor condition for this parameter as a level of trash that "distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in six locations from 2004 through 2006.
Temporal Representation:	URTA data were collected for this waterbody on seven separate dates, 2004 through 2006.
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

San Leandro Creek, Lower

Chromium | Trash

Decision ID: 7573

Pollutant: Chromium, hexavalent

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.1 of the Listing Policy. Under section 3.1 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceed the CTR dissolved chromium VI criterion for continuous concentration (chronic).

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Two samples exceeded the CTR criterion for dissolved chromium VI and this exceeds the allowable frequency listed in Table 3.1 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	4792
Pollutant:	Chromium, hexavalent
Subgroup:	Pollutant-Water
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	Dissolved
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water Quality:	Comprehensive water quality assessment was conducted at the confluence of the Lower San Leandro Creek watershed as part of SWAMP assessment. The aim of the monitoring was to determine patterns of water quality, protection of beneficial uses and potential impacts of land use and water management. Sampled parameters included physical and biological indicators, conventional water quality, water metals and toxicity as well as sediment metals and toxicity.

	Two samples collected during 2001 monitoring exceeded the CTR continuous dissolved chromium VI concentration criterion and one of these samples exceeded the maximum concentration criterion of 16µg/L. Dissolved chromium levels for these samples were at least an order of magnitude higher than at all other sites that were monitored and the site received an overall poor bioassessment score.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	CTR chromium criterion for continuous concentration (chronic objective) in water for the protection of aquatic life is 11.0µg/L. The criterion is linked and applicable in streams with waters that support warm water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline Reference(s):	
Spatial Representation:	Data were collected at a sampling location at the bottom of the watershed.
Temporal Representation:	Samples were collected during spring and dry season of 2001.
Environmental Conditions:	Data are representative of a channelized creek flowing through residential and urban industrial areas that predominate in the Lower San Leandro Creek watershed. Lake Chabot forms a strong hydrologic divide between this part of the watershed and the upper portion of San Leandro Creek and delineates land uses and beneficial uses within the watershed.
QAPP Information:	SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID:	7656
Pollutant:	Trash
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence. Two lines of evidence are available in the administrative record to assess this pollutant. Both lines of evidence rely on inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life)

scores for each photograph.

Based on the readily available photographic evidence for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Photographic evidence has been evaluated that supports this decision.

2. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations on four different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on six different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5668
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	7
Number of Samples:	9
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Lower San Leandro Creek: 98th Ave. on 4/11/2001, 12/20/2002, 12/10/2003, 12/16/2004, 12/26/2004, 1/5/2005, 1/11/2006, and 2/23/2007 Hegenberger Road on 4/11/2001, and 2/23/2007 Leet Drive on 12/10/2003, and 1/11/2006 This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at three locations on four different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for

	consideration in 2008 303(d) listing process
	Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)
	Archive of Trash Photos for Lower San Leandro Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2001 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on six separate dates from 2001 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific

	date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.
LOE ID:	5667
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	9
Number of Samples:	9
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following dates and locations on Lower San Leandro Creek: 98th Ave. on 4/11/2001, 12/20/2002, 12/10/2003, 12/16/2004, 12/26/2004, 1/5/2005, 1/11/2006, and 2/23/2007 Hegenberger Road on 4/11/2001, and 2/23/2007 Leet Drive on 12/10/2003, and 1/11/2006 This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three different locations on six different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for Lower San Leandro Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

Reference(s):	
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for three different locations spanning dates from 2001 through 2007.
Temporal Representation:	Photographic evidence was collected for this waterbody on six separate dates from 2001 through 2007.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

San Mateo Creek

Sediment Toxicity | Trash

Decision ID: 7574

Pollutant: Sediment Toxicity

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. Two lines of evidence are available in the administrative record to assess this pollutant. Amphipod toxicity samples exhibit significant toxicity with Hyalella mean survival below 19%.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. All five sediment samples exhibited significant amphipod toxicity and the benthic community is considered to be degraded. The number of samples with detected significant toxicity exceeds the allowable frequency listed in Table 3.1 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	4797
Pollutant:	Sediment Toxicity
Subgroup:	Toxicity
Beneficial Use:	Wildlife Habitat
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	4
Number of Samples:	4
Data Used to Assess Water Quality:	Data used to evaluate sediment toxicity comprise four sediment samples collected as part of a PRISM grant (Lowe et al., 2007) in 2004-2005. All samples were toxic to both freshwater and estuarine amphipods during sampling events and exhibited the lowest per cent survival and highest contaminant concentrations compared to other six tributaries studied. The PRISM project samples were collected at both tidally influenced and

	freshwater segments of the creek.
Data Reference(s):	Final Project Report: Investigations of Sources and Effects of Pyrethroid Pesticides in Watersheds of the San Francisco Bay Estuary. Proposition 13 PRISM Grant # 041355520. SFEI Contribution #523. San Francisco Estuary Institute, Oakland, CA Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity data were evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329.
Spatial Representation:	Data were collected at a sampling location at the lower part of San Mateo Creek within tidal reach (2 samples) and at the upper location in the freshwater reach just above the head of tide (2 samples).
Temporal Representation:	Samples were collected during winter season of 2004 (tidal and freshwater reach) and late spring of 2005 (tidal and freshwater reach). The winter sampling (November 2004) occurred after the first rain of the season to capture the potential effects of dry season pesticide use. The late spring sampling (April 2005) coincided with the presumption of increased pesticide application in urban and agricultural areas.
Environmental Conditions:	Data are representative of the lower watershed downstream from Mud Dam with the monitoring site located in the densely urbanized areas.
QAPP Information:	Data were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	4809
Pollutant:	Sediment Toxicity
Subgroup:	Toxicity
Beneficial Use:	Wildlife Habitat
Matrix:	Sediment
Fraction:	None
Number of Exceedances:	1
Number of Samples:	1
Data Used to Assess Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in 2003. The sample was toxic to both freshwater and estuarine

	amphipods and exhibited the lowest per cent survival and highest contaminant concentrations compared to other six tributaries studied. Comprehensive water quality assessment was conducted at seven monitoring sites in the San Mateo Creek watershed as part of SWAMP assessment. The aim of the monitoring was to determine patterns of water quality, protection of beneficial uses and potential impacts of land use and water management. Sampled parameters included physical and biological indicators, conventional water quality, water metals and toxicity as well as sediment metals and toxicity. SWAMP sediment sample was collected at the tidally influenced urban segment of San Mateo Creek.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity data were evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Evaluation Guideline Reference(s):	Thursby, G.B., Heltshe, J. and K.J. Scott. 1997. Revised approach to toxicity test acceptability criteria using a statistical performance assessment. Environmental Toxicology and Chemistry, vol. 16, No. 6, pp 1322-1329.
Spatial Representation:	Data were collected at a sampling location at the lower part of San Mateo Creek within tidal reach.
Temporal Representation:	Sample was collected during spring season of 2003.
Environmental Conditions:	Data are representative of the lower watershed downstream from Mud Dam with the monitoring site located in the densely urbanized areas.
QAPP Information:	Data were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID:	7661
Pollutant:	Trash
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

There are four lines of evidence available in the administrative record to assess this pollutant. Two of these lines of evidence rely on inspection of photographic evidence by Regional Water Board staff trained to conduct the Rapid Trash Assessment (RTA) methodology. The staff inspected these photos and applied the RTA methodology to develop Category 1 (Level of Trash) and Category 3 (Threat to Aquatic Life) scores for each photograph.

The other two lines of evidence rely on data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology.

Based on the readily available photographic and trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at two locations. This waterbody also had "transportable, Persistent, Buoyant Litter" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations and on two different dates.

3. Photographic evidence has been evaluated that supports this decision.

4. Applying the Rapid Trash Assessment methodology to the photographic evidence suggests that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at location on two different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on two different dates.

5. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

6. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

7. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5664
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	4
Number of Samples:	15
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred

	feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in October 2004 and November 2006 according to the Rapid Trash Assessment methodology. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at location on two different dates.
Data Reference(s):	Archive of Rapid Trash Assessment (RTA) data for San Mateo Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in three locations in 2004 and 2006.
Temporal Representation:	RTA data were collected for this waterbody in October 2004 and November 2006.
Environmental Conditions:	
QAPP Information:	San Mateo program staff performed the initial October 2004 assessment jointly with Water Board staff to ensure that the assessment site was identical to the SWAMP location and that San Mateo program staff applied the protocol consistently to the SWAMP protocol.

LOE ID:	5666

Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for the following locations on San Mateo Creek: This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at one location on two different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation) Archive of Trash Photos for San Mateo Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to

	aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for a single location in 2003 and 2006.
Temporal Representation:	Photographic evidence was collected for this waterbody on two separate dates in 2003 and 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5665
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water Quality:	Data available consist of photographic evidence of trash and interpretation of these photos by an experienced trash assessment specialist. Each photograph was analyzed to establish the RTA score for the "level of trash" and "threat to aquatic life" parameters, which relate to impairment of REC2 and WILD, respectively. Only those photos clear enough to establish these RTA scores were relied on for the listing determination. These results are available for one location on San Mateo Creek: This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on two different dates.
Data Reference(s):	Report from Roger James and Larry Kolb containing Trash Photos submitted for consideration in 2008 303(d) listing process Assessment by Matt Cover of Trash Photos (submitted to Region 2 in response to 2008 Data Solicitation)

	Archive of Trash Photos for San Mateo Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Level of Trash score. If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal." Regional Water Board staff trained in the RTA inspected the available photographic evidence and applied the assessment method to determine the Threat to Aquatic Life score.
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	Photographic evidence was analyzed using the RTA methodology for this waterbody for a single location in 2003 and 2006.
Temporal Representation:	Photographic evidence was collected for this waterbody on two separate dates in 2003 and 2006.
Environmental Conditions:	
QAPP Information:	Assessments of the photographic evidence using the RTA were performed by Regional Water Board staff person who was a co-author of the Rapid Trash Assessment methodology. Assessments based on photographic evidence were only conducted when sufficient reach-scale and close-up photos were available for a site on a specific date. Photos used for the evaluation needed to be numerous enough and clear enough to document the level of trash at the site in a similar way as the assessor would experience during an actual site visit in the field. For example, at a minimum, one reach-scale photograph (showing at least a 100 linear foot section

	of the waterbody) and two close-up photographs (of representative trash deposits) were required.

LOE ID:	5663
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	7
Number of Samples:	15
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in October 2004 and November 2006 according to the Rapid Trash Assessment methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations and on two different dates.
Data Reference(s):	Archive of Rapid Trash Assessment (RTA) data for San Mateo Creek submitted for 2008 303(d) list consideration
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category

	(scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in three locations in 2004 and 2006.
Temporal Representation:	RTA data were collected for this waterbody in October 2004 and November 2006.
Environmental Conditions:	
QAPP Information:	San Mateo program staff performed the initial October 2004 assessment jointly with Water Board staff to ensure that the assessment site was identical to the SWAMP location and that San Mateo program staff applied the protocol consistently to the SWAMP protocol.

San Pablo Creek — Trash

Decision ID: 7657

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" scores in the poor category (indicating impairment of non-contact water recreational beneficial use) at two different locations and on two different dates.

3. The temporal and spatial extent of this poor condition affords a substantial basis in fact from which the listing decision can be reasonably inferred. Namely, this waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5661
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water	Data results were obtained through application the RTA methodology, developed

Quality:	by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in July 2002 according to the Rapid Trash Assessment methodology. This waterbody had "level of trash" scores in the poor category (indicating impairment of non-contact water recreational beneficial use) at two different locations and on two different dates.
Data Reference(s):	Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in two different locations in July 2002 and both locations scored in the "poor condition" category for the "Level of Trash" parameter.
Temporal Representation:	RTA data were collected on two different dates, July 18, and 30 2002, and data from both dates were in the "poor condition" category for the "Level of Trash" parameter.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

San Tomas Aquinas Creek — Trash

Decision ID: 7658

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations on two different dates in 2004 and 2006.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5536
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	5
Number of Samples:	5
Data Used to Assess Water	Data results were obtained through application of the Urban Rapid Trash

Quality:	Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for visits/trash surveys conducted in December 2004 and October 2006 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations on two different dates in 2004 and 2006.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in three locations in December 2004 and October 2006.
Temporal Representation:	URTA data were collected for this waterbody on two dates in December 2004 and October 2006.
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Saratoga Creek — Trash

Decision ID: 7662

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on two different dates in 2004 and 2006.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5662
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	2
Data Used to Assess Water	Data results were obtained through application of the Urban Rapid Trash

Quality:	Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in December 2004 and October 2006 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on two different dates in 2004 and 2006.
Data Reference(s):	Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody at one location in December 2004 and October 2006.
Temporal Representation:	URTA data were collected for this waterbody on two dates in December 2004 and October 2006.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Sausal Creek — Trash

Decision ID: 7663

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had “threat to aquatic life” parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5369
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	3
Number of Samples:	3
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and

	tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in August and December 2004 and June 2005 according to the Rapid Trash Assessment methodology. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) on three different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing." If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in one location in 2004 and 2005. This location scored in the "poor condition" category for the "threat to aquatic life" parameter.
Temporal Representation:	RTA data were collected for this waterbody in August and December 2004 and June 2005. Data from all three months scored in the "poor condition" category for the "threat to aquatic life" parameter.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Silver Creek (Santa Clara County) Trash

Decision ID: 7668

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on the only date monitored.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5539
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Wildlife Habitat
Matrix: Not Specified
Fraction: None
Number of Exceedances: 2
Number of Samples: 3
Data Used to Assess Water: Data results were obtained through application of the Urban Rapid Trash

Quality:	Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March 2005, according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at two different locations on the only date monitored.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in three locations in March 2005.
Temporal Representation:	URTA data were collected for this waterbody on only one date in March 2005.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Stevens Creek

Temperature | Trash

Decision ID: 9162

Pollutant: Temperature, water

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceed the water quality objective.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Temperature measurements at 6 out of 11 continuous deployments exceeded the 17 °C evaluation guideline used to interpret the water quality objective for waters designated as cold water habitat and this exceeds the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	8543
Pollutant:	Temperature, water
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	6
Number of Samples:	11
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Stevens Creek watershed as part of SWAMP assessment. Continuous field monitoring at 15 minute increments of

	temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at five locations throughout the watershed. The measured temperatures ranged from 9.3°C to 25.5 °C and varied with season and location. The 17 °C criterion for steelhead was exceeded in 6 out of 11 deployments. Five exceedances were recorded in the dry season and 1 was measured in the wet season. High water temperature exceeding 24 °C, that is a maximum short exposure temperature for survival of salmonids (EPA 1977) was also measured at one monitoring location at lower reach of the Creek during summer dry season. At this monitoring site the leathal temperature for salmonids (< 24°C) persisted for 4.25 hours.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Temperature criteria for freshwater fish: protocol and procedures. Ecological Research Series. EPA-600/3-77-061 (NTIS PB270032). Prepared by W.A. Brungs and B.R. Jones. U.S. Environmental Protection Agency, Washington, D.C
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Evaluation Guideline Reference(s):	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at four sites located on the mainstem of Stevens Creek. The highest temperatures were recorded at the most downstream location in July 2003. High temperatures exceeding the threshold for steelhead were measured in most parts of the creek with the exception of the upper reach.
Temporal Representation:	In 2002 and 2003 the SWAMP Program performed continuous monitoring of temperature at 15 minute intervals for periods of 1-2 weeks in each of three different seasons: winter wet season (3 sites), spring runoff season (1 site), and summer dry season (7 sites).

