APPENDIX B

COMMENT LETTERS

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List of Comment Letters

Allen Matkins Leck Gamble Mallory & Natsis LLP (David D Cooke)
Alameda Countywide Clean Water Program (James Scanlin)
Bay Area Clean Water Agencies (Michele Pla)
Bay Area Stormwater Management Agencies Association (Donald P. Freitas)
Baykeeper (Amy Chastain and Sejal Choksi)
Center for Biological Diversity (Miyoko Sakashita)
Citizens of East Shore Parks (Robert C. Cheasty)
Coloma, Town of (Brad Donohue)
Concord, City of (Qamar Khan)
Contra Costa Clean Water Program (Donald P, Freitas)
Cox, Michael F.
Daly City, City of (Patricia E. Martel)
Foster City, City of (Ramon M. Towne)
Friends of Lake Chabot (Darling Doug)
James, Roger B. and Kolb, Lawrence P.
Oakland, City of (Leslev Estes)
Orinda, City of (Janice Carey)
San Mateo County Department of Public Works (James C. Porter)
San Mateo Countywide Water Pollution Prevention Program (Matthew Fabry)
Santa Clara County Department of Planning and Development (Jody Hall-Esser)
Santa Clara Valley Water District (Frank Maitski)
Santa Clara Valley Urban Runoff Pollution Prevention Program (Adam Olivieri)
San Jose, City of (John Stufflebean)
Save the Bay (David Lewis)
Vallejo Sanitation and Flood Control District (Daniel T. Tafolla)
Western States Petroleum Association (Dennis Bolt)

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Via Messenger

December 4, 2008

Bruce H. Wolfe
Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Proposed Revisions to List of Impaired Water Bodies Under Section 303(d) of the Clean Water Act

Dear Mr. Wolfe:

I write to comment on the pending proposal to list Almaden Lake and Almaden Reservoir as impaired waterbodies on account of mercury concentrations in fish tissue, and the impact thereof on commercial or recreational collection of fish, shellfish or organisms.

As you know, the Water Board has already adopted a Basin Plan Amendment ("Amendment") establishing a Total Maximum Daily Load (TMDL) for mercury in the Guadalupe River Watershed. The Amendment states: "These TMDLs address seven mercury-impaired waters: five waters on the 2006 303(d) list of impaired waters, Guadalupe Reservoir, Calero Reservoir, Guadalupe Creek, Alamitos Creek, and the Guadalupe River upstream of tidal influence, and two additional waters, Almaden Reservoir and Lake Almaden, which are also impaired by mercury." Amendment, at p. BPA-7. The Problem Statement associated with these targets includes a discussion of the issue of human consumption of fish contaminated with mercury. *Id.* The Amendment goes on to state:

> The numeric TMDL targets are the fish-tissue water quality objectives from Table 3-4A designed to protect aquatic organisms and wildlife. The targets are:

- 0.05 mg methylmercury per kg fish, average wet weight concentration measured in whole trophic level 3 fish 5-15 cm in length, and

- 0.1 mg methylmercury per kg fish, average wet weight concentration measured in whole trophic level 3 fish > 15-35 cm in length. Amendment, BPA-9.

The footnote to Table 3-4A states: "The freshwater water quality objectives for the protection of aquatic organisms and wildlife also protect humans who consume fish from the Walker Creek and Guadalupe River Watersheds." Amendment, p. BPA-6.

The Waterbody Fact Sheets supporting the proposed listing of Almaden Lake and Almaden Reservoir indicate that the objective of the listings is to address risks associated with human consumption of fish from these waterbodies. As a result, it appears that the intent of the portions of the Guadalupe River Watershed Mercury TMDL that address mercury in Almaden Lake and Almaden Reservoir was essentially the same as the intent of a TMDL process that would ensue from the proposed listing of Almaden Lake and Almaden Reservoir.[1] The reasons for this overlap are not stated in the listing document or in the Fact Sheets. If the purpose of the separate listing is to account administratively for the inclusion of Almaden Lake and Almaden Reservoir in the Amendment even though, as noted on page BPA-7 of the Amendment, they were not on the 2006 Section 303(d) list, then that purpose should be acknowledged. If the intent of the proposed listing is to address the issue of methylmercury concentrations in fish from these waterbodies in the context of human consumption in proceedings separate from the Guadalupe River Watershed TMDL as adopted, then the listing will lead to a substantial and needless duplication of effort and potentially to conflicting conclusions and requirements. In the latter case, at least, the proposed listings do not appear to be warranted.

Thank you for the opportunity to comment on the proposed listings.

Very truly yours,

David D. Cooke

DDC

[1] The difference in target methylmercury concentrations in fish tissue in the proposed listings, as cited in the Waterbody Fact Sheets (0.3 mg/kg in whole fish) would not appear to differ appreciably or in principle with the targets specified in Table 3-4A of the Amendment.

Alameda Countywide
Clean Water Program

A Consortium of Local Agencies

951 Turner Court, Hayward CA 94545-2698
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December 4, 2008

Ms. Barbara Baginska
California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Dear Ms. Baginska:

SUBJECT: PROPOSED REVISIONS TO THE 303(d) LIST OF IMPAIRED WATER BODIES (OCTOBER 30, 2008 Notice of Availability of Proposed Revisions)

These comments are submitted on behalf of the Alameda Countywide Clean Water Program's seventeen member agencies. We appreciate this opportunity to comment and request that our comments be made part of the administrative record for these proceedings. Our member agencies are committed to improving water quality and the beneficial uses of our creeks and the Bay, and we hope you find these comments useful as you review and revise the proposed list of the Clean Water Act section 303(d) impaired water bodies.

As you know, most of the proposed revisions and additions to the list are for impairments due to trash. While we agree that trash in and adjacent to our waterways is a significant problem, and one that will be a primary focus of our efforts under our proposed and imminent Municipal Regional Stormwater Permit, we are concerned that the proposed revisions list entire water bodies as impaired based only upon very limited and non-representative samples. This approach is contrary to the Water Boards' Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (2004). As an example, the entire Lower San Francisco Bay is proposed to be listed as impaired by trash based upon photos from two limited locations. Listing the entire Lower Bay based upon these two limited sample locations is inconsistent with and contrary to the State Policy. Section 6.1.5.2 of the Policy states that "samples should represent statistically or in a consistently targeted manner the segment of the water body." These sites were not chosen randomly, but rather, chosen because they are impacted sites. Therefore the results cannot be considered statistically representative. In addition, these two sites are not characteristic of the well over 50 miles of shoreline along Lower San Francisco Bay, most of which are not impacted by trash. Section 6.1.5.4 of the policy states that the Water Boards should identify "estuary areas that have different pollutant levels based on significant differences in land use, tributary inflow, or discharge input." These factors should also be taken into account to limit the spatial extent of impairment listing for the Lower Bay as well as for the other water bodies for the proposed listings. Limiting the spatial extent of the listing would be consistent with the Policy, and it would also help to focus the very limited resources of municipalities toward real problem areas.

Additional comments on specific proposed listings are attached. We look forward to continuing our cooperative working relationship with Water Board staff as we endeavor to address the significant challenges in improving water quality, an objective to which the Alameda Countywide Clean Water Program is firmly committed.