Environmental Conditions:

QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID: 7669

Pollutant: Trash

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

One line of evidence is available in the administrative record to assess this pollutant. The line of evidence consists of data from field visits/trash surveys conducted according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Urban Rapid Trash Assessment methodology results showed that this waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations on three different dates in 2004, 2006 and 2007.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guideline (poor condition category for the trash assessment metric) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID:	5540
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Wildlife Habitat
Matrix:	Not Specified

Fraction:	None
Number of Exceedances:	4
Number of Samples:	11
Data Used to Assess Water Quality:	Data results were obtained through application of the Urban Rapid Trash Assessment (URTA) methodology, developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program. The URTA is a modification of the Rapid Trash Assessment (RTA) developed by the Surface Water Ambient Monitoring Program (SWAMP). The URTA method documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "transportable, persistent, buoyant litter" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in 2004 through 2007 according to the Urban Rapid Trash Assessment (URTA) methodology. This waterbody had "transportable, Persistent, Buoyant Litter" parameter scores in the marginal urban and poor category (indicating threat to Wildlife Habitat beneficial uses) at three locations on three different dates in 2004, 2006 and 2007.
Data Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006 Spreadsheet of Urban Rapid Trash Assessment (URTA) data collected by the Santa Clara Valley Urban Runoff Pollution Prevention Program, 2004-2007
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) is in the marginal urban or poor condition category (scores 0-10), then WILD is not supported. The URTA defines marginal urban or poor condition for this parameter as follows. this level of trash is a "medium prevalence (76-200 pieces)" or "large amount (>200 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, styrofoam, balloons, cigarette butts". These types of items are all detrimental to aquatic life.
Evaluation Guideline Reference(s):	Memo: Development of Urban Rapid Trash Assessment Protocol. March 13, 2006
Spatial Representation:	URTA data were collected for this waterbody in six locations in 2004 through 2007.
Temporal Representation:	URTA data were collected for this waterbody on seven dates in 2004 through 2007.
Environmental Conditions:	
QAPP Information:	Data were collected by trained staff in accordance with URTA methodology developed by SCVURPPP and are deemed reliable and of sufficient quality on which to base listing determinations.

Strawberry Creek (Alameda County) Trash

Decision ID: 7670

Pollutant: Trash
Status: Decision in Progress
Weight of Evidence: This pollutant is being considered for placement on the section 303(d) list under section 3.11 of the Listing Policy. Under section 3.11, listing may be proposed based on the situation-specific weight of evidence.

Two lines of evidence is available in the administrative record to assess this pollutant. Both lines of evidence rely on data from field visits/trash surveys conducted according to the Rapid Trash Assessment (RTA) methodology.

Based on the readily available trash assessment data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of placing this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. Data have been evaluated that supports this decision.

2. The Rapid Trash Assessment methodology results showed that this waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at one location on three different dates. This waterbody also had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on three different dates.

3. This waterbody is considered impaired by trash because there were exceedances of the evaluation guidelines (poor condition category for the trash assessment metrics) in more than one location or on more than one date.

4. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

5. The data used satisfy the data quantity requirements of section 6.1 of the Policy.

Lines of Evidence:

LOE ID: 5411
Pollutant: Trash
Subgroup: Pollutant-Nuisance
Beneficial Use: Wildlife Habitat
Matrix: Not Specified
Fraction: None
Number of Exceedances: 3
Number of Samples: 3
Data Used to Assess Water: Data results were obtained through application the RTA methodology, developed

Quality:	by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, August, and December 2004 according to the Rapid Trash Assessment (RTA) methodology. This waterbody had "threat to aquatic life" parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial uses) at one location on three different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the RTA Parameter 3 (Threat to Aquatic Life) is in the poor condition category (scores 0-5), then WILD is not supported. This level of trash is a "large amount (>50 pieces) of transportable, persistent, buoyant litter" that is detrimental to aquatic life. The RTA defines poor condition for this parameter as follows, "large amount (>50 pieces) of transportable, persistent, buoyant litter such as: hard or soft plastics, balloons, Styrofoam, cigarette butts; toxic items such as batteries, lighters, or spray cans; large clumps of yard waste or dumped leaf litter; or large amount (>50 pieces) of settleable glass or metal."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in one location in 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, August, and December in 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

LOE ID:	5412
Pollutant:	Trash
Subgroup:	Pollutant-Nuisance
Beneficial Use:	Non-Contact Recreation

Matrix:	Not Specified
Fraction:	None
Number of Exceedances:	2
Number of Samples:	3
Data Used to Assess Water Quality:	Data results were obtained through application the RTA methodology, developed by the Surface Water Ambient Monitoring Program (SWAMP). The RTA documents the total number and characteristics of pieces of trash per one hundred feet of stream or shoreline. The trash assessment protocol involves picking up and tallying all of the trash items found within the defined boundaries of a site. The tally results for "level of trash" (relating to REC2) and "threat to aquatic life" (relating to WILD) assessment parameters were considered for the listing determination. These results are available for field visits/trash surveys conducted in March, August, and December 2004 according to the Rapid Trash Assessment (RTA) methodology. This waterbody had "level of trash" parameter scores in the poor category (indicating impairment of non-contact water recreational beneficial uses) at one location on three different dates.
Data Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Monitoring Program from 2002-2005 and method description
Water Quality Objective/Criterion:	Basin Plan prohibits discharge 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." Basin Plan has a narrative objective for floating material, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses." Basin Plan has a narrative objective for settleable material, "Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses."
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	If the Rapid Trash Assessment (RTA) Parameter 1 (Level of Trash) is in the "poor condition category" (scores 0-5), REC2 is not supported. This level of trash "distracts the eye on first glance," making the site unsuitable for recreation. The RTA defines poor condition for this parameter as follows, "trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."
Evaluation Guideline Reference(s):	A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region:Trash Measurement in Streams
Spatial Representation:	RTA data were collected for this waterbody in one location in 2004.
Temporal Representation:	RTA data were collected for this waterbody in March, August, and December in 2004.
Environmental Conditions:	
QAPP Information:	For RTA trash assessment data to be considered, the data must have been collected by field operators that have received a 2-hour training in the Rapid Trash Assessment methodology.

Suisun Creek

Low Dissolved Oxygen | Temperature

Decision ID: 7580

Pollutant: Low Dissolved Oxygen

Status: Decision in Progress

Weight of Evidence: This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceeds the water quality objective.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. DO measurements at 5 of all 20 continuous deployments were below the Basin Plan objective for waters designated as cold water habitat and this exceeds the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	5179
Pollutant:	Low Dissolved Oxygen
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	5
Number of Samples:	20
Data Used to Assess Water Quality:	Water quality assessment was conducted at the Suisun Creek watershed as part of SWAMP assessment. Continuous field monitoring of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at six locations. The detected concentrations of

	dissolved oxygen ranged from 3.9 to 14.08 mg/L and varied with season and location. Minimum dissolved oxygen concentrations in spring fell below 9 mg/L at all six monitoring sites. In 5 out of 20 deployments, minimum dissolved oxygen levels fell below the objective of 7 mg/L. Minimum values of DO ranging from 3.9 to 6.62 mg/L occurred during summer dry season of 2002. The median percent saturation also fell below 80 percent in the dry season measurements.
Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Evaluation Guideline Reference(s):	
Spatial Representation:	Dissolved oxygen was measured at six sites. Four of these sites were located on the mainstem of Suisun Creek, with the two remaining sites located on Wooden Valley Creek the major tributary. The lowest dissolved oxygen levels were measured at the confluence of Wooden Valley Creek and Suisun Creek. Low dissolved oxygen levels also occurred in the lower reach of Suisun Creek during the summer dry season.
Temporal Representation:	In 2002 the SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in each of four different seasons: winter (2 sites), spring (7 sites), summer dry season (6 sites), and late summer (5 sites).
Environmental Conditions:	Suisun Creek supports steelhead trout and is considered an anchor watershed and essential creek for steelhead population.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Decision ID:	7581
Pollutant:	Temperature, water
Status:	Decision in Progress
Weight of Evidence:	This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess this pollutant. A sufficient number of samples exceed the water quality objective.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available in favor of adding this water segment-pollutant combination to the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision were collected as part of the SWAMP and satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Temperature measurements at 6 out of 15 continuous deployments exceeded the 17°C evaluation guideline used to interpret the water quality objective for waters designated as cold water habitat and this exceeds the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

Lines of Evidence:

LOE ID:	5180
Pollutant:	Temperature, water
Subgroup:	Pollutant-Water
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat
Matrix:	Water
Fraction:	None
Number of Exceedances:	6
Number of Samples:	15
Data Used to Assess Water Quality:	Comprehensive water quality assessment was conducted at the Suisun Creek watershed as part of SWAMP assessment. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at seven locations. The measured temperatures ranged from 5.73°C to 29.32 °C and varied with season and location. The 14.8 °C criterion for coho salmon was exceeded in 10 out of 15 continuous temperature deployments. Suisun Creek supports steelhead trout and the 17°C criterion for steelhead was exceeded in 6 out of 15 deployments. High water temperatures exceeding 24 °C, that is a maximum short exposure temperature for survival of salmonids (EPA 1977) were also measured at two monitoring locations at the mainstem of Suisun Creek and at two locations at the Wooden Valley Creek, the main tributary. At the monitoring site in the lower reach of the Suisun Creek high temperature persisted for up to 11 hours while at the confluence of Wooden Valley Creek with Suisun Creek the high temperatures lasted for over 12 hours.

Data Reference(s):	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Water Quality Objective/Criterion Reference(s):	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Evaluation Guideline Reference(s):	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at seven sites. Four of these sites were located on the mainstem of Suisun Creek, with the three remaining sites located on Wooden Valley Creek the major tributary. The highest temperatures were measured at the confluence of Wooden Valley Creek and Suisun Creek. High temperatures also occurred in the lower reach of Suisun Creek during the summer dry season.
Temporal Representation:	In 2002 the SWAMP Program performed continuous monitoring of temperature at 15 minute intervals for periods of 1-2 weeks in each of four different seasons: winter (2 sites), spring (7 sites), summer dry season (6 sites), and late summer (5 sites).
Environmental Conditions:	Suisun Creek supports steelhead trout and is considered an anchor watershed and essential creek for steelhead population.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. December 2002 (1st version)

Proposed Delistings

Water Body	Pollutant(s)
Sacramento San Joaquin Delta	Nickel
San Pablo Bay	Nickel
Suisun Bay	Nickel

Sacramento San Joaquin Delta — Nickel

DECISION ID **6132**

Pollutant:	**Nickel**
Final Listing Decision:	**Delist from 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	List on 303(d) list (TMDL required list)(2006)
Revision Status	Revised
Sources:	Source Unknown
Reason for Delisting:	State Determines water quality standard is being met
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	None of the 59 samples from the Sacramento San Joaquin Delta exceeded the water quality objective from the Basin Plan.
RWQCB Board Decision / Staff Recommendation:	After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should be removed from the section 303(d) list because applicable water quality standards have not been exceeded.

Lines of Evidence (LOEs) for Decision ID 6132

LOE ID:	5188
Pollutant:	Nickel
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Estuarine Habitat
Aquatic Life Use:	Estuarine Habitat
Number of Samples:	59
Number of Exceedances:	0
Data and Information Type:	Highest quality fixed-station P/C (conventional plus toxicants)
Data Used to Asses Water Quality:	Data are dissolved nickel measurements of grab samples collected through two monitoring programs. The first is the ongoing Regional Monitoring Program (RMP) in San Francisco Bay. The second set of data was from a special discharger-funded study to develop copper and nickel site-specific objectives (SSOs) that began in 2001. These data were taken throughout San Francisco Bay, but the bulk of the data are from the deepwater portion of the Bay. None of the 59 measurements exceeded the criterion.
Data Reference:	Spreadsheet of nickel data for San Francisco Bay from Regional Monitoring Program and Special copper/nickel study (1993-2005)
Water Quality	The Regional Water Board Basin Plan contains water quality objectives of 8.2

Objective/Criterion:	microgram/Liter as a 4-day average and, 74 microgram/Liter as a 1-hour average. These objectives were approved by USEPA in January 2005 and are contained in the Regional Board Basin Plan in Table 3-3.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	2 sampling locations for Sacramento San Joaquin Delta.
Temporal Representation:	Samples were taken from 1993 to 2005 in all seasons.
Environmental Conditions:	
QAPP Information:	Regional Monitoring Program QA/QC program is documented at http://sfei.org/rmp/rmp_data_index.html

San Pablo Bay — Nickel

DECISION ID	6142

Pollutant:	**Nickel**
Final Listing Decision:	**Delist from 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	List on 303(d) list (TMDL required list)(2006)
Revision Status	Original
Sources:	Source Unknown
Reason for Delisting:	State determines water quality standard is being met
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	None of the 107 samples from San Pablo Bay exceeded the water quality objective.
RWQCB Board Decision / Staff Recommendation:	After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should be removed from the section 303(d) list because applicable water quality standards have not been exceeded.

Lines of Evidence (LOEs) for Decision ID 6142

LOE ID:	5193
Pollutant:	Nickel
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Estuarine Habitat
Aquatic Life Use:	Estuarine Habitat
Number of Samples:	107
Number of Exceedances:	0
Data and Information Type:	Highest quality fixed-station P/C (conventional plus toxicants)
Data Used to Asses Water Quality:	Data are dissolved nickel measurements of grab samples collected through two monitoring programs. The first is the ongoing Regional Monitoring Program (RMP) in San Francisco Bay. The second set of data was from a special discharger-funded study to develop copper and nickel site-specific objectives (SSOs) that began in 2001. These data were taken throughout San Francisco Bay, but the bulk of the data are from the deepwater portion of the Bay. There were 107 individual dissolved nickel measurements from water samples taken in San Pablo Bay, and none of these measurements exceeded the objective.
Data Reference:	Spreadsheet of nickel data for San Franicsco Bay from Regional Monitoring Program and Special copper/nickel study (1993-2005)

Water Quality Objective/Criterion:	The Regional Water Board Basin Plan contains water quality objectives of 8.2 microgram/Liter as a 4-day average and, 74 microgram/Liter as a 1-hour average. These objectives were approved by USEPA in January 2005 and are contained in the Regional Board Basin Plan in Table 3-3.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Twenty-two sampling locations in San Pablo Bay.
Temporal Representation:	Samples were taken from 1993 to 2005 in all seasons.
Environmental Conditions:	
QAPP Information:	Regional Monitoring Program QA/QC program is documented at http://sfei.org/rmp/rmp_data_index.html

Suisun Bay — Nickel

DECISION ID	6076

Pollutant:	**Nickel**
Final Listing Decision:	**Delist from 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	List on 303(d) list (TMDL required list)(2006)
Revision Status	Revised
Sources:	Source Unknown
Reason for Delisting:	State Determines water quality standard is being met
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	None of the 96 samples from Suisun Bay exceeded the objective.
RWQCB Board Decision / Staff Recommendation:	After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should be removed from the section 303(d) list because applicable water quality standards have not been exceeded.

Lines of Evidence (LOEs) for Decision ID 6076

LOE ID:	5195
Pollutant:	Nickel
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Estuarine Habitat
Aquatic Life Use:	Estuarine Habitat
Number of Samples:	96
Number of Exceedances:	0
Data and Information Type:	Highest quality fixed-station P/C (conventional plus toxicants)
Data Used to Asses Water Quality:	Data are dissolved nickel measurements of grab samples collected through two monitoring programs. The first is the ongoing Regional Monitoring Program (RMP) in San Francisco Bay. The second set of data was from a special discharger-funded study to develop copper and nickel site-specific objectives (SSOs) that began in 2001. These data were taken throughout San Francisco Bay, but the bulk of the data are from the deepwater "spine" of the Bay.
Data Reference:	Spreadsheet of nickel data for San Franicsco Bay from Regional Monitoring Program and Special copper/nickel study (1993-2005)
Water Quality Objective/Criterion:	The Regional Water Board Basin Plan contains water quality objectives of 8.2 microgram/Liter as a 4-day average and, 74 microgram/Liter as a 1-hour average. These objectives were approved by USEPA in January 2005 and are contained in the Regional Board Basin Plan in Table 3-3.
Objective/Criterion	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

Reference:

Evaluation Guideline:
Guideline Reference:

Spatial Representation:	21 sampling locations for Suisun Bay.
Temporal Representation:	Samples were taken from 1993 to 2005 in all seasons.
Environmental Conditions:	
QAPP Information:	Regional Monitoring Program QA/QC program is documented at http://sfei.org/rmp/rmp_data_index.html

APPENDIX D

WATERBODY FACT SHEETS
Proposed – Do Not List Recommendations
Some beneficial uses supported

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List of Creeks

Easkoot Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Pine Gulch Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Redwood Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Rodeo Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Tennessee Valley Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Webb Creek

Benthic macroinvertebrate | Temperature | Dissolved Oxygen

Water Body Name:	**Easkoot Creek**
Water Body ID:	**CAR2013001220080626140517**
Water Body Type:	**River & Stream**
DECISION ID	**7744**
Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Dissolved oxygen and temperature measurements exceeded the Basin Plan objectives for waters designated as cold water habitat at 1 of 6 continuous deployments and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated good water quality conditions.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7744

LOE ID:	5722
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	6
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Easkoot Creek watershed as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at two locations. The estimated 7-day mean temperatures ranged from 10.64°C to 15.81 °C and varied with season and location. The 14.8 °C criterion for coho salmon was exceeded in 1 out of 6 continuous temperature deployments during the dry summer season at the downstream reach of the creek. The 17 °C criterion for steelhead was never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at two sites. One site was located on the mainstem of Easkoot Creek just above the tidal influence and one on Fitzhenry Creek a small tributary. The high temperatures were detected at the downstream location in Easkoot Creek.
Temporal Representation:	Concurrent continuous measurements were conducted at both monitoring locations. Temperature was recorded at 15 minute intervals over 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	

QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5852
Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Not Specified
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	2
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water Quality:	Benthic macroinvertebrates were sampled from two sites in the Easkoot Creek watershed in April 2005 by the SWAMP program. Benthic macroinvertebrate assemblage metrics were similar to values observed at reference sites in perennial creeks and indicated good conditions. Taxa richness score was 26 and % sensitive EPT was 14.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59. Reference conditions determined for perennial streams such as Easkoot Creek, usually exhibit taxa richness > 38 and % sensitive EPT > 44. A perennial stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. A perennial stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay

Regional Water Quality Control Board

Spatial Representation:	Benthic macroinvertebrates were measured at two sites. One site was located on the mainstem of Easkoot Creek just above the tidal influence and one on Fitzhenry Creek - a small tributary.
Temporal Representation:	Benthic macroinvertebrates were sampled in April, 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).
QAPP Information Reference(s):	

LOE ID:	5723
Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	6
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Comprehensive water quality assessment was conducted at the Easkoot Creek watershed as part of SWAMP assessment in 2005. Continuous field monitoring of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at two locations. The 7 day average minimum concentrations of dissolved oxygen ranged from 6.33 to 11.15 mg/L and varied with season. Minimum dissolved oxygen levels fell below the objective of 7 mg/L only once during the dry season in August 2005. During that period minimum values of DO ranged from 5.1 to 6.94 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at two sites. One site was located on the mainstem of Easkoot Creek just above the tidal influence and one on Fitzhenry Creek a small tributary. The lowest dissolved oxygen levels were measured at the downstream location in Easkoot Creek.

Temporal Representation:	At both locations the SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals lasting 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Pine Gulch Creek**
Water Body ID:	**CAR2013001120080624164835**
Water Body Type:	**River & Stream**
DECISION ID	**7745**

Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Dissolved oxygen measurements did not exceeded the Basin Plan objectives for waters designated as cold water habitat. Temperature measurements at 1 out of 6 continuous deployments exceeded the 14.8 °C at and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated good water quality conditions.

4.Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7745

LOE ID: 5719

Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	6
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Pine Gulch watershed as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at two locations. The 7 day average minimum concentrations of dissolved oxygen were between 9.01 and 9.87 mg/L during dry season, 10.0 - 10.48 mg/L during spring season, and 11.24 - 11.58 mg/L during winter wet season. All DO measurements met the water quality objective of 7 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at two sites located on the mainstem of Pine Gulch Creek.
Temporal Representation:	At all monitoring locations the SWAMP Program performed concurrent continuous measurements of dissolved oxygen at 15 minute intervals lasting 6 to 7 days. The measurements were conducted during spring (April 2005), summer dry season (August 2005), and winter wet season (January/February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5853
Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Not Specified
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	2
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water	Benthic macroinvertebrates were sampled from two sites in the Pine Gulch Creek

Quality:	watershed in April 2005 by the SFBRWQCB SWAMP program. Benthic macroinvertebrate assemblage metrics were similar to values observed at reference sites in perennial creeks and indicated good conditions. Taxa richness score ranged from 34 to 36 and % sensitive EPT were 30 to 33.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59. Reference conditions determined for perennial streams such as Pine Gulch Creek, usually exhibit taxa richness > 38 and % sensitive EPT > 44. A perennial stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. A perennial stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were measured at two sites located on the mainstem of Pine Gulch Creek.
Temporal Representation:	Benthic macroinvertebrates were sampled once in April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5720
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat

Number of Samples:	6
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Pine Gulch watershed as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at two locations. The measured temperatures ranged from 5.73°C to 29.32 °C and varied with season and location. The 14.8 °C criterion for coho salmon was exceeded in 1 out of 6 continuous temperature deployments and the 17 °C criterion for steelhead was never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at two sites.
Temporal Representation:	Concurrent continuous measurements were conducted at both monitoring locations. Temperature was recorded at 15 minute intervals over 2 to 11 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January/February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Redwood Creek (Marin County)**
Water Body ID:	**CAR2013001320080714110732**
Water Body Type:	**River & Stream**
DECISION ID	**7746**

Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Dissolved oxygen and temperature measurements exceeded the Basin Plan objectives for waters designated as cold water habitat at 1 of 12 continuous deployments and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated excellent to good water quality conditions.

4.Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7746

LOE ID:	5752
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	12
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Comprehensive water quality assessment was conducted at the Redwood Creek watershed as part of SWAMP assessment in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at four locations. The estimated 7-day mean temperatures ranged from 12.08°C to 15.47 °C and varied with season and location. The 14.8 °C criterion for coho salmon was exceeded in 1 out of 12 continuous temperature deployments during the dry summer season at the downstream reach of the creek. The 17 °C criterion for steelhead was never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at four sites. Three of these sites were located on the mainstem of Redwood Creek, with the remaining site located on Green Gulch - a small tributary.
Temporal Representation:	Concurrent continuous measurements were conducted at both monitoring locations. Temperature was recorded at 15 minute intervals over 6 to 12 days during late spring (May 2005), summer dry season (August 2005), and winter wet season (January/February 2006).
Environmental Conditions:	

QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5854
Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Not Specified
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	4
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water Quality:	Benthic macroinvertebrates were sampled from four sites in the Redwood Creek watershed in April 2005 by the SFBRWQCB SWAMP program. Benthic macroinvertebrate assemblage metrics were similar to values observed at reference sites in perennial creeks and indicated excellent to good conditions. Taxa richness score ranged from 32 to 36 and % sensitive EPT were 30 to 33.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59. Reference conditions determined for perennial streams such as Redwood Creek, usually exhibit taxa richness > 38 and % sensitive EPT > 44. A perennial stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. A perennial stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay

	Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were sampled from four sites. Three of these sites were located on the mainstem of Redwood Creek, with the remaining site located on Green Gulch - a small tributary.
Temporal Representation:	All four sites were sampled for benthic macroinvertebrates in April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5755
Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	12
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Comprehensive water quality assessment was conducted at the Redwood Creek watershed as part of SWAMP assessment in 2005. Continuous field monitoring of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at four locations. The 7 day average minimum concentrations of dissolved oxygen were between 6.74 and 9.81 mg/L during dry season, 9.03 - 10.72 during spring season, and 10.38 - 11.8 during winter wet season. Minimum dissolved oxygen levels fell below the objective of 7 mg/L only once during the dry season in August 2005. The below objective concentrations were detected in Green Gulch, one out of 4 monitoring points in the Redwood Creek watershed, located just upstream from the confluence with Redwood Creek. During that period minimum values of DO ranged from 4.74 to 7.95 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at four sites. Three of these sites were located on the mainstem of Redwood Creek, with the remaining site located on Green Gulch -

	a small tributary.
Temporal Representation:	At all monitoring locations the SWAMP Program performed concurrent continuous measurements of dissolved oxygen at 15 minute intervals lasting 6 to 12 days. The measurements were conducted during late spring (May 2005), summer dry season (August 2005), and winter wet season (February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Rodeo Creek (Marin County)**
Water Body ID:	**CAR2013001420080714111405**
Water Body Type:	**River & Stream**
DECISION ID	**7749**

Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Do Not List on 303(d) list (TMDL required list)**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Temperature and dissolved oxygen measurements at all 3 continuous deployments did not exceed the applicable water quality objectives for waters designated as cold water habitat and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated good water quality conditions.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7749

LOE ID:	5759
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water

Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	A water quality assessment was conducted at Rodeo Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The estimated 7-day mean temperature was 13.43 in spring, 13.27°C during dry summer season, and 10.47 °C during wet season. The 14.8 °C criterion for coho salmon and the 17 °C criterion for steelhead were never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at one site located in the Golden Gate National Recreation Area upstream from Rodeo Lake.
Temporal Representation:	Temperature was recorded at 15 minute intervals over 9 to 21 days during late spring (June 2005), summer dry season (September 2005), and winter wet season (February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5857
Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	2
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water Quality:	Benthic macroinvertebrates were sampled from two sites in the Rodeo Creek watershed in May 2005 by the SFBRWQCB SWAMP program. Benthic macroinvertebrate assemblage metrics were similar to values observed at reference sites in perennial creeks and indicated good conditions. Taxa richness score ranged from 22 to 28 and % sensitive EPT were 37 to 38.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59 (SFBRWQCB 2007). Reference conditions determined for perennial streams such as Rodeo Creek, usually exhibit taxa richness > 38 and % sensitive EPT > 44. A perennial stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. A perennial stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were sampled from two sites. One site was located on

	the mainstem of Rodeo Creek upstream from the confluence with Gerbode Creek, a tributary that was also sampled.
Temporal Representation:	Benthic macroinvertebrates were sampled in May 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5760
Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at Rodeo Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The 7 day average minimum concentration of dissolved oxygen was 8.83 mg/L during dry season, 9.08 mg/L during spring season, and 11.03 mg/L during winter wet season. All DO measurements met the water quality objective of 7 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen concentrations were measured at one site located in the Golden Gate National Recreation Area upstream from Rodeo Lake.
Temporal Representation:	DO was recorded at 15 minute intervals over 9 to 21 days during late spring (June 2005), summer dry season (September 2005), and winter wet season (February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Tennessee Valley Creek**
Water Body ID:	**CAR2013001420080626103904**
Water Body Type:	**River & Stream**
DECISION ID	**7747**

Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Dissolved oxygen and temperature measurements did not exceed the Basin Plan objectives for waters designated as cold water habitat and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated excellent water quality conditions.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7747

LOE ID:	5717
Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at Tennessee Valley Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The 7 day average minimum concentration of dissolved oxygen was 8 mg/L during dry season, 10.26 mg/L during spring season, and 10.77 mg/L during winter wet season. All DO measurements met the water quality objective of 7 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen concentrations were measured at one site located in the NW part of the Golden Gate National Recreation Area.
Temporal Representation:	DO was recorded at 15 minute intervals over 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5855
Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Not Specified
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water	Benthic macroinvertebrates were sampled from one site in the Tennessee Valley

Quality:	Creek watershed in April 2005 by the SFBRWQCB SWAMP program. The flow in the creek is intermittent. Benthic macroinvertebrate assemblage metrics were no different to values observed at reference sites in ephemeral creeks and indicated excellent conditions. Taxa richness score and % sensitive EPT were both 27 and the combined Human Disturbance Index was 0.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59. Reference conditions determined for ephemeral streams, such as Tennessee Valley Creek, usually exhibit taxa richness > 28 and % sensitive EPT > 21. An ephemeral stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. An ephemeral stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were sampled from one site located in the NW part of the Golden Gate National Recreation Area.
Temporal Representation:	Benthic macroinvertebrates were sampled once in April, 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5718
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at Tennessee Valley Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The estimated 7-day mean temperature was 12.52°C in spring, 14.18°C during dry summer season, and 10.3 °C during wet season. The 14.8 °C criterion for coho salmon and the 17 °C criterion for steelhead were never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o} C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at one site located in the NW part of the Golden Gate National Recreation Area.
Temporal Representation:	Temperature was recorded at 15 minute intervals over 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Webb Creek**
Water Body ID:	**CAR2013001220080626103512**
Water Body Type:	**River & Stream**
DECISION ID	**7748**

Pollutant:	**Benthic-Macroinvertebrate Bioassessments | Oxygen, Dissolved | Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This waterbody is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. Three lines of evidence are available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Temperature and dissolved oxygen measurements at all 3 continuous deployments did not exceed the applicable water quality objectives for waters designated as cold water habitat and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy. In addition, the macroinvertebrate data indicated excellent water quality conditions.
4.Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that this waterbody supports the beneficial use of aquatic life and meets applicable water quality standards for dissolved oxygen and temperature. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 7748