Sincerely,

James Scanlin

James Scanlin,
Program Manager

Attachment: ACCWP Comments on Proposed Listings of Impairment

Alameda Creek-proposed listing for Trash:

- The actual location of the water body proposed for this listing should be clarified as "Old Alameda Creek". This name is used on the Oakland Museum Creek and Watershed Map of Fremont and Vicinity, to differentiate the historic lower channel from the Alameda Creek Flood Control Channel, which since its construction in 1962 has discharged most of the watershed's runoff to San Francisco Bay at the site of the former "Coyote Hills Slough". Old Alameda Creek now functions essentially as a slough that only receives runoff from portions of Union City and Hayward and is hydrologically disconnected from the main flood control channel. (USGS maps retain the pre-1962 designation; the detailed report for this feature in the Geographic Names Information System is unclear, with wording that implies that the stream feature includes the current Flood Control Channel but gives its coordinates as the site of the historic mouth.) Please revise to indicate that the listing only applies to the original reach of Alameda Creek downstream of the federal project and not to Alameda Creek upstream of Niles Canyon.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not exist, or does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and should not be used to list the entire water body. Section 6.1.4 also states that for photographic documentation the submission must provide the photographer's rationale for the area photographed. If this was not included in the submission, these photographs should not be used.
- Water Body Specific Information: Section 6.1.5.1 of the Listing Policy states that data used to assess water quality standards should be data that can be quantified, and that information that is descriptive, estimated or projected may be used as ancillary lines of evidence. It appears that the process used to support the proposed listing (i.e., "interpretation" of photos to establish a Rapid Trash Assessment score) would fall into the category of "descriptive, estimated, or projected" and therefore should only be used as an ancillary line of evidence and not as the sole justification.

Arroyo Las Positas -proposed listing for Nutrient/Eutrophication Biological Indicators:

- The fact sheets should clarify that of the four sites sampled by SWAMP, two were on Altamont Creek. In the separately noticed Water Board initiative to update the Basin Plan list of water bodies and beneficial uses, Altamont Creek may be designated as a separate water body from Arroyo Las Positas.
- Biological Indicators, while potentially useable as a supporting line of evidence, should not be included as a formal basis for listing. There is no narrative or numeric standard for biological indicators in the current Basin Plan, so no comparison to unimpaired reference conditions is possible. While a benthic macroinvertebrate Index of Biotic Integrity is being developed for the Bay Area, it has not yet been determined whether an adjustment

factor should be applied for different climatic zones or sub-ecoregions. Arroyo Las Positas is located in the drier inner coast range sub-region.

Arroyo Mocho-proposed listing for Temperature:

- Comparison is not to a regulatory water quality objective. The fact sheet invokes a narrative objective regarding increases above natural receiving water temperature without demonstrating that such increases have occurred. In fact, at two of the sites (AMO100 and AMO070) dry season flow is supplemented by Zone 7 Water Agency purchases from the South Bay Aqueduct for groundwater recharge; without those imported contributions these two sites would have had little or no water during the August sample collection events.
- Numerical screening levels require more careful application. The SWAMP report noted with regard to temperature:

  "The requirements for salmonids, which constitute the most limiting beneficial use for most streams, are complex: thresholds are specific to species, life history stages, stream reaches, and varying seasonal time periods. In lieu of the current narrative water quality objectives, this report uses three screening threshold levels to evaluate time series temperature data throughout the region: a salmonid survival limit as a daily maximum of 24°C, a steelhead Maximum Weekly Average Temperature (MWAT) of 17°C, and a coho salmon MWAT of 14.8°C (see Appendix C). These thresholds are used only as comparative tools, not as substitute water quality objectives."

  The temperature benchmark for Coho salmon is inappropriate for screening in Arroyo Mocho since this species is unlikely to have occurred historically in this particular tributary, per Leidy et al (2005b)'s assessment for this species. Also, the risk assessment analysis cited as the basis for the benchmark was focused on rearing and presumed impacts to growth. In fact, for resident steelhead/rainbow trout optimum water temperature for a stream reach is dependent on habitat as well as on the abundance and availability of food resources, with higher temperature optima for high-productivity streams.
- Even if the screening benchmarks are treated as numerical objectives. Available data are insufficient for listing under Section 3.2 of the Listing Policy. One year of data collection consisted of three discrete deployment periods with 5 sites deployed in winter and spring and 2 sites in August. Each deployment-site combination is one sampling event.

  The Basin Plan by default assigns the same Beneficial Uses to all reaches of all tributaries of Alameda Creek. In fact COLD and MIGR requirements by salmonids vary spatially and temporally, and temperature benchmarks for steelhead/rainbow trout would only be appropriate for locations and seasons when they are likely to be present. August deployment at AMO100 and AMO160 is not applicable, since the Leidy et al (2005a) mapped rearing or resident trout habitats only in the upper watershed canyon at SWAMP sites AMO180 and AMO200. Thus if the temperature benchmarks were to be treated as numeric WQ objectives, there would be at most 4 out of 10 periods with average

temperatures exceeding 17°C or 2 out of 10 periods with peak temperatures exceeding 24°C.

Cordornices Creek- proposed listing for Trash:

- Spatial Representation: The fact sheet states that the data used to support this proposed listing were collected at one location. This is not sufficient to support listing the entire creek. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify stream reaches "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the section of stream immediately adjacent to the sampling site or to the length of the stream reach with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and should not be used to list the entire water body.

San Francisco Bay, Central (shoreline)- proposed listing for Trash:

- Spatial Representation: The fact sheet states that the data (i.e., photographs) used to support this proposed listing were collected adjacent to stormwater outfalls or public parks. This is not sufficient to support listing the entire Central Bay. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify estuary areas "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the area of the estuary immediately adjacent to the sampling site or with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not exist, or does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and cannot be used to list the entire water body. Section 6.1.4 also states that for photographic documentation the submission must provide the photographer's rationale for the area photographed. If this was not included in the submission, these photographs should not be used.
- Water Body Specific Information: Section 6.1.5.1 of the Listing Policy states that data used to assess water quality standards should be data that can be quantified, and that information that is descriptive, estimated or projected may be used as ancillary lines of evidence. It appears that the process used to support the proposed listing (i.e., "interpretation" of photos to establish a Rapid Trash Assessment score) would fall into the category of "descriptive, estimated, or projected" and therefore should only be used as an ancillary line of evidence and not as the sole justification.

San Francisco Bay, Lower (shoreline)- proposed listing for Trash:

- Spatial Representation: The fact sheet states that the data (i.e., photographs) used to support this proposed listing were collected at two locations. This is not sufficient to support listing the entire Lower Bay. These two sites are not characteristic of the well over 50 miles of shoreline along Lower San Francisco Bay, most of which are not impacted by trash. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify estuary areas "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the area of the estuary immediately adjacent to the sampling site or with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not exist, or does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and should not be used to list the entire water body. Section 6.1.4 also states that for photographic documentation the submission must provide the photographer's rationale for the area photographed. If this was not included in the submission, these photographs should not be used.
- Water Body Specific Information: Section 6.1.5.1 of the Listing Policy states that data used to assess water quality standards should be data that can be quantified, and that information that is descriptive, estimated or projected may be used as ancillary lines of evidence. It appears that the process used to support the proposed listing (i.e., "interpretation" of photos to establish a Rapid Trash Assessment score) would fall into the category of "descriptive, estimated, or projected" and therefore should only be used as an ancillary line of evidence and not as the sole justification.

San Leandro Creek, Lower- proposed listing for Trash:

- Spatial Representation: The fact sheet states that the data used to support this proposed listing were collected at three locations along the downstream portion of the creek. This is not sufficient to support listing the entire creek. City of San Leandro personnel have surveyed the Creek further upstream and have found very little trash along the lower creek. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify stream reaches "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the section of stream immediately adjacent to the sampling site or to the length of the stream reach with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not exist, or does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and cannot be used to list the entire water body. Section 6.1.4 also states that for photographic documentation

the submission must provide the photographer's rationale for the area photographed. If this was not included in the submission, these photographs should not be used.

- Water Body Specific Information: Section 6.1.5.1 of the Listing Policy states that data used to assess water quality standards should be data that can be quantified, and that information that is descriptive, estimated or projected may be used as ancillary lines of evidence. It appears that the process used to support the proposed listing (i.e., "interpretation" of photos to establish a Rapid Trash Assessment score) would fall into the category of "descriptive, estimated, or projected" and therefore should only be used as an ancillary line of evidence and not as the sole justification.

<u>San Leandro Creek, Lower-proposed listing for Hexavalent Chromium:</u>

- The fact sheet should clearly state that the available SWAMP data measured total dissolved chromium, not specifically hexavalent chromium (CrVI), for which the water quality objective is written. The Basin Plan stipulates that "this objective may be met as total chromium". However, high total chromium concentrations do not automatically constitute exceedance of the water quality objective. The SWAMP report noted that chromium occurs naturally from geological sources in the Bay Area; since there is no information on relative contributions from anthropogenic versus natural sources in the watershed, or the CrVI fraction of anthropogenic inputs, no inference can be made from the available data regarding the proportion of total chromium that is CrVI.
- A typographical error on page C-97 references the "CTR total selenium criterion".

<u>Sausal Creek- proposed listing for Trash:</u>

- Spatial Representation: The fact sheet states that the data used to support this proposed listing were collected at one location. This is not sufficient to support listing the entire creek. In fact, additional data suggest that upstream reaches are not impacted. An assessment conducted under the SWAMP program by Moore et al (2007) at two upstream sites found "remarkably low levels of trash" at the site in Joaquin Miller Park and "very low levels of trash" at the Dimond Park site. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify stream reaches "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the section of stream immediately adjacent to the sampling site or to the length of the stream reach with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling plan does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and should not be used to list the entire water body.

Strawberry Creek- proposed listing for Trash:

- Spatial Representation: The fact sheet states that the data used to support this proposed listing were collected at one location. This is not sufficient to support listing the entire creek. Section 6.1.5.4 of the Listing Policy states that the Water Boards should identify stream reaches "that have different pollutant levels based on significant differences in land us, tributary inflow, or discharge input." The impairment listing should be limited to the section of stream immediately adjacent to the sampling site or to the length of the stream reach with similar adjacent land uses.
- Data Quality: Section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that assures that the samples are spatially representative of the surface water. The fact sheet does not describe how the sampling plan assures the representativeness of the samples. If the sampling does not assure the representativeness of the samples, these data cannot be considered representative of the water body as a whole and should not be used to list the entire water body.

REFERENCES:

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005a. Historical distribution and current status of steelhead/rainbow trout (Oncorhynchus mykiss) in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration (CEMAR), Oakland, CA.

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005b. Historical status of coho salmon in streams of the Urbanized San Francisco Estuary, California Fish and Game 91(4):219-254.

Moore, S.M., M. Cover, A. Senter. 2007. A rapid trash assessment method applied to the waters of the Bay Region: trash measurement in streams, Surface Water Ambient Monitoring Program.

Bay Area Clean Water Agencies

Leading the Way to Protect Our Bay
A Joint Powers Public Agency

P.O. Box 24055, MS 702
Oakland, California 94623

December 4, 2008

Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612-1482

Dear Ms. Baginska:

Response to the Notice of Availability of Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

The Bay Area Clean Water Agencies (BACWA) would like to take this opportunity to provide comments on the proposed revisions to the 303(d) list of impaired water bodies in the San Francisco Bay Region. Pursuant to the letter dated October 30, 2008, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board or SFRWQCB) is soliciting public comment on the proposed revisions to the list of impaired waters under section 303(d) of the Federal Clean Water Act (CWA).

We are submitting comments and are recommending that, based on new information and data and the establishment of new evaluation guidelines, the Regional Water Board reconsider the impairment assessment for selenium and find that selenium is not impairing the San Francisco Bay beneficial uses and should not be included on the 303(d) list as a pollutant/stressor. Our rationale for this is detailed below and is especially critical given the resources that are being expended on the development of a selenium total maximum daily load (TMDL) for North San Francisco Bay (NSFB).

The available evidence does not show that San Francisco Bay is currently impaired due to selenium. Our comments below provide a detailed analysis to support this point. There must be better strategies to address the planning and policy needs for selenium, such as re-issuing oil refinery permits and preventing impacts from agricultural drainage, without developing and implementing a TMDL for a pollutant that may not be currently impairing beneficial uses of the Bay.

We have reviewed the 303-d list, which is summarized below, followed by specific information as to how those findings have changed over the past two decades.

Currently, San Francisco Bay waterbodies are on the Section 303(d) list for selenium (as identified in **Table 1** below). The primary reasons identified for the listings include existing health consumption advisories for diving ducks, sediment toxicity, and egg hatchability in nesting diving birds (SFRWQCB 2006).

Table 1. 2006 CWA Section 303(d) List for Selenium in San Francisco Bay

San Francisco Water Body Name	Pollutant Stressor	Potential Source	Added in
Carquinez Strait	Selenium[1]	Industrial Point Sources Agriculture	1998
San Francisco Bay, Central	Selenium[1]	Industrial Point Sources Agriculture Natural Sources Exotic Species	1998
San Francisco Bay, South	Selenium[2]	Agriculture Domestic Use of Groundwater	1998
San Pablo Bay	Selenium[1]	Industrial Point Sources Agriculture Natural Sources Exotic Species	1998
Suisun Bay	Selenium[1]	Industrial Point Sources Natural Sources Exotic Species	1998
Castro Cove, Richmond (San Pablo Basin)	Selenium (sediment)	Urban Runoff/Storm Sewers Point Source	2002
Oakland Inner Harbor (both listings)	Selenium[1]	Industrial Point Sources Agriculture Natural Sources Exotic Species	2002

[1] – 303(d) list includes the following note: "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); low TMDL priority because individual control strategy in place."

[2] – 303(d) list includes the following note: "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."

The water quality objectives identified in the Regional Water Board Water Quality Control Plan (Basin Plan) that are relevant to this assessment include the following narrative objectives for toxic substances:

> *Bioaccumulation: 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.*
>
> *Population and Community Ecology: 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.

Toxicity: All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test. 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. Attainment of this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, or toxicity tests (including those described in Chapter 4), or other methods selected by the Water Board. The Water Board will also consider other relevant information and numeric criteria and guidelines for toxic substances developed by other agencies as appropriate. 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.

In addition, selenium criteria were promulgated for all San Francisco Bay/Delta waters in the National Toxics Rule (NTR). The NTR criteria specifically apply to San Francisco Bay upstream to and including Suisun Bay and Sacramento-San Joaquin Delta. The marine water quality objectives for toxic pollutants for surface waters for selenium are 5.0 ug/l (4-day average) and 20 ug/l (1-hr. average).