LOE ID: 5715

Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at Webb Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The estimated 7-day mean temperature was 11.79°C in spring, 13.69°C during dry summer season, and 10.51 °C during wet season. The 14.8 °C criterion for coho salmon and the 17 °C criterion for steelhead were never exceeded.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	Temperature was measured at one site located just upstream from Hwy 1.
Temporal Representation:	Temperature was recorded at 15 minute intervals over 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID: 5856

Pollutant:	Benthic-Macroinvertebrate Bioassessments
LOE Subgroup:	Population/Community Degradation
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	0
Data and Information Type:	Benthic macroinvertebrate surveys
Data Used to Asses Water Quality:	Benthic macroinvertebrates were sampled from one site in the Webb Creek watershed in April 2005 by the SFBRWQCB SWAMP program. Benthic macroinvertebrate assemblage metrics were no different to values observed at reference sites in perennial creeks and indicated excellent conditions. Taxa richness score was 39 and % sensitive EPT was 26.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Benthic macroinvertebrate assemblage metric scores that are within the range of scores for minimally disturbed reference sites indicate no substantial alterations in community ecology. Taxa richness values at reference sites sampled by the SFBRWQCB SWAMP program between 2001 and 2003 ranged from 28 to 59. Reference conditions determined for perennial streams such as Webb Creek, usually exhibit taxa richness > 38 and % sensitive EPT > 44. A perennial stream could be described as in - excellent condition - if there is no difference between the metrics measured at the site and those established for reference sites. A perennial stream will be described as in - good condition - if the site metrics indicate minor loss of bio-integrity but still a good structure and function, and sensitive species are present in abundance.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Spatial Representation:	Benthic macroinvertebrates were sampled from one site located upstream from Hwy 1.
Temporal Representation:	Benthic macroinvertebrates were sampled once in April, 2005.
Environmental Conditions:	

QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

LOE ID:	5716
Pollutant:	Oxygen, Dissolved
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at Webb Creek as part of SWAMP study in 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at one location. The 7 day average minimum concentration of dissolved oxygen was 10.72 mg/L during dry season, 11.66 mg/L during spring season, and 11.4 mg/L during winter wet season. All DO measurements met the water quality objective of 7 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 7.0 mg/L minimum for waters designated as cold water habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen concentrations were measured at one site located just upstream from Hwy 1.
Temporal Representation:	DO was recorded at 15 minute intervals over 6 to 7 days during spring (April 2005), summer dry season (August 2005), and winter wet season (January 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

APPENDIX E

WATERBODY FACT SHEETS
Proposed – Do Not List Recommendations
Insufficient Information

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List of Creeks

Arroyo Viejo Creek

Sediment Toxicity | Sediment: Cr, Cu, As, Ni

Audubon Canyon Creek

Nitrate

Codornices Creek

Low Dissolved Oxygen

Glen Echo Creek

Sediment Toxicity | Sediment: Cr, Cu, Pb, Zn | Water: Cu, Pb, Ni, Zn

Lion Creek

Low Dissolved Oxygen

Lobos Creek

Water Toxicity | Sediment Toxicity

Mt. Diablo Creek

Low Dissolved Oxygen | Sediment Toxicity

Peralta Creek

Diazinon | Pyrethroids | Sediment Toxicity

Stevens Creek

Low Dissolved Oxygen

Temescal Creek

Water Toxicity | Water: Cu, Pb, Ni, Zn

Walker Creek

Temperature, Water

Water Body Name: **Arroyo Viejo Creek**

Water Body ID: **CAR204200402008081719360 4**

Water Body Type: **River & Stream**

DECISION ID **9910**

Pollutant: **Sediment Toxicity**

Final Listing Decision: **Decision in Progress**

Last Listing Cycle's Final Listing Decision: New Decision

Revision Status Original

Impairment from Pollutant or Pollution: Pollutant

Weight of Evidence: This pollutant is being considered for listing under sections 3.1 and 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status.

Multiple lines of evidence are available in the administrative record to assess toxicity in Arroyo Viejo Creek. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Amphipod toxicity has been observed in the sample analyzed and one sample has shown exceedances of threshold effect concentrations for arsenic, chromium, copper and nickel but the number of exceedances does not meet the requirements listed in Table 3.1 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9910

LOE ID: 21287

Pollutant: Sediment Toxicity

LOE Subgroup: Pollutant-Sediment

Matrix: Sediment

Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in spring 2005. This sample displayed statistically significant toxicity during the Hyalella azteca test. Hyalella azteca growth was only 64% of the control.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity data were evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Spatial Representation:	Data were collected at a sampling location at the lower part of Arroyo Viejo Creek upstream from the confluence with Lion Creek in south-east Oakland.
Temporal Representation:	Sample was collected in April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	21288
Pollutant:	Chromium (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None

Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Chromium concentration in sediment sample collected in spring 2005 was 101 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for chromium - 43.4 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Arroyo Viejo Creek upstream from the confluence with Lion Creek in south-east Oakland.
Temporal Representation:	Sample was collected in spring April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	21293
Pollutant:	Nickel (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Nickel concentration in sediment sample collected in spring 2005 was 95.5 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco

	Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for nickel - 48.6 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Arroyo Viejo Creek upstream from the confluence with Lion Creek in south-east Oakland.
Temporal Representation:	Sample was collected in spring April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	21292
Pollutant:	Arsenic
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Arsenic concentration in sediment sample collected in spring 2005 was 12 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for arsenic - 9.79 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31

Spatial Representation:	Data were collected at a sampling location at the lower part of Arroyo Viejo Creek upstream from the confluence with Lion Creek in south-east Oakland.
Temporal Representation:	Sample was collected in spring April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	21291
Pollutant:	Copper (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Copper concentration in sediment sample collected in spring 2005 was 40 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for copper - 31.6 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Arroyo Viejo Creek upstream from the confluence with Lion Creek in south-east Oakland.
Temporal Representation:	Sample was collected in spring April 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Water Body Name:	**Audubon Canyon**
Water Body ID:	**CAR2013001220080626101412**
Water Body Type:	**River & Stream**
DECISION ID	**10792**

Pollutant:	**Nitrate**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under sections 3.1 of the Listing Policy. Under section 3.1, water segments shall be evaluated to determine whether the weight of evidence demonstrates that a water quality standard is not attained. One line of evidence is available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. None of three available concentrations exceeded the water quality guideline and this does not exceed the allowable frequency using Table 3.1 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards to support the cold freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 10792

LOE ID:	23464
Pollutant:	Nitrate
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	3

Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment in Audubon Canyon Creek was conducted by SWAMP in 2005-2006. Nitrate concentrations (NO3-N) were analyzed three times and ranged from 0.08 to 0.17mg/L. The measured nitrate levels did not exceed the guideline threshold indicative of conditions leading to excessive algal growth, however, no data on algae or macrophytes are available to ensure compliance with the water quality objective.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Total nitrogen levels greater than 0.5 mg/L can result in large masses of nuisance algae unless other factors limit algae growth (Bowie et al. 1985; Biggs 2000). Since nitrate is one component of total nitrogen in water, nitrate levels should also be less than 0.5 mg/L.
Guideline Reference:	Eutrophication of streams and rivers: dissolved nutrient-chlorophyll relationships for benthic algae. J. N. Am. Benthol. Soc. 19:17-31 Rates, Constant, and Kinetics Formulations in Surface Water Quality Modeling, 2nd Edition. EPA/600/3-85/040. USEPA Environmental Research Laboratory, Athens, GA
Spatial Representation:	Nitrate was sampled at one monitoring location in the lower reach of Audubon Canyon Creek in the close proximity to Bolinas Lagoon.
Temporal Representation:	Water samples were collected for nitrate analyses during spring (April 2005), summer dry season (June 2005) and winter wet season (February 2006).
Environmental Conditions:	Audubon Canyon is a small intermittent creek draining to Bolinas Lagoon in West Marin County.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. SWAMP. December 2002 (1st version).

Water Body Name:	**Codornices Creek**
Water Body ID:	**CAR2033001120080624162950**
Water Body Type:	**River & Stream**
DECISION ID	**9437**

Pollutant:	**Low Dissolved Oxygen**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

One line of evidence is available in the administrative record to assess this water body. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Dissolved oxygen measurements at 11 continuous deployments exceeded the applicable water quality objectives on three occasions for waters designated as warm water habitat and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards for dissolved oxygen to support the warm freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 9437

LOE ID:	8687
Pollutant:	Low Dissolved Oxygen
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	Wildlife Habitat

Number of Samples:	11
Number of Exceedances:	3
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Data used to evaluate dissolved oxygen was collected by SWAMP in 2004. In 3 out of 11 seasonal deployments, minimum dissolved oxygen levels fell below the objective of 5 mg/L. The three deployments where this occurred were dry season deployments in the lower and mid-watershed.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 5.0 mg/L minimum for waters designated as warm freshwater habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at three sites spanning lower to upper watershed locations on this creek.
Temporal Representation:	The SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in two dry seasons and one wet season in 2004.
Environmental Conditions:	The Codornices Creek watershed is highly urbanized, and large portions of the original waterways have been altered or placed in culverts. The creek flows from headwaters in the western slopes of the East Bay ridge, through East Bay cities, into the eastern side of the SF Bay. Sites monitored represent mostly urban land use. The creek is spring fed to a limited extent. However, the adjacent cities often contribute dry weather flows, rendering the creek wet year round.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Glen Echo Creek**
Water Body ID:	**CAR2042004020080817194904**
Water Body Type:	**River & Stream**
DECISION ID	**9454**

Pollutant:	**Copper | Lead | Nickel | Zinc**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under section 3.1 of the Listing Policy. Under section 3.1 a single line of evidence is necessary to assess listing status. A single line of evidence is available for each pollutant in the administrative record. Concentrations of dissolved zinc, copper, lead and nickel do not exceed water quality standards.

Based on the limited available data for this waterbody, the weight of evidence indicates that there is insufficient justification for placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Concentrations of dissolved zinc, copper, lead and nickel do not exceed water quality standards.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9454

LOE ID: 8966

Pollutant:	Copper | Lead | Nickel | Zinc
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved

Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	The Glen Echo Creek watershed was monitored as part of SWAMP assessment. None of the three samples exceeded the water quality objectives for copper, lead, nickel and zinc.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. Table 3-4 in the Basin Plan (2007) lists freshwater water quality objectives for toxic pollutants: copper - 9.0 ug/L; lead - 2.5 ug/L; nickel - 52 ug/L and zinc - 120 ug/L.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek upstream from the confluence with Lake Merritt.
Temporal Representation:	Samples were collected during spring, dry and wet season of 2004-2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

DECISION ID	**9453**
Pollutant:	**Sediment Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	This pollutant is being considered for listing under sections 3.1 and 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. Multiple lines of evidence are available in the administrative record to assess toxicity in Glen Echo Creek. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Amphipod toxicity has not been observed in the sample analyzed but concentrations of chromium, copper, lead and zinc in one sediment sample exceed sediment quality guidelines.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9453

LOE ID:	8962
Pollutant:	Chromium (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Chromium concentration in sediment sample collected in spring 2005 was 69.6 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for chromium - 43.4 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek

	upstream from the confluence with Lake Merritt.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8964
Pollutant:	Lead (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Lead concentration in sediment sample collected in spring 2005 was 94.1 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for lead - 35.8 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek upstream from the confluence with Lake Merritt.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8965
Pollutant:	Zinc (sediment)

LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Zinc concentration in sediment sample collected in spring 2005 was 241 mg/kg and exceeded the sediment quality guideline.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for zinc - 121 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek upstream from the confluence with Lake Merritt.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8960
Pollutant:	Sediment Toxicity
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	0
Data and Information Type:	TOXICITY TESTING

Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in 2005. The sample did not exhibit amphipod toxicity.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity data were evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek upstream from the confluence with Lake Merritt.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8963
Pollutant:	Copper (sediment)
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Copper concentration in sediment sample collected in spring 2005 was 49.4 mg/kg and exceeded the sediment quality guideline.

Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment Quality Guidelines (MacDonald et al., 2000): TEC (threshold effect concentration) for copper - 31.6 mg/kg
Guideline Reference:	Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Environmental Contamination and Toxicology. 39: 20-31
Spatial Representation:	Data were collected at a sampling location at the lower part of Glen Echo Creek upstream from the confluence with Lake Merritt.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Water Body Name:	**Lion Creek**
Water Body ID:	**CAR204200402008102814471 9**
Water Body Type:	**River & Stream**
DECISION ID	**10872**

Pollutant:	**Low Dissolved Oxygen**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under sections 3.2 of the Listing Policy. Under section 3.2 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess this pollutant.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Dissolved oxygen measurements at seven continuous deployments did not exceed the applicable water quality objectives for waters designated as warm water habitat and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient number of exceedances to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 10872

LOE ID: 23498

Pollutant:	Dissolved Oxygen
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Warm Freshwater Habitat
Aquatic Life Use:	
Number of Samples:	7
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	A water quality assessment was conducted in Lion Creek as part of SWAMP study in 2004- 2005. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at three locations. The 7 day average minimum concentration of dissolved oxygen was 5.3 mg/L during summer dry season, 8.8 mg/L during spring season, and 10.7 mg/L during winter wet season. Dissolved oxygen measurements during 7 deployments met the water quality objective of 5 mg/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 4&5 Assessment
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 5.0 mg/L minimum for waters designated as warm freshwater habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen concentrations were measured at three monitoring sites. Two of these sites are located just below the western slopes of the East Bay ridge and one site is located at the lower reach of the creek which is adjacent to urban area just west of Hwy 185.
Temporal Representation:	Dissolved oxygen was recorded at 15 minute intervals over 6 to 7 days during spring (May 2004), summer dry season (August 2004), and winter wet season (February 2005).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Lobos Creek**
Water Body ID:	**CAR203400102008062610 4718**
Water Body Type:	**River & Stream**
DECISION ID	**9912**

Pollutant:	**Sediment Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status.