A revised impairment assessment and delisting of selenium from the Section 303(d) list for San Francisco Bay is warranted for the following reasons:

- *Substantial Reductions in Oil Refinery Loads* - Individual control strategies have substantially reduced selenium loadings from the oil refineries since the original listings in 1998 and 2002. The load reductions addressed the more bioavailable form of selenium, selenium (IV). The assessment of impairment should be based on the most recent data that have been collected since the refinery reductions were implemented.

- *Shifts in the Food Web* – Selenium bioaccumulates in certain branches of the food web. The food web of NSFB has shifted since the original listings due to the invasion of the overbite clam (*Corbula amurensis*). As discussed below, this will

change where and how selenium accumulation occurs in higher levels of the food web. The impairment assessment should focus on data collected in the past five years, to account for these changes.

- *Bioaccumulation of Pollutants in Aquatic Life Tissue* - New scientific information and data on the selenium concentration in the tissues of diving ducks, white sturgeon, and nesting diving bird eggs has become available that shows tissue levels of selenium that are protective of both wildlife and the health of human consumers.

- *Human Health* - In June 2008, the California Office of Environmental Health Hazard Assessment (OEHHA 2008) revised the selenium reference dose. This results in recommended fish and duck tissue selenium concentration goal that is being attained throughout the Bay. OEHHA has not gone through the administrative process to re-evaluate the advisory based on new information.

- *Water Column* - The current water quality objective for selenium, 5 µg/L, is attained throughout San Francisco Bay. Even the more stringent goal of 2 µg/L is attained throughout the Bay. The single exception too this is Alviso Slough, at the interface of the Guadalupe River. A Baywide TMDL is not necessary or appropriate to address exceedance in a single slough of South San Francisco Bay.

- *Water/Sediment Toxicity*- New scientific information and data has become available that clarifies there are no toxic effects observed that have been linked to selenium concentrations in water or sediment.

I. Recent Changes: Food Webs and Oil Refinery Loads

The implementation of local control programs at the oil refineries in 1998 in NSFB resulted in a significant decrease in the loads of highly-bioaccumulative selenium(IV) species from those point sources (Tetra Tech 2008a). These reductions were achieved without the development and implementation of a TMDL. They resulted in measurable reductions in the receiving water concentrations of selenium(IV) in NSFB. The evidence for impairment due to selenium in San Francisco Bay was not clear prior to these reductions; the reductions were ordered as a precautionary measure. Ever since the reductions have taken place, new information from monitoring in fish and diving duck tissues helps clarify that the Bay is not impaired.

The benefits of refinery load reductions may have been offset, to some degree, by changes in the food web. Starting in the mid 1980s, the food web in the bay as been greatly affected by the invasion of the overbite clam, *Corbula amurensis* (Linville et al., 2002). These clams are a significant food item for sturgeon and have a tendency to biomagnify selenium concentrations in their tissues over concentrations observed in other dietary items (Stewart et al., 2004). Despite the exacerbating effect of this food web shift, selenium levels in sturgeon do not appear to exceed concentrations that pose an ecological or human health risk. In light of the recent changes in selenium loads and

food web structure, it is best to assess the current levels of impairment based on the most recent data.

II. Human Health

The risk guidance use to develop tissue targets that are protective of human health have changed since the original listings. In 1985 the SWRCB, as part of the Subsurface Agricultural Drainage Program, commissioned a Selenium Verification Study (SWRCB 1991). This study was conducted by California Department of Fish and Game. The study, among other things, monitored the selenium concentration in diving ducks and recreationally important fish species from the San Francisco Bay.

Figure 1 shows the selenium concentration in tissue of diving ducks (surf scoters) and white sturgeon collected from the San Francisco Bay complex from 1986 to 1990 in relation to California Department of Health Services' then Interim Human Health Screening Values (SWRCB 1991) which were:

- 2.5 µg /g (wet weight) for diving ducks; and
- 2.0 µg /g (wet weight) for white surgeon

As is evident from this early data, the selenium level in diving ducks and white sturgeon exceeded the Human Health Interim Screening Values. Consequently, in 1987 and 1988, the California Department of Health Services issued health advisories for the consumption of diving ducks and white sturgeon (Fan and Lipsett 1988). In response to the issuance of the human health advisories related to diving ducks and white sturgeon consumption, the Regional Water Board listed portions of San Francisco Bay on the Section 303(d) List for selenium (SFRWQCB 1998).

In June 2008, the OEHHA changed the selenium reference dose (Rfd) to 5 µg per day (for a 70 Kg standard adult body weight) from the previous 3 µg per day. Additionally, the OEHHA changed the selenium background dietary level to 114 µg per day from the previous 170 µg per day (OEHHA 2008).

Considering a diving duck tissue consumption rate of 16 g per day (used in the 1987-1988 advisory) and a white sturgeon consumption rate of 32 g per day (currently recommended by the OEHHA), the new selenium advisory level for diving ducks and fish are calculated as follows:

New Diving Duck Tissue Advisory Level =

$$\frac{(Rfd \times 70) - Background\ Dietary\ Level, 114\ \mu g/day}{Tissue\ Consumption\ Rate, 16\ g/day}$$

$$\frac{350 - 114}{16} = 14.8\ \mu g/g \text{ wet weight}$$

New Fish Tissue Advisory Level =

$$\frac{(Rfd \times 70) - Background\ Dietary\ Level, 114\ \mu g/day}{32} = \frac{350 - 114}{32} = 7.4\ \mu g/g\ wet\ wt.$$

In 2002 and 2005, the Regional Monitoring Program (RMP) monitored the selenium concentration in the diving ducks. Although the results are not published yet, data was obtained from Ms. Jennifer Hunt of the San Francisco Estuary Institute (SFEI 2008). This RMP data includes selenium concentrations in the greater scaup as well. The selenium concentrations in white sturgeon was obtained from RMP 1997, 2000, 2003, and 2006 annual reports (SFEI RMP Annual Reports).

Figure 2 and **Figure 3** show the recent diving ducks and white sturgeon selenium tissue concentrations in relation to the new, 2008 OEHHA tissue advisory levels, respectively. As is evident from the data, the diving ducks and white sturgeon tissue concentrations of selenium have been well below the 2008 OEHHA tissue advisory levels since the mid 1990's. Therefore, there is no evidence of human health impairment of San Francisco Bay due to selenium.

Thus, delisting on the basis of human health is warranted under the SWRCB Water Quality Policy for Developing California's Clean Water Act Section 303(d) List (September 2004) (Listing Policy), Section 4.4 Health Advisory, which states that water segments or pollutants shall be removed from the Section 303(d) List if the health advisory used to list the water segment has been removed or the chemical or biological contaminant-specific evaluation guideline for tissue is no longer exceeded. It is important to give the public accurate information as to which chemicals are of concern in fish tissue, and which are not, so that priorities for pollutant control programs can be understood.

III. Water Column

The numeric water quality objectives are attained throughout San Francisco Bay. The selenium water quality criteria promulgated for San Francisco Bay upstream to and including Suisun Bay and Sacramento-San Joaquin Delta are 5.0 ug/l (4-day average) and 20 ug/l (1-hr. average). However, Lemly and Skorupa (2007) critiqued this criterion and suggested that the criterion should be lowered to 2 µg/L.

The RMP has been monitoring the water column selenium concentration in the San Francisco Bay. From 2002 to 2006, the highest concentration observed in the water column of the open Bay was 1.15 µg/L. The Bay-wide average concentration for 2007 was 0.10 µg/L, slightly lower than the long-term average of 0.12 µg/L (see attached **Figure 6** from the SFEI 2008 Pulse of the Estuary Report). Even if the RWQCB adopted Lemly and Skorupa (2007) suggested criterion of 2 µg/L, the San Francisco Bay ambient concentration is well below this level and no evidence of impairment is evident based on waterborne selenium concentrations.

The only exception to this is in Alviso Slough, at the margin of South San Francisco Bay, where selenium concentrations in the water column of the Slough exceed 5 µg/L. If this is a cause of impairment, then a focused source assessment and control program is a more appropriate tool than a Baywide TMDL.

IV. Water/Sediment Toxicity

There is currently no evidence linking water and sediment toxicity to selenium in San Francisco Bay. Under the California Bay Protection and Toxic Cleanup Program (BPTCP), the SWRCB commissioned a study entitled "Sediment Quality and Biological Effects in San Francisco Bay." (SWRCB 1998) This study observed sediment toxicity to amphipods and/or sediment pore water toxicity to sea urchin embryo at several segments of the Bay. In 2002, this observed toxicity resulted in the SWRCB designating specific segments of the Bay as impaired due to selenium concentrations in sediment and adding those sites to the Section 303(d) List.

Although segments of the Bay were included on the Section 303(d) List for selenium in 2002, there are no established selenium sediment concentration toxicity thresholds. However, Gandesbery (1998) and Gandesbery, et al (1999), proposed an ambient selenium sediment concentration screening value of 0.64 µg/g dw. This value was used to distinguish "ambient" from "contaminated" sites. The Bay segments in which the sediment selenium concentration exceeded the 0.64 µg/g dw were designated as "contaminated" or having elevated selenium concentrations. However, it is important to note that "elevated selenium concentration" in sediment does not establish a cause for toxicity due to selenium.

In fact, the sediment samples that showed toxicity in the BPTCP study (SWRCB 1998) had several other contaminants, such as copper, chromium, mercury, lead, nickel, PAH, and PCB, the concentrations of which exceeded the established toxicity thresholds. The limited toxicity identification studies of these BPTCP sediment samples confirmed toxicity due to copper, chromium, and mercury. None of these studies confirmed selenium as the source of the observed toxicity.

Abu-saba and Ogle (2005), after a thorough review of the BPTCP data and the basis of Section 303(d) listing of these segments of the Bay, concluded, "Based upon the overwhelming weight of evidence presented…it is concluded that selenium is not impairing the BPTCP sites that were added to the Section 303(d) List in 2002 and delisting these sites for impairment by selenium is warranted."

Currently, the United States Forest Service (USFS) and the United States Fish and Wildlife Service (USFWS) recommends 2 µg/g dw as a selenium sediment toxicity threshold (Lemly 2008).

The RMP has extensively monitored sediment selenium concentrations in San Francisco Bay. **Figure 4** presents the recent (2005 – 2006) selenium sediment concentration in North San Francisco Bay in relation to the USFS and USFWS's

recommended sediment selenium concentration toxicity threshold. The data clearly show that the NSFB sediment selenium concentration is well below the USFS and USFWS sediment selenium concentration toxicity threshold of 2 µg /g dw. South Bay sediment selenium concentrations are also below the 2 µg/g dw toxicity threshold for the same period. In 2005, the mean selenium concentration (+/- SD) of South Bay sediments was 0.56 +/- 0.36 µg/g dw (range was from 0.36 µg/g to 1.58 µg/g dw Se). Mean sediment selenium concentrations in South Bay for 2006 were 0.13 +/- 0.02 µg/g dw (range was from 0.10 µg/g to 0.15 µg/g dw Se).Therefore, the current sediment selenium concentration does not justify a cause for finding of aquatic life impairment for all Bay segments.

V. Bioaccumulation of Pollutants in Aquatic Life Tissue

Because selenium primarily accumulates through diet, not water, measurements of selenium concentrations in fish and bird tissue provides a direct link to assessment of impairment of effects due to selenium. Therefore, tissue based assessments provide an appropriate means of assessing compliance with narrative objectives for toxic substances. Section 6.1.3 of the Listing Policy allows for the selection of alternative guidelines to interpret narrative water quality objectives and protect beneficial uses.

The SWRCB Selenium Verification Study (SWRCB 1991) raised the possibility of fish and diving duck reproductive impairment due to excessive selenium exposure in the bay. The data showed that the adult sturgeon selenium tissue concentration was near levels suspected to cause reduction in reproductive success. Similarly, the selenium concentration in the diving ducks was at or near levels of probable teratogenesis and possible reduction in egg hatching success. Consequently, in 2006, the SFRWQCB added egg hatchability in diving ducks as a Section 303(d) listing criterion for selenium (SFRWQCB 2006). Although the reproductive success of fish (white sturgeon) was not a listing criterion for Section 303(d) listing for selenium, it has been a concern for the SFRWQCB since the Selenium Verification Study (SWRCB 1991) was completed.

(i) Role of Selenium in Population Decline of Diving Ducks

The Selenium Verification Study (SWRCB 1991) raised a concern that selenium in San Francisco Bay may be a possible factor in the population decline of diving ducks. The USFWS staff has also raised this concern as recently as September 16, 2008 (SFRWQCB 2008).

DeVink, et al (2008), studied the impacts of selenium on the body condition and reproduction in boreal breeding scaup, scoters, and ring-necked ducks. They concluded, "Moreover, higher concentrations in scoters do not appear detrimental to female body condition or breeding prosperity. Therefore, we believe that selenium is likely not the cause of decline or lack of population recovery of scaups or scoters." The diving ducks (scoters) liver selenium concentration in DeVink, et al, (2008) study averaged 32.6 µg/g dw with a range of 4 to 75 µg/g dw. These concentrations are comparable to the San Francisco Bay scoter liver selenium concentration observed in

the 1990 sampling program (SWRCB 1991) (time of elevated selenium concentration in diving ducks). In the 2002 and 2005 RMP sampling program, the selenium concentration in the San Francisco Bay surf scoter muscle tissue dropped about 60 percent from the 1990 level (SFEI 2008). RMP did not analyze liver for selenium; however, it can be assumed that the selenium concentration in liver also dropped correspondingly. Therefore, it is reasonable to predict that the concentration of selenium in San Francisco Bay scoter liver is currently below 32.6 µg/g dw linked with no impacts on the condition or breeding prosperity of diving ducks and the observed decline or lack of population recovery (DeVink, et al, 2008).

Therefore, the most current available data show that the selenium concentration in San Francisco Bay does not appear to be impacting the body condition and the breeding success of the San Francisco Bay diving ducks.

(ii) Egg Hatchability

As discussed earlier, the Selenium Verification Study (SWRCB 1991) results showed that the selenium concentration in diving ducks was at or near levels of probable teratogenesis and/or reduction in egg hatchability. At that time, there were no well-established selenium egg concentration teratogenesis (embryo) or egg hatchability success thresholds. Skorupa (2005) recommended an avian egg threshold of 8 µg/g dw (derived from a geometric mean of 6 µg/g no observed adverse-effect level [NOAEL] and 10 µg/g lowest observed adverse-effect level [LOAEL]). The Great Salt Lake Water Quality Steering Committee (2008) recommended to the Utah Water Quality Board an avian egg threshold of 12.5 µg/g dw. DeVink, et al (2008), used 9 µg/g dw as a threshold for avian embryonic malfunction for eggs. Stanley, et al (1996), reported a selenium egg concentration threshold of about 5 µg/g wet weight (7.5 µg/g dw) for Mallards. Their results also showed that selenium concentrations in Mallard eggs at approximately 3.5 µg/g wet weight (about 5 µg/g dw) improved duckling weight gain, duckling survival, and reproduction compared to the control.