One line of evidence is available in the administrative record to assess toxicity in Lobos Creek. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Sediment toxicity was detected in one sample.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient number of exceedances to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9912

LOE ID:	21284
Pollutant:	Sediment Toxicity
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat

Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in spring 2005. This sample displayed statistically significant toxicity during the Hyalella azteca test. Hyalella azteca growth was only 76% of the control.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity was evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation (alpha = 0.05) and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Spatial Representation:	Data were collected at one sampling location at the lower part of Lobos Creek.
Temporal Representation:	A sample was collected in spring season (April 2005).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

DECISION ID	**9911**
Pollutant:	**Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing

status. One line of evidence is available in the administrative record to assess toxicity in Lobos Creek. One of three water samples exhibit limited toxicity.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Water toxicity was observed in one of three samples.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient number of exceedances to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9911

LOE ID:	21282
Pollutant:	Toxicity
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	1
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Three samples were collected to evaluate water toxicity. Selenastrum growth was significantly lower (64.8%) than the control in one sample collected during winter wet season in February 2006. This sample displayed statistically significant water column toxicity.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other

	relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Water toxicity was evaluated according to the SWAMP methodology. The U.S.EPA whole effluent toxicity protocol (U.S.EPA 1994) was used to test the effect of water samples on three freshwater test organisms. Statistical evaluation (alpha = 0.05) and a default threshold of 80% of the control value were used to establish whether water exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. Third Edition. July 1994
Spatial Representation:	Data were collected at one sampling location at the lower part of Lobos Creek.
Temporal Representation:	Samples were collected in spring season (April 2005), dry season (June 2005) and winter wet season (February 2006).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Water Body Name:	**Morses Gulch Creek**
Water Body ID:	**CAR2013001220080624164407**
Water Body Type:	**River & Stream**
DECISION ID	**10793**

Pollutant:	**Nitrate**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under sections 3.1 of the Listing Policy. Under section 3.1, water segments shall be evaluated to determine whether the weight of evidence demonstrates that a water quality standard is not attained. One line of evidence is available in the administrative record to assess this water body.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. None of three available concentrations exceeded the water quality guideline and this does not exceed the allowable frequency using Table 3.1 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards to support the cold freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 10793

LOE ID:	23466
Pollutant:	Nitrate
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Cold Freshwater Habitat

Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment in Morses Gulch Creek was conducted by SWAMP in 2005-2006. Nitrate concentrations (NO3-N) were analyzed three times and ranged from 0.19 to 0.23mg/L. The measured nitrate levels did not exceed the guideline threshold indicative of conditions leading to excessive algal growth, however, no data on algae or macrophytes are available to ensure compliance with the water quality objective.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Total nitrogen levels greater than 0.5 mg/L can result in large masses of nuisance algae unless other factors limit algae growth (Bowie et al. 1985; Biggs 2000). Since nitrate is one component of total nitrogen in water, nitrate levels should also be less than 0.5 mg/L.
Guideline Reference:	Eutrophication of streams and rivers: dissolved nutrient-chlorophyll relationships for benthic algae. J. N. Am. Benthol. Soc. 19:17-31 Rates, Constant, and Kinetics Formulations in Surface Water Quality Modeling, 2nd Edition. EPA/600/3-85/040. USEPA Environmental Research Laboratory, Athens, GA
Spatial Representation:	Nitrate was sampled at one monitoring location in the lower reach of Morses Gulch Creek in the close proximity to Bolinas Lagoon.
Temporal Representation:	Water samples were collected for nitrate analyses during spring (April 2005), summer dry season (June 2005) and winter wet season (February 2006).
Environmental Conditions:	Morses Gulch is a small intermittent creek draining to Bolinas Lagoon in West Marin County.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).
QAPP Information Reference(s):	Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program. Sacramento, CA. State Water Resources Control Board. SWAMP. December 2002 (1st version).

Water Body Name:	**Mt. Diablo Creek**
Water Body ID:	**CAR207310401999021716321 4**
Water Body Type:	**River & Stream**
DECISION ID	**9433**

Pollutant:	**Low Dissolved Oxygen**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

One line of evidence is available in the administrative record to assess this water body. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Dissolved oxygen measurements from 10 continuous deployments exceeded the applicable water quality objectives for waters designated as warm fresh water habitat on two occasions, and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards for dissolved oxygen to support the warm freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 9433

LOE ID: 8649

Pollutant:	Low Dissolved Oxygen
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat

Aquatic Life Use:	Wildlife Habitat
Number of Samples:	10
Number of Exceedances:	2
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Data used to evaluate dissolved oxygen was collected by SWAMP in 2003. In 2 out of 10 seasonal deployments, minimum dissolved oxygen levels fell below the objective of 5 mg/L. One deployment with low oxygen levels was a Spring deployment at a mainstem station in the lower watershed, and the second was a tributary deployment in the dry season.
Data Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 5.0 mg/L minimum for waters designated as warm freshwater habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at eight sites. Four of these sites were located on the mainstem of Mt. Diablo Creek, and the remainder were tributary creek measurements.
Temporal Representation:	The SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in each of three different seasons in 2003: winter, spring, and summer.
Environmental Conditions:	The Mt. Diablo Creek watershed is heavily urbanized throughout most of the lower and middle watershed. Flow in the Mt. Diablo Creek watershed is mostly intermittent with dry creeks in the summer. Some creeks are fed by runoff from residential and golf course watering, and pools remain through the summer in upstream portions of tributary, Mitchell Creek.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

DECISION ID	**9811**
Pollutant:	**Sediment Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant
Weight of Evidence:	This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess sediment toxicity. Based on the readily available data for this waterbody, the weight of

	evidence indicates that there is insufficient justification available for placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category. This conclusion is based on the staff findings that: 1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy. 2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy. 3. Amphipod toxicity has been observed in one sample and the number of exceedances does not meet the requirements listed in Table 3.1 of the Listing Policy. 4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.
RWQCB Board Decision / Staff Recommendation:	After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9811

LOE ID:	8542
Pollutant:	Sediment Toxicity
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in April 2003. The sample displayed statistically significant toxicity during the 10-day Hyalella azteca test. It caused mortality (70.7%) and exhibited diminished growth at 56.6% of control.
Data Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland. CA
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.

Objective/Criterion Reference: San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

Evaluation Guideline:	Sediment toxicity was evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation (alpha = 0.05) and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Spatial Representation:	One sediment sample was collected at a 'watershed integrator' site located close to the mouth of Mt. Diablo Creek.
Temporal Representation:	Sample was collected during the spring season of 2003.
Environmental Conditions:	The lower reach data are representative of heavily urbanized area dominated by the city of Concord.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Peralta Creek**
Water Body ID:	**CAR2042004020080817191851**
Water Body Type:	**River & Stream**
DECISION ID	**9456**

Pollutant:	**Diazinon | Pyrethroids | Sediment Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Expected TMDL Completion Date:	
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status.

Three lines of evidence are available in the administrative record to assess toxicity in Peralta Creek. Amphipod toxicity has not been observed. Pyrethroids concentration exceeds 28 toxicity units and may cause toxic effect. The concentration of diazinon also exceeds the acute water quality threshold in one of three samples.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:
1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Amphipod toxicity has not been observed in the sample analyzed.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9456

LOE ID:	8974
Pollutant:	Sediment Toxicity
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment

Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	0
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Data used to evaluate sediment toxicity comprise one sediment sample collected by the SWAMP in 2005. The sample did not exhibit amphipod toxicity.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sediment toxicity data were evaluated according to the SWAMP methodology. Sample toxicity was determined by comparing mean organism response in samples and in negative controls. Statistical evaluation and a default threshold of 80% of the control value were used to establish whether the sediment exhibited significant toxicity adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
Spatial Representation:	Data were collected at a sampling location at the lower part of Peralta Creek North of Hwy 185.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8977
Pollutant:	Diazinon
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat

Number of Samples:	2
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Diazinon concentration in one (January 2005) of two samples exceeded 0.1 ug/L.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	The TMDL for diazinon in urban creeks established diazinon concentration target of less than 0.1 ug/L expressed as a one-hour average.
Guideline Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Data were collected at a sampling location at the lower part of Peralta Creek North of Hwy 185.
Temporal Representation:	Samples were collected in January (wet season) and June (dry season) of 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

LOE ID:	8975
Pollutant:	Pyrethroids
LOE Subgroup:	Pollutant-Sediment
Matrix:	Sediment
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	1
Number of Exceedances:	1
Data and Information Type:	Toxicity testing of sediments
Data Used to Asses Water Quality:	Data used to evaluate pyrethroid toxicity comprise one sediment sample collected by the SWAMP in 2005.The pyrethroid concentration in the Peralta Creek sample exceeded 28TU but the growth and survival of Hyalella azteca was unaffected.

Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Year 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Amweg et al. (2006) interpreted results of toxicity testing and sediment pyrethroid concentrations in urban creeks in California. Pyrethroid concentration data and analysis of toxicity units (TU) were used to determine whether pyrethroids could be linked to the observed toxicity to Hyalella azteca. The results indicated that samples with less than 1 TU were nontoxic and those with TU greater than 2 were consistently toxic.
Guideline Reference:	Pyrethroid insecticides and sediment toxicity in urban creeks from California and Tennessee. Environmental Science and Technology, 40(5): 1700-1706
Spatial Representation:	Data were collected at a sampling location at the lower part of Peralta Creek North of Hwy 185.
Temporal Representation:	Sample was collected in spring 2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Water Body Name:	**Stevens Creek**
Water Body ID:	**CAR2055002019990218134341**
Water Body Type:	**River & Stream**
DECISION ID	**9434**

Pollutant:	**Low Dissolved Oxygen**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

One line of evidence is available in the administrative record to assess this water body. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Dissolved oxygen measurements at all 11 continuous deployments exceeded the applicable water quality objectives for waters designated as warm water habitat on one occasion, and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards for dissolved oxygen to support the warm freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 9434

LOE ID: 8678

Pollutant:	Low Dissolved Oxygen
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat

Aquatic Life Use:	Wildlife Habitat
Number of Samples:	11
Number of Exceedances:	1
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Data used to evaluate dissolved oxygen was collected by SWAMP in 2002-2003. In 1 out of 11 seasonal deployments, minimum dissolved oxygen levels fell below the objective of 5 mg/L. The deployment where this occurred was a lower watershed deployment during the dry season.
Data Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	The numeric water quality objective for dissolved oxygen is 5.0 mg/L minimum for waters designated as warm freshwater habitat. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Spatial Representation:	Dissolved oxygen was measured at four sites spanning lower to upper watershed locations on this creek.
Temporal Representation:	The SWAMP Program performed continuous monitoring of dissolved oxygen at 15 minute intervals for periods of 1-2 weeks in two dry seasons and one wet season in 2002-2003.
Environmental Conditions:	The Stevens Creek watershed is in the western Santa Clara Basin. The watershed of Stevens Creek is a 38 square mile drainage basin, with its headwaters high in the densely forested Santa Cruz Mountains. The upper portions of the watershed drain upland, mountainous or hilly landscapes where human development is largely absent. The lower portions of the streams flow through western Santa Clara Valley, a large flat alluvial valley draining into South San Francisco Bay. Land uses in the watershed include mining, urbanization, forests, and parks.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

Water Body Name:	**Temescal Creek**
Water Body ID:	**CAR203300102008081719261 9**
Water Body Type:	**River & Stream**
DECISION ID	**9908**

Pollutant:	**Copper | Lead | Nickel | Zinc**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

This pollutant is being considered for listing under section 3.1 of the Listing Policy. Under section 3.1 a single line of evidence is necessary to assess listing status.

A single line of evidence is available for each pollutant in the administrative record. Concentrations of dissolved zinc, copper, lead and nickel do not exceed water quality standards. Based on the limited available data for this waterbody, the weight of evidence indicates that there is insufficient justification for placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Concentrations of dissolved zinc, copper, lead and nickel do not exceed water quality standards.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient information to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9908

LOE ID:	21294
Pollutant:	Copper | Lead | Nickel | Zinc
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Warm Freshwater Habitat

Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	The Temescal Creek watershed was monitored as part of SWAMP assessment. None of the three samples exceeded the water quality objectives for copper, lead, nickel and zinc.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. Table 3-4 in the Basin Plan (2007) lists freshwater water quality objectives for toxic pollutants: copper - 9.0 ug/L; lead - 2.5 ug/L; nickel - 52 ug/L and zinc - 120 ug/L.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Data were collected at one sampling location just upstream from Lake Temescal (west of Hwy 13).
Temporal Representation:	Samples were collected during spring, dry and wet season of 2004-2005.
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

DECISION ID	**9909**
Pollutant:	**Sediment Toxicity**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence: This pollutant is being considered for listing under sections 3.6 of the Listing Policy. Under section 3.6 a single line of evidence is necessary to assess listing status. One line of evidence is available in the administrative record to assess toxicity in Temescal Creek. One of three water samples exhibited limited toxicity.

Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification available against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data concerning current conditions and supporting the listing decision satisfy the data quality requirements of section 6.1.4 of the Policy.

2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.

3. Water toxicity was observed in one of three samples.

4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation: After review of the available data and information, Water Board staff concludes that the water body-pollutant combination should not be placed on the section 303(d) list because there is insufficient number of exceedances to confirm toxicity and to determine that the standards are not met.

Lines of Evidence (LOEs) for Decision ID 9909

LOE ID:	21295
Pollutant:	Toxicity
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	3
Number of Exceedances:	0
Data and Information Type:	TOXICITY TESTING
Data Used to Asses Water Quality:	Three samples were collected by SWAMP to evaluate water toxicity. Pimephales promelas growth was lower (74.6%) than the control in one sample collected during dry season in June 2005. The result is not considered environmentally significant because mean larvae weight of test organisms was greater than 0.25 mg and the overall growth was higher than 70% of the control.
Data Reference:	Data collected by the Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board. Years 4 and 5 Assessment
Water Quality Objective/Criterion:	All waters shall be maintained free of toxic substances that are lethal to or that produce other detrimental responses in aquatic organisms. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Water toxicity was evaluated according to the SWAMP methodology. The U.S.EPA whole effluent toxicity protocol (U.S.EPA 1994) was used to test the effect of water samples on three freshwater test organisms. Statistical evaluation (alpha = 0.05) and a default threshold of 80% of the control value were used to

	establish whether water exhibited significant toxicity, adversely impacting aquatic organisms.
Guideline Reference:	Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004: Kirker Creek, Mt. Diablo Creek, Petaluma River, and San Mateo Creek. Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board, Oakland, CA
	Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-91/002. Third Edition. July 1994
Spatial Representation:	Data were collected at one sampling location just upstream from Lake Temescal (west of Hwy 13).
Temporal Representation:	Samples were collected in wet winter season (January 2005), spring season (April 2005) and dry summer season (June 2005).
Environmental Conditions:	
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB, 2002).

Water Body Name:	**Walker Creek**
Water Body ID:	**CAR20112013199809281738O7**
Water Body Type:	**River & Stream**
DECISION ID	**9432**

Pollutant:	**Temperature, water**
Final Listing Decision:	**Decision in Progress**
Last Listing Cycle's Final Listing Decision:	New Decision
Revision Status	Original
Impairment from Pollutant or Pollution:	Pollutant

Weight of Evidence:

One line of evidence is available in the administrative record to assess this water body. Based on the readily available data for this waterbody, the weight of evidence indicates that there is sufficient justification against placing this water segment-pollutant combination on the section 303(d) list in the Water Quality Limited Segments category.

This conclusion is based on the staff findings that:

1. The data used satisfy the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfy the data quantity requirements of section 6.1.5 of the Policy.
3. Temperature measurements at 7 continuous deployments exceeded the applicable water quality objectives for waters designated as cold water habitat on only two occasions and this does not exceed the allowable frequency listed in Table 3.2 of the Listing Policy.
4. Pursuant to section 3.11 of the Listing Policy, no additional data and information are available indicating that standards are not met.

RWQCB Board Decision / Staff Recommendation:

After review of the available data and information, Water Board staff concludes that there is insufficient information to demonstrate that this waterbody is not meeting applicable water quality standards for temperature to support the cold freshwater habitat beneficial use. Therefore, the water body-pollutant combination should not be placed on the section 303(d) list.