The United States Geological Service Western Ecological Research Center in Vallejo, California, has been involved with collecting and analyzing San Francisco Bay diving ducks (surf scoters) eggs for selenium concentration. Recently, Wainwright-De La Cruz, et al (2008), reported a mean egg selenium concentration of 1.71 ± 0.122 µg/g dw for diving ducks. Hothem, et al (1995), analyzed selenium in wading bird eggs from the San Francisco Bay complex and reported a mean selenium concentration of 3.9 ± 0.9 µg/g for black-crowned night heron and 3.9 ± 0.7 µg/g for snowy egret.

Figure 5 presents the egg selenium concentration of diving ducks and wading birds in San Francisco Bay in relation to selenium toxicity and stimulatory concentration thresholds. As is evident from this data, the mean selenium concentration in eggs of the diving ducks and other wading birds in the San Francisco Bay is well below current teratogenesis/egg hatchability/duckling growth, survival, and production thresholds. In fact, the mean selenium concentration in the eggs appears to be in the range of

beneficial effects on reproduction and survival of the ducklings (Stanley, et al, 1995). Furthermore, the egg mean selenium concentration of diving ducks in the San Francisco Bay complex is approximately 40 percent lower than the concentration in eggs of diving ducks in Canada, which has been shown to have no impact on the breeding prosperity of the diving ducks (DeVink 2008).

The above-discussed Wainwright-De La Cruz, et al (2008) and Hothem, et al (1996) data, in fact, confirms the SWRCB Selenium Verification Study (SWRCB 1991) observation, "USFWS studies suggest that waterfowl leaving San Francisco Bay and feeding on a low-selenium diet on the way to their breeding grounds may still breed successfully even though they accumulated high levels of selenium in recent years." Therefore, there is no evidence that the current selenium concentrations in the San Francisco Bay complex are causing harmful impacts on diving and wading bird egg hatchability or reproductive success.

(iii) Impacts of Selenium on San Francisco Bay Fisheries

In response to the USFWS and the National Marine Fisheries Service (NMFS) comments (FWS and NMFS 2000), the USEPA (2004) originally proposed a numeric fish tissue criterion of 7.9 µg/g dw as a tissue selenium target. Lemly and Skorupa (2007) critiqued this proposed value and suggested that the target should be lowered to 5.8 µg/g dw, mainly, because of Winter Stress Syndrome concerns. The USEPA's (2004) proposed fish numeric target was based upon whole body concentration of selenium in juvenile Bluegill. Lemly (1993) discovered that this species was more sensitive to selenium exposure in winter than in summer. In response to the Lemly and Skorupa (2007) critique, the USEPA decided to investigate the effect of Winter Stress Syndrome on bluegill. Recently, the USEPA (2008) issued the results of this study. The study concluded that (a) the juvenile bluegill did not decrease in body condition factor and lipid content (Winter Stress Syndrome) as reported by Lemly (1993); (b) the toxicity of selenium to juvenile bluegill was approximately 1.9 times less than observed by Lemly (1993); i.e., the new toxicity threshold for bluegill is approximately 11.1 µg/g dw compared to 5.8 µg/g proposed by Lemly (1993); and (c) most importantly, the USEPA (2008) study showed that under a similar temperature and exposure period, bluegill receiving a natural diet accumulated 2.5 times less selenium compared to an artificial diet spiked with seleno-L-methionine, the diet employed by Lemly (1993). Although the USEPA has not yet revised its proposed fish numeric criterion of 7.9 µg/g dw, it appears that Lemly and Skorupa's (2007) suggested fish numeric criterion of 5.8 µg/g dw should be revised upward in the range of 9 to 11 µg/g dw. This revised target would still be conservative considering the fact that the bluegill's natural feeding behavior will allow 2.5 times less selenium accumulation compared to the laboratory test conditions of Lemly (1993) and USEPA (2004).

Tetra Tech (2008) performed a thorough review of selenium fish toxicity studies and calculated the effect thresholds for each study/ species (**Table 3**). However, note that 14 out of 19 studies considered by Tetra Tech involve fish species that are not indigenous to NSFB. It is important to evaluate the toxicological impacts to resident bay

species as part of a determination of impairment. Bluegill, channel catfish (fingerlings), fathead minnows, and rainbow trout do not inhabit the NSFB. Therefore, the thresholds for these species are not specifically applicable as fish tissue numeric targets for NSFB. Further, it appears that the freshwater species (bluegill, channel catfish, fathead minnow, rainbow trout) are generally more sensitive to selenium than the Bay resident species. Therefore, to use these freshwater species to develop selenium numeric fish tissue targets for the NSFB may result in over protection. Additionally, a fish tissue target for species not found in NSFB would be of little use since these target fish species are rarely, if ever, caught in NSFB and would be useless for verification of compliance with the fish tissue numeric target.

The species of most concern for NSFB are Sacramento splittail; the sturgeon is a species of concern for the entire Bay. The feeding behavior of these two species exposes them to significant levels of selenium compared to other resident species of the NSFB. For example, striped bass bioaccumulates selenium approximately 10 times less than white sturgeon (SWRCB 1991).

Barbara Baginska (2008) recently proposed a fish tissue numeric target of 6.0 µg/g dw for the protection of fishery resources of the San Francisco Bay. This target is based, in part, on the Linville (2006) study. TetraTech Inc. (2008b), using the same data, arrived at an adult white sturgeon toxicity threshold of 6.2 µg/g dw.

We agree with Baginska (2008) and Tetra Tech (2008) that white sturgeon is the most appropriate species for the fish tissue numeric target because (a) white sturgeon is a resident species of NSFB; (b) the feeding behavior, including a significant portion of their diet as bivalves, exposes this species to relatively high concentrations of selenium in their diet; (c) muscle tissue can be obtained for selenium analysis without killing the specimens; (d) the RMP has developed a good historical database on the muscle tissue concentration of selenium over several years; and (e) this species has been tested for acute and chronic toxicity (Linville 2006, and Tashjian, et al, 2008).

However, we do not agree that the proposed Barbara Baginska's 6 µg/g dw or TetraTech's 6.2 µg/g dw is a valid numeric target because our review of Linville (2006) data results in a substantially different numeric target.

Linville (2006) exposed female adult white sturgeon to diets containing either 1.4 µg/g dw (control) or 34 µg/g dw selenium (treatment) for about six months. The test end points were reproductive performance (fecundity, fertilization success, and neurulation), weight and length of larvae and larvae developmental abnormalities (ederma and skeleton deformities: Lordosis, kiphosis and scoliosis). Linville (2006) found that 34 µg/g dw dietary selenium exposure of adult female white sturgeon had no significant impact on reproductive performance and weight or length of larvae compared to control. Parallel to the maternal exposure experiments she also microinjected white sturgeon larvae with seleno-L-methonine. The test end points were the same as the material exposure experiments. There were significant effects on larval deformities in both

experiments. Linville (2006) concluded, "A hazard threshold of 3 to 8 µg/g in developing white sturgeon is suggested for this species."

Linville (2006) toxicity threshold (3 to 8 µg/g dw) and the resulting Baginska (2008) proposed fish tissue numeric target (6 µg/g dw) appear to be based upon the pooled maternal exposure and direct larvae microinjection results. Our review of Linville (2006) study shows that pooling the larval microinjection data with the maternal exposure data results in the toxicity threshold substantially biased low. Although, the larvae direct microinjection experiment may have academic utility, it is not applicable to the Bay's natural conditions because (a) larvae in the Bay are not microinjected with seleno-L-methionine; instead, the larvae in the Bay are exposed to selenium from the yolk sac in a natural complex form; and (b) the larvae in the Bay are not instantly exposed to a toxic selenium-L-methionine concentration; instead, the larvae in the Bay gradually obtain selenium from the yolk sac over a period of several days if not weeks. Microinjection most likely overwhelmed the larvae with a toxic dose, which is not representative of the more gradual natural selenium exposure larvae actually experience.

The discussion in paragraphs (a) and (b) above explain why Linville (2006) observed 45 to 70 percent more mortality of larvae in microinjection experiments compared to maternal exposure and overall, the larval development abnormalities were two to three times more in microinjection experiments compared to maternal dietary exposure.

Clearly, the maternal dietary exposure experiments are more applicable to the Bay's natural conditions than the larvae direct microinjection.

Our review of Linville (2006) maternal dietary exposure data (**Table 2**) shows that the Treatment T1 (larvae selenium concentration of 11.6 µg/g) is NOAEL (zero abnormalities). Since Treatment T3 produced more larvae abnormalities (13 percent) compared to Treatment T1 (0 percent) at a substantially lower selenium concentration (7.75 vs. 11.6 µg/g), Treatment T3 cannot be considered the LOAEL. Because the LOAEL can not be lower than the NOAEL, in this case, treatment T2 (larvae selenium concentration of 18.4 µg/g) becomes the LOAEL. Therefore, the associated adult muscle tissue NOAEL and LOAEL are 9.95 µg/g dw and 15.30 µg/g dw, respectively (see **Table 2** under the column titled, Larvae & Muscle). The resulting white sturgeon larvae development toxicity threshold, in terms of adult muscle tissue concentration, is 12 µg/g dw (geometric mean of 9.95 and 15.3 µg/g dw). This threshold is lower than Tashjian, et al (2006) for juvenile white sturgeon (20.3 µg/g dw).

This choice of LOAEL value from the Linville (2006) data is supported by the general rule in evaluating data on ecological risk that is it not feasible to describe population impacts below an approximately 20% effect level (as is true for the development of water quality standards and evaluation of toxicity tests) (Suter et al., 2000). Therefore, the choice of the T2 effect level is generally supported by the toxicological literature, and the choice of NOAEL and average for the threshold concentration logically follow.

Tashjian, et al (2006), conducted an extensive study on the effects of selenium on chronic toxicity in juvenile white sturgeon. The study end points were survival, growth, behavioral effects, activity level, and liver, gill and muscle tissue histopathology. The results show that for all test end points, the selenium dietary exposure toxicity threshold (geometric mean of NOAEL and LOAEL) is 14.0 µg/g dw. The corresponding muscle tissue concentration threshold is 20.3 µg/g dw.

Since our calculated Linville (2006) toxicity threshold for white sturgeon muscle tissue (12 µg/g dw) is lower than Tashjian (2006) for juvenile white sturgeon (20.3 µg/g dw), it should be protective of all the end points studied in Linville (2006) and Tashjian (2006) combined.

Recently, USFWS staff raised the concern of impacts of selenium on population decline of green sturgeon (SFRWQCB 2008). Currently, Kueltz (2008) at University of California Davis is investigating impacts of selenium on green sturgeon under a CALFED funded project. The final report is not published yet; however, we obtained preliminary data from the Semiannual Project Report No. 2 to CALFED (Kueltz 2008).

Kueltz (2008) microinjected newly hatched larvae of green sturgeon with seleno-L-methionine at 8 µg/g dw body burden. Percent mortality and abnormalities were observed at full absorption of yolk stage. Additionally, Kueltz (2008) investigated the effects of dietary exposure of selenium on juvenile green sturgeon.

The preliminary report shows that (a) for juvenile green sturgeon the selenium dietary exposure toxicity threshold is about 20 µg/g dw; this threshold is higher than reported by Tashjian, et al (2008), for juvenile white sturgeon (14 µg/g dw); and (b) the preliminary larvae seleno-L-methionine data indicates that the selenium toxicity threshold most likely would be in the range of 10 to 12 µg/g dw,. However, the microinjection of green sturgeon larvae with seleno-L-methionine is not representative of NSFB natural conditions and results in an overly-conservative toxicity threshold, which is not appropriate for the NSFB TMDL. In general, fish impairment should be assessed based on effects observed through dietary pathways (instead of, for example, microinjection experiments).

Figure 7 compares the current selenium muscle tissue concentration of adult white sturgeon with our calculated toxicity threshold (12 µg/g dw) from Linville (2006) data. **Figure 8** compares the current selenium dietary exposure from NSFB bivalves to the Tashjian, et al (2008)-reported dietary exposure toxicity threshold. As is evident from Figures 7 and 8, the current selenium muscle tissue concentration of white sturgeon and its selenium dietary exposure are well below these toxicity thresholds. Therefore, the best available data suggests that selenium concentration in they Bay does not have harmful impacts on the Bay's fishery resources.

Recently Beckon (2008) presented a paper at the CALFED Conference on the toxicity of selenium to salmonids. After review and re-analysis of Hamilton, et al (1990), Beckon concludes, "Salmon suffer 10 percent mortality due to selenium at a fish tissue

concentration of about 1.8 µg/g (whole body dw). These data suggest that selenium may have killed about one quarter of the young Chinook salmon migrating down the San Joaquin River."

However, our analysis of the same data (Hamilton, et al, 1990), contradicts some of Beckon's (2008) key conclusions. Hamilton, et al (1990), conducted two separate experiments on the effect of selenium on the survival of Chinook salmon in fresh water and in brackish water. The test organism (larvae/finglerling) were separately exposed to three diets: (a) control, which was prepared from mosquito fish caught from a low selenium reference station; the selenium concentration of this diet was 1.0 µg/g dw; (b) San Luis Drain diet (SLD), which was prepared from mosquito fish caught from a selenium-contaminated environment; the exposure concentration of this diet ranged from 3.2 to 35.4 µg/g dw; and (c) selenium-DL-methionine (SeMet), which was prepared from selenium-DL-methionine; the exposure concentration ranged from 3.2 to 35.4 µg/g, similar to the SLD diet. The test organisms were separately exposed in the two test conditions, fresh water and brackish water. The survival was measured after 30, 60, and 90 days. Our review of Hamilton, et al (1990), data extracted from their Tables 3, 4, and 6 shows the following:

1. At a whole body dw selenium concentration in the range of 1.7 to 2.0 µg/g, dietary exposure concentration of 3.2 µg/g (SeMet diet), selenium actually increased the survival rate of Chinook salmon in this experiment compared to the control. This conclusion contradicts the Beckon (2008) conclusion that whole body dw of 1.8 µg/g causes an unacceptable level of mortality in Chinook salmon.