Lines of Evidence (LOEs) for Decision ID 9432

LOE ID:	8768
Pollutant:	Temperature, water
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	None

Beneficial Use:	Cold Freshwater Habitat
Number of Samples:	7
Number of Exceedances:	2
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Asses Water Quality:	Water quality assessment was conducted at the Walker Creek Creek watershed as part of SWAMP study in Winter 2001, and Spring 2002. Continuous field monitoring at 15 minute increments of temperature, dissolved oxygen, pH and specific conductance was conducted to determine temporal variability in basic water quality at 5 locations. The 14.8 °C criterion for coho salmon was exceeded in 2 out of 7 continuous temperature deployments during the dry summer season at the downstream reach of the creek. The 17 °C criterion for steelhead was never exceeded.
Data Reference:	Water Quality Monitoring and Bioassessment in Nine San Francisco Bay Region Watersheds: Walker Creek, Lagunitas Creek, San Leandro Creek, Wildcat Creek/San Pablo Creek, Suisun Creek, Arroyo Las Positas, Pescadero Creek/Butano Creek, San Gregorio Creek, and Stevens Creek/Permanente Creek. Oakland, CA: Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board
Water Quality Objective/Criterion:	Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions to the plan. In addition, the following temperature objectives apply to surface waters: The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8^{o}C) above natural receiving water temperature.
Objective/Criterion Reference:	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
Evaluation Guideline:	Sullivan et al. (2000) reviewed a wide range of studies incorporating information from laboratory-based research, field observations, and risk assessment approaches and developed criteria for assessing temperature risk to aquatic life. The 7-day mean temperature (maximum value of the 7-day moving average of the daily mean temperature) of 14.8°C was established as the upper threshold criterion for coho salmon and 17.0°C for steelhead trout. The risk assessment approach used by Sullivan et al. (2000) suggests that temperatures exceeding the above thresholds will cause 10% reduction in average growth compared to optimal conditions.
Guideline Reference:	An Analysis of the Effects of Temperature on Salmonids of the Pacific Northwest with Implications for Selecting Temperature Criteria
Spatial Representation:	There were 5 locations on Walker Creek ranging from lower to upper watershed regions.
Temporal Representation:	Continuous deployments with 15 minute increment sampling in Winter 2001 and Spring 2002.
Environmental Conditions:	The Walker Creek watershed has a drainage area of 73 square miles, mostly in northwestern Marin County, with a small portion in Sonoma County. Significant

	tributaries to Walker Creek include Keys Creek (also known as Keyes), which flows through the gentle hills east of Tomales, joining Walker Creek near Tomales Bay; Chileno Creek, which flows through Chileno Valley; and, in the upper watershed, Salmon Creek and Arroyo Sausal Creek, which flow through Hicks Valley. Frink and Verde Canyons each support ephemeral streams that join Walker Creek upstream from Chileno Creek. Soulajule Reservoir impounds the 15 square mile drainage of Arroyo Sausal.
QAPP Information:	All samples were collected and analyzed using procedures comparable with the SWAMP Quality Assurance Management Plan (SWRCB 2002).

APPENDIX F

REVISED 2006 303(d) LISTING DECISIONS

Regional Board 2 - San Francisco Bay Region

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REVISIONS to the 2006 SAN FRANCISCO BAY REGION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS*

Category 5 criteria: 1) A water segment where standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed for this segment.

* USGS HUC = US Geological Survey Hydrologic Unit Code. Calwater = SWRCB hydrological subunit area or even smaller planning watershed

** TMDL requirement status definitions for listed pollutants are: A= TMDL still required, B= being addressed by USEPA approved TMDL, C= being addressed by action other than a TMDL

*** Dates relate to the TMDL requirement status, so a date for A= TMDL scheduled completion date, B= Date USEPA approved TMDL, and C= Completion date for action other than a TMDL

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	Alameda Creek	River & Stream	20430051 / 18050003	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	51 Miles	1998	5B	2007
2	Alamitos Creek	River & Stream	20540041 / 18050003	• **Mercury** o **Mine Tailings**	7.1 Miles	1996	5A	2008
2	Anderson Reservoir	Lake & Reservoir	20530050 / 18050003	• **Mercury** o **Source Unknown**	1013 Acres	2006	5A	2013
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	1013 Acres	2006	5A	2019
2	Aquatic Park Beach	Coastal & Bay Shoreline	20340010 / 18050002	• **Indicator Bacteria** o **Source Unknown**	0.18 Miles	2006	5A	2019

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• *This listing was made by USEPA for 2006.*				
2	Arroyo Mocho	River & Stream	20430080 / 18050004	• **Diazinon** o **Urban Runoff/Storm Sewers** • *For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	34 Miles	1998	5B	2007
2	Bon Tempe Reservoir	Lake & Reservoir	20113020 / 18050005	• **Mercury** o **Source Unknown**	120 Acres	2006	5A	2013
2	Butano Creek	River & Stream	20240031 / 18050006	• **Sedimentation/Siltation** o **Nonpoint Source** • *Impairment to steelhead habitat.*	3.6 Miles	1998	5A	2013
2	Calero Reservoir	Lake & Reservoir	20540031 / 18050003	• **Mercury** o **Mine Tailings** o **Surface Mining**	334 Acres	1988	5A	2008
2	Candlestick Point	Coastal & Bay Shoreline	20440011 / 18050004	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006. This listing includes the area of Candlestick Point at Jackrabbit Beach, Windsurfer Circle, and Sunnydale Cove.*	1.6 Miles	2006	5A	2019
2	Carquinez Strait	Estuary	20710020 / 18050001	• **Chlordane** o **Nonpoint Source**	5657 Acres	2002	5A	2013

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• *This listing was made by USEPA.*				
				• **DDT** o **Nonpoint Source**	**5657 Acres**	**2002**	**5A**	**2013**
				• **Dieldrin** o **Nonpoint Source**	**5657 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**5657 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species** o **Ballast Water**	**5657 Acres**	**1998**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**5657 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6, 7,8,-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source**	**5657 Acres**	**1996**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Resource Extraction** • *Current data indicate fish consumption and wildlife consumption impacted uses. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.* • **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source** • *This listing covers non dioxin-like PCBs. Interim health advisory for fish is in place.* • **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.* • **Selenium** o **Industrial Point Sources** • *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*				
2	**Central Basin, San Francisco (part of SF Bay, Lower)**	**Bay & Harbor**	**20440010 / 18050004**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.*	**40 Acres**	**1998**	**5A**	**2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• **DDT** o **Nonpoint Source** • *This listing was made by USEPA.*	**40 Acres**	**1998**	**5A**	**2013**
				• **Dieldrin** o **Nonpoint Source** • *This listing was made by USEPA.*	**40 Acres**	**1998**	**5A**	**2013**
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*	**40 Acres**	**1998**	**5A**	**2019**
				• **Exotic Species** o **Ballast Water** • *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*	**40 Acres**	**2006**	**5A**	**2019**
				• **Furan Compounds** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*	**40 Acres**	**1998**	**5A**	**2019**
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Minor Industrial Point Source** o **Municipal Point Sources**	**40 Acres**	**1992**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**				
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **Mercury (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	**40 Acres**	**2006**	**5B**	**2008**
				• **PAHs (Polycyclic Aromatic Hydrocarbons) (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	**40 Acres**	**2006**	**5A**	**2019**
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source**	**40 Acres**	**1998**	**5A**	**2008**
				• *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.*				
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source**	**40 Acres**	**1998**	**5A**	**2008**
				• *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources** • *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*	**40 Acres**	**1990**	**5A**	**2019**
2	**China Camp Beach**	**Coastal & Bay Shoreline**	**20610010 / 18050002**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.08 Miles**	**2006**	**5A**	**2019**
2	**Coyote Creek (Santa Clara Co.)**	**River & Stream**	**20530021 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**55 Miles**	**1998**	**5B**	**2007**
2	**Crissy Field Beach**	**Coastal & Bay Shoreline**	**20340010 / 18050002**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006. This listing includes the east and west areas of Crissy Field.*	**0.8 Miles**	**2006**	**5A**	**2019**
2	**Del Valle Reservoir**	**Lake &**	**20430024 /**	• **Mercury** o **Source Unknown**	**1022 Acres**	**2006**	**5A**	**2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
		Reservoir	**18050004**					
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**1022 Acres**	**2006**	**5A**	**2019**
2	**Golden Hinde Beach**	**Coastal & Bay Shoreline**	**20114033 / 18050005**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.11 Miles**	**2006**	**5A**	**2019**
2	**Guadalupe Creek**	**River & Stream**	**20540050 / 18050003**	• **Mercury** o **Mine Tailings**	**8.1 Miles**	**1988**	**5A**	**2008**
2	**Guadalupe Reservoir**	**Lake & Reservoir**	**20540040 / 18050003**	• **Mercury** o **Mine Tailings** o **Surface Mining**	**63 Acres**	**1988**	**5A**	**2008**
2	**Guadalupe River**	**River & Stream**	**20540050 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**18 Miles**	**1998**	**5B**	**2007**
				• **Mercury** o **Mine Tailings**	**18 Miles**	**1988**	**5A**	**2008**
2	**Islais Creek**	**Estuary**	**20440010 / 18050004**	• **Ammonia** o **Combined Sewer Overflow** o **Industrial Point**	**46 Acres**	**2002**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				Sources • **Chlordane (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**46 Acres**	**2002**	**5A**	**2019**
				• **Dieldrin (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**46 Acres**	**2002**	**5A**	**2019**
				• **Hydrogen Sulfide** o **Combined Sewer Overflow** o **Industrial Point Sources**	**46 Acres**	**2002**	**5A**	**2019**
				• **PAHs (Polycyclic Aromatic Hydrocarbons) (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**46 Acres**	**2002**	**5A**	**2019**
				• **Sediment Toxicity** o **Source Unknown**	**46 Acres**	**2006**	**5A**	**2019**
2	**Lafayette Reservoir**	**Lake & Reservoir**	**20732010 / 18050001**	• **Mercury** o **Source Unknown**	**114 Acres**	**2006**	**5A**	**2013**
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**114 Acres**	**2006**	**5A**	**2019**
		River &	**20113020 /**	• **Nutrients**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**Lagunitas Creek**	**Stream**	**18050005**	o **Urban Runoff/Storm Sewers** • *Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment needed.* • **Pathogens** o **Urban Runoff/Storm Sewers** • **Sedimentation/Siltation** o **Urban Runoff/Storm Sewers** • *Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment needed.*	**17 Miles** **17 Miles** **17 Miles**	**1996** **1992** **1996**	**5A** **5B** **5A**	**2013** **2007** **2013**
2	**Lake Chabot (Alameda Co)**	**Lake & Reservoir**	**20420030 / 18050004**	• **Chlordane** o **Source Unknown** • **DDT** o **Source Unknown** • **Dieldrin** o **Source Unknown** • **Mercury** o **Source Unknown** • **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**312 Acres** **312 Acres** **312 Acres** **312 Acres** **312 Acres**	**2006** **2006** **2006** **2006** **2006**	**5A** **5A** **5A** **5A** **5A**	**2019** **2019** **2019** **2013** **2019**
2	**Lake Herman**	**Lake & Reservoir**	**20721030 / 18050001**	• **Mercury** o **Surface Mining** • *Additional monitoring and assessment needed. Problem due to historical mining.*	**108 Acres**	**1992**	**5A**	**2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	Lake Merced	Lake & Reservoir	20210010 / 18050006	• **Low Dissolved Oxygen** o **Source Unknown** • *This listing was made by USEPA.* • **pH** o **Source Unknown** • *This listing was made by USEPA.*	299 Acres 299 Acres	2002 2002	5A 5A	2019 2019
2	Lake Merritt	Lake & Reservoir	20420040 / 18050004	• **Organic Enrichment/Low Dissolved Oxygen** o **Source Unknown** • *This listing was made by USEPA.* • **Trash** o **Urban Runoff/Storm Sewers**	142 Acres 142 Acres	2002 1998	5A 5A	2019 2019
2	Lawsons Landing	Coastal & Bay Shoreline	20112030 / 18050005	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	3.2 Miles	2006	5A	2019
2	Marina Lagoon (San Mateo County)	Estuary	20440040 / 18050004	• **Coliform Bacteria** o **Nonpoint Source** o **Urban Runoff/Storm Sewers**	169 Acres	2002	5A	2019
2	Matadero Creek	River & Stream	20550040 / 18050003	• **Diazinon** o **Urban Runoff/Storm**	7.3 Miles	1998	5B	2007

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				Sewers • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*				
2	**McNears Beach**	**Coastal & Bay Shoreline**	**20610010 / 18050002**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.18 Miles**	**2006**	**5A**	**2019**
2	**Millerton Point**	**Coastal & Bay Shoreline**	**20112032 / 18050005**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.25 Miles**	**2006**	**5A**	**2019**
2	**Mission Creek**	**Estuary**	**20440010 / 18050004**	• **Ammonia** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2019**
				• **Chlordane (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2013**
				• **Dieldrin (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2013**
				• **Hydrogen Sulfide** o **Combined Sewer**	**8.5 Acres**	**2002**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				Overflow o **Industrial Point Sources**				
				• **Lead (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2019**
				• **Mercury (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2006**	**5A**	**2019**
				• **PAHs (Polycyclic Aromatic Hydrocarbons)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2019**
				• **PCBs (Polychlorinated biphenyls) (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2008**
				• **Silver (sediment)** o **Combined Sewer Overflow** o **Industrial Point Sources**	**8.5 Acres**	**2002**	**5A**	**2019**
				• **Zinc (sediment)** o **Combined Sewer Overflow** o **Industrial Point**	**8.5 Acres**	**2002**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				Sources				
2	**Mt. Diablo Creek**	**River & Stream**	**20731040 / 18050001**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**13 Miles**	**1998**	**5B**	**2007**
2	**Napa River**	**River & Stream**	**20650010 / 18050002**	• **Nutrients** o **Agriculture** • **Pathogens** o **Urban Runoff/Storm Sewers** • *TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment needed.* • **Sedimentation/Siltation** o **Construction/Land Development** o **Land Development** o **Urban Runoff/Storm Sewers** • *TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment needed.*	**65 Miles** **65 Miles** **65 Miles**	**1988** **1988** **1990**	**5A** **5B** **5A**	**2010** **2008** **2008**
2	**Nicasio Reservoir**	**Lake & Reservoir**	**20113012 / 18050005**	• **Mercury** o **Source Unknown**	**829 Acres**	**1998**	**5A**	**2013**
				• **Chlordane**				

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2	**Oakland Inner Harbor (Fruitvale Site, part of SF Bay, Lower)**	**Bay & Harbor**	**20420040 / 18050004**	o **Nonpoint Source**	**0.93 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Chlordane (sediment)**				
				o **Source Unknown**	**0.93 Acres**	**1998**	**5A**	**2013**
				• **DDT**				
				o **Nonpoint Source**	**0.93 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dieldrin**				
				o **Nonpoint Source**	**0.93 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)**				
				o **Atmospheric Deposition**	**0.93 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species**				
				o **Ballast Water**	**0.93 Acres**	**2006**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds**				
				o **Atmospheric Deposition**	**0.93 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury**				
				o **Atmospheric Deposition**	**0.93 Acres**	**1992**	**5B**	**2008**

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				o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source** o **Resource Extraction** • *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source** • *This listing covers non dioxin-like PCBs. Interim health advisory for fish; uncertainty regarding water column concentration data.*	**0.93 Acres**	**1998**	**5A**	**2008**
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*	**0.93 Acres**	**1998**	**5A**	**2008**
				• **PCBs (Polychlorinated biphenyls) (sediment)** o **Source Unknown** • *This listing covers non dioxin-like PCBs. Interim health advisory for fish; uncertainty regarding water column concentration data.*	**0.93 Acres**	**1998**	**5A**	**2008**
				• **Sediment Toxicity**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Source Unknown**	**0.93 Acres**	**1998**	**5A**	**2019**
				• **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources**	**0.93 Acres**	**1990**	**5A**	**2019**
				• *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*				
2	**Oakland Inner Harbor (Pacific Dry-dock Yard 1 Site, part of SF Bay, Lower)**	**Bay & Harbor**	**20420040 / 18050004**	• **Chlordane** o **Nonpoint Source**	**1.8 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Chlordane (sediment)** o **Source Unknown**	**1.8 Acres**	**1998**	**5A**	**2013**
				• **Copper (sediment)** o **Source Unknown**	**1.8 Acres**	**1992**	**5A**	**2019**
				• **DDT** o **Nonpoint Source**	**1.8 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dieldrin** o **Nonpoint Source**	**1.8 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dieldrin (sediment)** o **Source Unknown**	**1.8 Acres**	**1998**	**5A**	**2013**
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**1.8 Acres**	**1998**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species** o **Ballast Water**	**1.8 Acres**	**2006**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**1.8 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Lead (sediment)** o **Source Unknown**	**1.8 Acres**	**1992**	**5A**	**2019**
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**	**1.8 Acres**	**1992**	**5B**	**2008**
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **Mercury (sediment)** o **Source Unknown**	**1.8 Acres**	**2006**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• **PAHs (Polycyclic Aromatic Hydrocarbons) (sediment)** o **Source Unknown**	**1.8 Acres**	**2006**	**5A**	**2019**
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source**	**1.8 Acres**	**1998**	**5A**	**2008**
				• *This listing covers non dioxin-like PCBs. Interim health advisory for fish; uncertainty regarding water column concentration data.*				
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source**	**1.8 Acres**	**1998**	**5A**	**2008**
				• *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*				
				• **PCBs (Polychlorinated biphenyls) (sediment)** o **Source Unknown**	**1.8 Acres**	**1998**	**5A**	**2008**
				• **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources**	**1.8 Acres**	**1990**	**5A**	**2019**
				• *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*				
				• **Zinc (sediment)** o **Source Unknown**	**1.8 Acres**	**1992**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	Pacific Ocean at Baker Beach	Coastal & Bay Shoreline	20340010 / 18050002	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006. This listing includes the area of Baker Beach at Lobos Creek, Horseshoe Cove NW and NE.*	0.45 Miles	2006	5A	2019
2	Pacific Ocean at Bolinas Beach	Coastal & Bay Shoreline	20130011 / 18050005	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	0.39 Miles	2006	5A	2019
2	Pacific Ocean at Fitzgerald Marine Reserve	Coastal & Bay Shoreline	20221012 / 18050006	• **Coliform Bacteria** o **Nonpoint Source**	0.46 Miles	2002	5A	2019
2	Pacific Ocean at Muir Beach	Coastal & Bay Shoreline	20130013 / 18050005	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	0.2 Miles	2006	5A	2013
2	Pacific Ocean at Pacifica State/Linda Mar Beach	Coastal & Bay Shoreline	20221011 / 18050006	• **Coliform Bacteria** o **Nonpoint Source** o **Urban Runoff/Storm Sewers** • *Linda Mar and San Pedro beaches are the areas affected.*	0.87 Miles	2002	5A	2010
2	Pacific Ocean at Pillar Point	Coastal & Bay	20221012 / 18050006	• **Mercury** o **Source Unknown**	0.62 Miles	2006	5A	2019

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
		Shoreline						
2	**Pacific Ocean at Pillar Point Beach**	**Coastal & Bay Shoreline**	**20221012 / 18050006**	• **Coliform Bacteria** o **Nonpoint Source**	**1.1 Miles**	**2002**	**5A**	**2019**
2	**Pacific Ocean at Rockaway Beach**	**Coastal & Bay Shoreline**	**20221011 / 18050006**	• **Coliform Bacteria** o **Nonpoint Source** o **Urban Runoff/Storm Sewers**	**0.29 Miles**	**2002**	**5A**	**2010**
2	**Pacific Ocean at Venice Beach**	**Coastal & Bay Shoreline**	**20222011 / 18050006**	• **Coliform Bacteria** o **Nonpoint Source**	**0.38 Miles**	**2002**	**5A**	**2019**
2	**Permanente Creek**	**River & Stream**	**20550021 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**13 Miles**	**1998**	**5B**	**2007**
2	**Pescadero Creek**	**River & Stream**	**20240013 / 18050006**	• **Sedimentation/Siltation** o **Nonpoint Source** • *If California Department of Fish and Game and the National Marine Fisheries Service find that for this water body fish populations are not impacted, the State Water Board supports removing this water body and pollutant from the list.*	**26 Miles**	**1998**	**5A**	**2016**
				• **Diazinon**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**Petaluma River**	**River & Stream**	**20630020 / 18050002**	o **Urban Runoff/Storm Sewers** • *Data source: Abelli-Amen, Petaluma Tree Planters, 1999.* • **Nutrients** o **Construction/Land Development** o **Urban Runoff/Storm Sewers** • *TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment needed.* • **Pathogens** o **Construction/Land Development** o **Urban Runoff/Storm Sewers** • **Sedimentation/Siltation** o **Construction/Land Development** o **Urban Runoff/Storm Sewers**	**22 Miles** **22 Miles** **22 Miles**	**2002** **1998** **1998**	**5A** **5A** **5A**	**2019** **2019** **2019**
2	**Petaluma River (tidal portion)**	**River & Stream**	**20630040 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • **Nickel** o **Atmospheric Deposition** o **Municipal Point Sources**	**1.1 Miles** **1.1 Miles**	**2002** **2002**	**5A** **5A**	**2019** **2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Urban Runoff/Storm Sewers** • *Exceedance of California Toxic Rule dissolved criteria and National Toxic Rule total criteria; elevated water and sediment tissue levels.* • **Nutrients** o **Construction/Land Development** o **Urban Runoff/Storm Sewers** • *TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment needed.* • **Pathogens** o **Construction/Land Development** o **Urban Runoff/Storm Sewers** • *TMDL will be developed as part of ongoing watershed management effort. Additional monitoring and assessment needed.*	**1.1 Miles** **1.1 Miles**	**2002** **2002**	**5A** **5A**	**2019** **2019**
2	**Pomponio Creek**	**River & Stream**	**20240020 / 18050006**	• **Coliform Bacteria** o **Nonpoint Source**	**7.1 Miles**	**2002**	**5A**	**2019**
2	**Richardson Bay**	**Bay & Harbor**	**20312010 / 18050002**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.* • **Coliform Bacteria** o **Boat Discharges/Vessel Wastes**	**2439 Acres** **2439 Acres**	**1998** **1996**	**5A** **5A**	**2013** **2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Septage Disposal** o **Urban Runoff/Storm Sewers**				
				• **DDT** o **Nonpoint Source** • *This listing was made by USEPA.*	**2439 Acres**	**1998**	**5A**	**2013**
				• **Dieldrin** o **Unknown Nonpoint Source** • *This listing was made by USEPA.*	**2439 Acres**	**1998**	**5A**	**2013**
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*	**2439 Acres**	**1998**	**5A**	**2019**
				• **Exotic Species** o **Ballast Water** • *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*	**2439 Acres**	**2006**	**5A**	**2019**
				• **Furan Compounds** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6, 7,8,-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*	**2439 Acres**	**1998**	**5A**	**2019**
				• **Mercury** o **Atmospheric Deposition** o **Municipal Point**	**2439 Acres**	**1992**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				Sources o **Natural Sources** o **Nonpoint Source** o **Resource Extraction** • *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.* • **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source** • *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.* • **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*	**2439 Acres** **2439 Acres**	**1998** **1998**	**5A** **5A**	**2008** **2008**
2	**Sacramento San Joaquin Delta**	**Estuary**	**20710010 / 18050001**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.* • **DDT** o **Nonpoint Source** • *This listing was made by USEPA.* • **Dieldrin** o **Nonpoint Source**	**41736 Acres** **41736 Acres** **41736 Acres**	**1998** **1998** **1998**	**5A** **5A** **5A**	**2013** **2013** **2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**41736 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species** o **Ballast Water**	**41736 Acres**	**1998**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**41736 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6, 7,8,-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Nonpoint Source** o **Resource Extraction**	**41736 Acres**	**1998**	**5B**	**2008**
				• *Current data indicate fish consumption and wildlife consumption impacted uses. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **PCBs (Polychlorinated**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				biphenyls) o **Unknown Nonpoint Source** • *This listing covers non dioxin-like PCBs.Interim health advisory for fish.* • **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.* • **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources** • *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*	**41736 Acres** **41736 Acres** **41736 Acres**	**1998** **1998** **1998**	**5A** **5A** **5A**	**2008** **2008** **2010**
2	**San Francisco Bay, Central**	**Bay & Harbor**	**20312010 / 18050004**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.* • **DDT** o **Nonpoint Source** • *This listing was made by USEPA.* • **Dieldrin** o **Nonpoint Source**	**70992 Acres** **70992 Acres** **70992 Acres**	**1998** **1998** **1998**	**5A** **5A** **5A**	**2013** **2013** **2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**70992 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species** o **Ballast Water**	**70992 Acres**	**2006**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**70992 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**	**70992 Acres**	**1992**	**5B**	**2008**
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				mines; moderate to low level inputs from point sources. • **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source** • *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.* • **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.* • **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources** • *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*	**70992 Acres** **70992 Acres** **70992 Acres**	**1998** **1998** **1990**	**5A** **5A** **5A**	**2008** **2008** **2010**
2	**San Francisco Bay, Lower**	**Bay & Harbor**	**20410010 / 18050004**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.* • **DDT** o **Nonpoint Source** • *This listing was made by USEPA.* • **Dieldrin**	**92274 Acres** **92274 Acres**	**1998** **1998**	**5A** **5A**	**2013** **2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Nonpoint Source**	**92274 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**92274 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*				
				• **Exotic Species** o **Ballast Water**	**92274 Acres**	**2006**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**92274 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6, 7,8,-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**	**92274 Acres**	**1992**	**5B**	**2008**
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources: water quality objective exceedances. Elevated sediment levels and elevated tissue levels.				
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source**	**92274 Acres**	**1998**	**5A**	**2008**
				• *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.*				
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source**	**92274 Acres**	**1998**	**5A**	**2008**
				• *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*				
2	**San Francisco Bay, South**	**Bay & Harbor**	**20510000 / 18050003**	• **Chlordane** o **Nonpoint Source**	**9204 Acres**	**1990**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **DDT** o **Nonpoint Source**	**9204 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dieldrin** o **Nonpoint Source**	**9204 Acres**	**1998**	**5A**	**2013**
				• *This listing was made by USEPA.*				
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition**	**9204 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				listing was made by USEPA.				
				• **Exotic Species** o **Ballast Water**	**9204 Acres**	**2006**	**5A**	**2019**
				• *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*				
				• **Furan Compounds** o **Atmospheric Deposition**	**9204 Acres**	**1998**	**5A**	**2019**
				• *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*				
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**	**9204 Acres**	**1992**	**5B**	**2008**
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources: water quality objective exceedances. Elevated sediment level and elevated tissue levels.*				
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Nonpoint Source**	**9204 Acres**	**1992**	**5A**	**2008**
				• *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source** • *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.* • **Selenium** o **Domestic Use of Ground Water** • *A formal health advisory has been issued by OEHHA for benthic-feeding ducks in South San Francisco Bay. This health advisory clearly establishes that water contact recreation beneficial use (REC-1) is not fully supported and standards are not fully met.*	**9204 Acres** **9204 Acres**	**1992** **1998**	**5A** **5A**	**2008** **2019**
2	**San Francisquito Creek**	**River & Stream**	**20550040 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.* • **Sedimentation/Siltation** o **Nonpoint Source** • *Impairment to steelhead habitat.*	**12 Miles** **12 Miles**	**1998** **1998**	**5B** **5A**	**2007** **2013**
2	**San Gregorio Creek**	**River & Stream**	**20230014 / 18050006**	• **Coliform Bacteria** o **Nonpoint Source** • **Sedimentation/Siltation** o **Nonpoint Source** • *Impairment to steelhead habitat.*	**11 Miles** **11 Miles**	**2002** **1998**	**5A** **5A**	**2019** **2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**San Leandro Bay (part of SF Bay, Lower)**	**Bay & Harbor**	**20420040 / 18050004**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.* • **Dieldrin** o **Nonpoint Source** • *This listing was made by USEPA.* • **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition** • **Exotic Species** o **Ballast Water** • *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.* • **Furan Compounds** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.* • **Lead (sediment)** o **Source Unknown** • **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources** o **Municipal Point Sources** o **Natural Sources**	**588 Acres** **588 Acres** **588 Acres** **588 Acres** **588 Acres** **588 Acres**	**1998** **1998** **1998** **2006** **1998** **1992** **1992**	**5A** **5A** **5A** **5A** **5A** **5A** **5B**	**2013** **2013** **2019** **2019** **2019** **2019** **2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Nonpoint Source** o **Resource Extraction** • *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.* • **Mercury (sediment)** o **Source Unknown** • **PAHs (Polycyclic Aromatic Hydrocarbons) (sediment)** o **Source Unknown** • **Pesticides (sediment)** o **Source Unknown** • **Zinc (sediment)** o **Source Unknown**	**588 Acres** **588 Acres** **588 Acres** **588 Acres**	**2006** **1998** **1998** **1992**	**5B** **5A** **5A** **5A**	**2008** **2019** **2019** **2019**
2	**San Leandro Creek, Lower**	**River & Stream**	**20420012 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**9.3 Miles**	**1998**	**5B**	**2007**
2	**San Mateo Creek**	**River & Stream**	**20440032 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**11 Miles**	**1998**	**5B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**San Pablo Bay**	**Bay & Harbor**	**20610010 / 18050002**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA in 1998.*	**68349 Acres**	**1998**	**5A**	**2013**
				• **DDT** o **Nonpoint Source** • *This listing was made by USEPA.*	**68349 Acres**	**1998**	**5A**	**2013**
				• **Dieldrin** o **Nonpoint Source** • *This listing was made by USEPA.*	**68349 Acres**	**1998**	**5A**	**2013**
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*	**68349 Acres**	**1998**	**5A**	**2019**
				• **Exotic Species** o **Ballast Water** • *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*	**68349 Acres**	**2006**	**5A**	**2019**
				• **Furan Compounds** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6, 7,8,-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*	**68349 Acres**	**1998**	**5A**	**2019**
				• **Mercury** o **Atmospheric Deposition** o **Municipal Point**	**68349 Acres**	**1990**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				Sources o **Natural Sources** o **Nonpoint Source** o **Resource Extraction** • *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.* • **PCBs (Polychlorinated biphenyls)** o **Unknown Point Source**	**68349 Acres**	**1998**	**5A**	**2008**
				• *This listing covers non dioxin-like PCBs. Interim health advisory for fish in place.* • **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source**	**68349 Acres**	**1998**	**5A**	**2008**
				• *The specific dioxin like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5,-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.* • **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources**	**68349 Acres**	**1990**	**5A**	**2010**
				• *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	San Pablo Creek	River & Stream	20660014 / 18050002	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	9.9 Miles	1998	5B	2007
2	San Pablo Reservoir	Lake & Reservoir	20660012 / 18050002	• **Chlordane** o **Source Unknown**	784 Acres	2006	5A	2019
				• **Dieldrin** o **Source Unknown**	784 Acres	2006	5A	2019
				• **Heptachlor epoxide** o **Source Unknown**	784 Acres	2006	5A	2019
				• **Mercury** o **Atmospheric Deposition**	784 Acres	2002	5A	2013
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	784 Acres	2006	5A	2019
				• **Toxaphene** o **Source Unknown**	784 Acres	2006	5A	2019
2	San Pedro Creek	River & Stream	20221011 / 18050006	• **Coliform Bacteria** o **Nonpoint Source** o **Urban Runoff/Storm Sewers**	2.4 Miles	2002	5A	2010
2	San Vicente Creek	River &	20221012 /	• **Coliform Bacteria** o **Nonpoint Source**	3.8 Miles	2002	5A	2019

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
		Stream	**18050006**					
2	**Saratoga Creek**	**River & Stream**	**20550040 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**18 Miles**	**1998**	**5B**	**2007**
2	**Shadow Cliffs Reservoir**	**Lake & Reservoir**	**20430080 / 18050004**	• **Mercury** o **Source Unknown**	**90 Acres**	**2006**	**5A**	**2013**
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**90 Acres**	**2006**	**5A**	**2019**
2	**Sonoma Creek**	**River & Stream**	**20640050 / 18050002**	• **Nutrients** o **Construction/Land Development** o **Land Development** o **Urban Runoff/Storm Sewers**	**30 Miles**	**1998**	**5A**	**2010**
				• **Pathogens** o **Construction/Land Development** o **Land Development** o **Urban Runoff/Storm Sewers**	**30 Miles**	**1998**	**5B**	**2008**
				• **Sedimentation/Siltation** o **Construction/Land Development**	**30 Miles**	**1998**	**5A**	**2013**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Land Development** o **Urban Runoff/Storm Sewers**				
2	**Soulajule Reservoir**	**Lake & Reservoir**	**20112012 / 18050005**	• **Mercury** o **Source Unknown**	**49 Acres**	**2006**	**5A**	**2007**
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**49 Acres**	**2006**	**5A**	**2019**
2	**Stevens Creek**	**River & Stream**	**20550020 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers**	**20 Miles**	**1998**	**5B**	**2007**
				• *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*				
				• **Toxicity** o **Source Unknown**	**20 Miles**	**2006**	**5A**	**2019**
2	**Stevens Creek Reservoir**	**Lake & Reservoir**	**20550031 / 18050003**	• **Chlordane** o **Source Unknown**	**85 Acres**	**2006**	**5A**	**2019**
				• **Dieldrin** o **Source Unknown**	**85 Acres**	**2006**	**5A**	**2019**
				• **Mercury** o **Source Unknown**	**85 Acres**	**2006**	**5A**	**2013**
				• **PCBs (Polychlorinated biphenyls)** o **Source Unknown**	**85 Acres**	**2006**	**5A**	**2019**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**Suisun Bay**	**Bay & Harbor**	**20710020 / 18050001**	• **Chlordane** o **Nonpoint Source** • *This listing was made by USEPA.*	**25335 Acres**	**1998**	**5A**	**2013**
				• **DDT** o **Nonpoint Source** • *This listing was made by USEPA.*	**25335 Acres**	**1998**	**5A**	**2013**
				• **Dieldrin** o **Nonpoint Source** • *This listing was made by USEPA.*	**25335 Acres**	**1998**	**5A**	**2013**
				• **Dioxin compounds (including 2,3,7,8-TCDD)** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDD, 1,2,3,7,8-PeCDD, 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, and OCDD. This listing was made by USEPA.*	**25335 Acres**	**1998**	**5A**	**2019**
				• **Exotic Species** o **Ballast Water** • *Disrupt natural benthos; change pollutant availability in food chain; disrupt food availability to native species.*	**25335 Acres**	**2006**	**5A**	**2019**
				• **Furan Compounds** o **Atmospheric Deposition** • *The specific compounds are 2,3,7,8-TCDF, 1,2,3,7,8-PeCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF. This listing was made by USEPA.*	**25335 Acres**	**1998**	**5A**	**2019**
				• **Mercury** o **Atmospheric Deposition** o **Industrial Point Sources**	**25335 Acres**	**1990**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
				o **Natural Sources** o **Nonpoint Source** o **Resource Extraction**				
				• *Current data indicate fish consumption and wildlife consumption impacted uses. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **PCBs (Polychlorinated biphenyls)** o **Unknown Point Source**	**25335 Acres**	**1998**	**5A**	**2008**
				• *This listing covers non-dioxin-like PCBs. Interim health advisory for fish in place.*				
				• **PCBs (Polychlorinated biphenyls) (dioxin-like)** o **Unknown Nonpoint Source**	**25335 Acres**	**1998**	**5A**	**2008**
				• *The specific dioxin-like compounds are 3,4,4,5-TCB (81), 3,3,3,3-TCB (77), 3,3,4,4,5-PeCB (126), 3,3,4,4,4,4-HxCB (169), 2,3,3,4,4-PeCB (105), 2,3,4,4,5-PeCB (114), 2,3,4,4,5-PeCB (118), 2,3,4,4,5-PeCB (123), 2,3,3,4,4,5-HxCB (156), 2,3,3,4,4,5-HxCB (157), 2,3,4,4,5,5-HxCB (167), 2,3,3,4,4,5,5-HpCB (189). This listing was made by USEPA.*				
				• **Selenium** o **Exotic Species** o **Industrial Point Sources** o **Natural Sources**	**25335 Acres**	**1990**	**5A**	**2010**
				• *Affected use is one branch of the food chain; most sensitive indicator is hatchability in nesting diving birds, significant contributions from oil refineries (control program in place) and agriculture (carried downstream by rivers); exotic species may have made food chain more susceptible to accumulation of selenium; health consumption advisory in effect for scaup and scoter (diving ducks).*				
				• **Mercury**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
2	**Suisun Marsh Wetlands**	**Wetland, Tidal**	**20723000 / 18050001**	o **Flow Regulation/Modification** o **Urban Runoff/Storm Sewers** • **Nutrients** o **Flow Regulation/Modification** o **Urban Runoff/Storm Sewers** • *Additional monitoring and assessment needed.* • **Organic Enrichment/Low Dissolved Oxygen** o **Flow Regulation/Modification** o **Urban Runoff/Storm Sewers** • *Additional monitoring and assessment needed.* • **Salinity/TDS/Chlorides** o **Flow Regulation/Modification** o **Urban Runoff/Storm Sewers** • *Additional monitoring and assessment needed.*	**66339 Acres** **66339 Acres** **66339 Acres**	**1996** **1996**	**5A** **5A**	**2013** **2013**
2	**Tomales Bay**	**Bay &**	**20114033 /**	• **Mercury** o **Mine Tailings**	**8545 Acres**	**1992**	**5B**	**2008**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	DATE***
		Harbor	**18050005**					
				• *Current data indicate fish consumption and wildlife consumption impacted uses: health consumption advisory in effect for multiple fish species including striped bass and shark. Major source is historic: gold mining sediments and local mercury mining; most significant ongoing source is erosion and drainage from abandoned mines; moderate to low level inputs from point sources.*				
				• **Nutrients** o **Agriculture**	**8545 Acres**	**1992**	**5A**	**2013**
				• *TMDL will be developed as part of ongoing watershed management effort.*				
				• **Pathogens** o **Intensive Animal Feeding Operations** o **Septage Disposal**	**8545 Acres**	**1992**	**5B**	**2007**
				• **Sedimentation/Siltation** o **Upstream Impoundment**	**8545 Acres**	**1992**	**5A**	**2013**
				• *TMDL will be developed as part of ongoing watershed management effort.*				
2	**Walker Creek**	**River & Stream**	**20112013 / 18050005**	• **Mercury** o **Mine Tailings** o **Surface Mining**	**16 Miles**	**1992**	**5A**	**2007**
				• **Nutrients** o **Agriculture**	**16 Miles**	**1992**	**5A**	**2013**
				• *Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment needed.*				
				• **Pathogens** o **Source Unknown**	**16 Miles**	**2006**	**5B**	**2007**
				• **Sedimentation/Siltation** o **Agriculture**	**16 Miles**	**1992**	**5A**	**2013**
				• *Tributary to Tomales Bay. TMDLs will be developed as part of evolving watershed management effort. Additional monitoring and assessment needed.*				

REVISIONS to the 2006 SAN FRANCISCO BAY REGION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS*

Category 4A Criteria: 1) A water segment where ALL its 303(d) listings are being addressed; and 2) at least one of those listings is being addressed by a USEPA approved TMDL.

* USGS HUC = US Geological Survey Hydrologic Unit Code. Calwater = State Water Resources Control Board hydrological subunit area or even smaller planning watershed.

** "Addressed By" is defined as: B = Being addressed by USEPA approved TMDL and C = Being addressed by action(s) other than a TMDL

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
2	**Arroyo Corte Madera Del Presidio**	**River & Stream**	**20320020 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**4 Miles**	**1998**	**B**	**2007**
2	**Arroyo De La Laguna**	**River & Stream**	**20430084 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**7.4 Miles**	**1998**	**B**	**2007**
2	**Arroyo Del Valle**	**River & Stream**	**20430023 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon*	**31 Miles**	**1998**	**B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
				was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.				
2	**Arroyo Las Positas**	**River & Stream**	**20430080 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**14 Miles**	**2002**	**B**	**2007**
2	**Calabazas Creek**	**River & Stream**	**20640012 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**4.7 Miles**	**1998**	**B**	**2007**
2	**Chicken Ranch Beach**	**Coastal & Bay Shoreline**	**20114033 / 18050005**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.17 Miles**	**2006**	**B**	**2007**
2	**Corte Madera Creek**	**River & Stream**	**20320011 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**4.1 Miles**	**1998**	**B**	**2007**
2	**Coyote Creek (Marin County)**	**River &**	**20320020 /**	• **Diazinon** o **Urban**	**2.6 Miles**	**1998**	**B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
		Stream	**18050002**	**Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*				
2	**Gallinas Creek**	**River & Stream**	**20620013 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**2.1 Miles**	**1998**	**B**	**2007**
2	**Hearts Desire Beach**	**Coastal & Bay Shoreline**	**20114033 / 18050005**	• **Indicator Bacteria** o **Source Unknown** • *This listing was made by USEPA for 2006.*	**0.38 Miles**	**2006**	**B**	**2007**
2	**Laurel Creek (Solano Co)**	**River & Stream**	**20440040 / 1805001**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**3 Miles**	**1998**	**B**	**2007**
2	**Ledgewood Creek**	**River & Stream**	**20723010 / 18050001**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because*	**12 Miles**	**1998**	**B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
				of a completed USEPA approved TMDL.				
2	**Los Gatos Creek (R2)**	**River & Stream**	**20540011 / 18050003**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**19 Miles**	**1998**	**B**	**2007**
2	**Miller Creek**	**River & Stream**	**20620012 / 18050005**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**9 Miles**	**1998**	**B**	**2007**
2	**Novato Creek**	**River & Stream**	**20620010 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**17 Miles**	**1998**	**B**	**2007**
2	**Olema Creek**	**River & Stream**	**20113030 / 18050005**	• **Pathogens** o **Source Unknown** • *For 2006, this listing was added by USEPA to this being addressed list because of a completed USEPA approved TMDL.*	**11 Miles**	**2006**	**B**	**2007**
				• **Diazinon**				

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
2	**Pine Creek (Contra Costa Co)**	**River & Stream**	**20731011 / 18050001**	o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**13 Miles**	**2002**	**B**	**2007**
2	**Pinole Creek**	**River & Stream**	**20660020 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**9.2 Miles**	**1998**	**B**	**2007**
2	**Rodeo Creek (Contra Costa County)**	**River & Stream**	**20660022 / 18050001**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**8 Miles**	**1998**	**B**	**2007**
2	**San Antonio Creek (Marin/Sonoma Co)**	**River & Stream**	**20630031 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**18 Miles**	**1998**	**B**	**2007**
2	**San Felipe Creek**	**River & Stream**	**20530041 / 18050003**	• **Diazinon** o **Urban Runoff/Storm**	**15 Miles**	**1998**	**B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
				Sewers • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*				
2	**San Lorenzo Creek**	**River & Stream**	**20420023 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**11 Miles**	**1998**	**B**	**2007**
2	**San Rafael Creek**	**River & Stream**	**20320012 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**3.6 Miles**	**1998**	**B**	**2007**
2	**Suisun Slough**	**Estuary**	**20723000 / 18050004**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**1124 Acres**	**1998**	**B**	**2007**
2	**Walnut Creek**	**River & Stream**	**20731040 / 18050001**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon*	**9 Miles**	**1998**	**B**	**2007**

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• **POLLUTANT** o **POTENTIAL SOURCES** • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	ADDRESSED BY**	USEPA TMDL APPROVAL DATE
				was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.				
2	**Wildcat Creek**	**River & Stream**	**20660013 / 18050002**	• **Diazinon** o **Urban Runoff/Storm Sewers** • *This listing was made by USEPA for the 1998 303(d) list. For 2006, diazinon was moved by USEPA from the 303(d) list to this being addressed list because of a completed USEPA approved TMDL.*	**12 Miles**	**1998**	**B**	**2007**

REVISIONS to the 2006 SAN FRANCISCO BAY REGION 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS*

Category 4B Criteria: A water segment where ALL its 303(d) listings are being addressed by regulatory action(s) other than TMDL.

* USGS HUC = US Geological Survey Hydrologic Unit Code. Calwater = is the State Water Resources Control Board hydrological subunit area or even smaller area delineation.

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT o POTENTIAL SOURCES • *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	REGULATORY PROGRAM COMPLETION DATE
2	Castro Cove, Richmond (San Pablo Basin)	Estuary	20660014 / 18050002	• **Dieldrin (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	71 Acres	2002	2010
				• **Mercury (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	71 Acres	2006	2010
				• **PAHs (Polycyclic Aromatic Hydrocarbons) (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	71 Acres	2002	2010
				• **Selenium (sediment)** o **Point Source** o **Urban Runoff/Storm Sewers**	71 Acres	2002	2010