2. At a whole body dw selenium concentration in the range of 4.0 to 5.4 µg/g, dietary exposure concentration of 5.3 to 9.6 µg/g (SLD and SeMet diets), there was no significant (= 0.05) effect on the survival of Chinook salmon when compared to the control. This concentration is about two times higher than what Beckon (2008) designated as lethal to about 25 percent of Chinook salmon.

3. The fresh water dietary exposure toxicity threshold for Chinook salmon is in the range of 7 µg/g dw (SLD diet) and 13 µg/g dw (SeMet diet).

4. There was no effect on the survival of Chinook salmon larvae/fingerlings in brackish water (Bay conditions) up to a dietary selenium exposure concentration of 35.4 µg/g dw (SLD and SeMet diets).

5. The brackish water dietary exposure toxicity threshold for growth (length and weight) for Chinook salmon is in the range of 7 µg/g dw (SLD diet) and 25.4 µg/g dw (SeMet diet). Note that the SLD diet was found to have elevated concentrations of boron, chromium, and strontium compared to the control and SeMet diets which might have increased observed SLD diet toxicity compared to the control and SeMet diets.

Another important finding from Hamilton, et al (1990), is that Chinook salmon larvae/fingerling do not biomagnify selenium; i.e., the dietary selenium exposure generally reflects the whole body selenium concentration (burden).

The Chinook salmon larvae/fingerling food mostly consists of insects, amphipods (zooplankton), etc. (Beckon and Maurer 2008). The available data on the selenium concentration of particulates and zooplankton in the NSFB (TetraTech Inc. 2008) shows that the dietary selenium exposure concentration for Chinook salmon in the NSFB are well below the selenium toxicity threshold calculated from Hamilton, et al (1990), study (attached **Figures 9** and **10**). Therefore, the current dietary exposure concentration of selenium in the Bay does not appear to impair the survival and growth of Chinook salmon.

Summary

Based on the above technical discussion, we find that the current, available data on selenium concentrations in water, sediment, diving duck muscle, bird eggs, and fish tissue support delisting of selenium in San Francisco Bay. To support this finding, we have compared available data to the selected screening criteria/guidelines and then compared this to the Listing Policy[1]. Based on this new information and data, we evaluated whether the a) water segment would be placed on the 303(d) list if a new impairment assessment were to be completed and/or; b) whether the analysis would support a delisting of the water segment.

The result of the comparison that was completed as a part of this analysis is summarized in **Table 6.**

Table 6. Screening exceedances for selenium; San Francisco Bay

Matrix	Screening Criterion	Period of Record	Exceedances/ Samples	Impairment[7]	Delisting[8]
Water[1]	5 ug/L	2002-2006	0/167	No	Yes
Sediment[2]	2 mg/kg dw	2005-2006	0/54	No	Yes
Diving duck muscle[3]	14.8 mg/kg ww	2002-2005	0/40	No	Yes
Bird eggs (mean)[4]	8 mg/kg dw	1995-2008	0/181	No	Yes
Fish fillet (human health)[5]	7.4 mg/kg ww	2000-2006	0/19	No	Yes
Fish muscle (fish exposure)[6]	12 mg/kg dw	2000-2006	1/19	No	Yes

[1] – San Francisco Bay Region, Water Quality Control Plan (Basin Plan), 2007
[2] – Lemly, 2008
[3] – OEHHA guidelines, calculated in this memorandum
[4] – Skorupa, 2005
[5] - OEHHA guidelines, calculated in this memorandum
[6] – Calculated from Linville (2006) as part of this memorandum
[7] – Determination made pursuant to Section 3 and Table 3.1 of the SWRQCB Listing Policy, 2004

[1] The data were compared to the Listing Policy to determine if they met the requirements in Section 3 (California Listing Factors – **Table 4**) and/or 4 (California Delisting Factors – **Table 5**).

[8] – Determination made pursuant to Section 4 and Table 4.1 of the SWRQCB Listing Policy, 2004

Additional information is provided below.

Water Column (Section 4.1 of the Listing Policy)
A finding to delist may be made for any pollutant water-body combination for which there are a sufficient number of samples that do not exceed the water quality criteria (NTR in this case). The water column concentrations were compared to the NTR criteria consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there were 0 exceedances out of 167 samples.

Water/Sediment Toxicity (Section 4.6 of the Listing Policy)
A finding to delist may be made if the water/sediment toxicity or associated water or sediment quality guidelines are not exceeded using the binomial distribution as set forth in the Policy. The sediment concentrations were analyzed consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there were 0 exceedances out of 54 samples.

Human Health (Section 4.4 of the Listing Policy)
A finding to delist may be made if a health advisory used to list the water segment has been removed of the chemical or biological contaminant-specific evaluation guideline for tissue is no longer exceeded. Even though the duck consumption advisory is still in effect (since OEHHA has not yet prioritized the review of the advisory), the selenium concentrations in diving ducks were compared to the OEHHA 2008 tissue advisory levels consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there were 0 exceedances out of 40 samples.

Bioaccumulation of Pollutants in Aquatic Life Tissue (Section 4.5 of the Listing Policy)
A finding to delist may be made if the numeric pollutant-specific evaluation guidelines are not exceeded using the binomial distribution consistent with Policy Table 4.1. For this analysis bird eggs, fish fillets, and fish muscle were evaluated.

The selenium concentrations in bird eggs were analyzed consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there were 0 exceedances out of 181 samples.

The selenium concentrations in fish fillets (human health) were analyzed consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there were 0 exceedances out of 19 samples.

The selenium concentrations in fish muscle (fish exposure) were analyzed consistent with Policy Table 4.1 for the purposes of assessing exceedances. This assessment indicated that there was 1 exceedance out of 19 samples.

Recommendation

The results indicate that there is no clear evidence for impairment by selenium in San Francisco Bay. In fact, the available evidence indicates that selenium is not impairing San Francisco Bay. As such, BACWA would recommend that San Francisco Bay be delisted for selenium. We recognize that there are water quality planning and policy needs for selenium, including: 1) reissuance of refinery permits; 2) prevention of impacts from agricultural drainage and water management in the Central Valley; and 3) investigation of the anomalously high water column concentrations of selenium in Alviso Slough. All of the needs can be met with more appropriate and effective strategies than a TMDL. BACWA would be happy to work the with the Regional Water Board in development of the most appropriate and effective water quality attainment strategy for selenium.

Sincerely:

Michele M Pla
Executive Director

Cc: Tom Mumley, SF Bay Regional Water Board
Naomi Feger, SF Bay Regional Water Board
BACWA Executive Board
Bhupinder Dhaliwal, CCCSD
Nirmela Arsem, Chair BACWA Lab Committee
Rob Cole, Chair BACWA Permits Committee

Table 2 From Linville (2006)

Se (µg/g; dw) in adult tissues and their progeny related to incidence of developmental defects

Exposure	Fish/ Progeny ID	Liver	Muscle	Ovarian	Egg	Larvae[1]	Percent Developmental Defects[2]
Control	C3	1.33	1.28	1.49	2.46	2.43	0[3]
Control	C4	0.80	1.22	1.65	1.61	1.69	0
Control	C5	2.16	1.48	1.38	2.68	2.67	0
Treatment	T1	8.72	9.93	6.53	11.00	11.6	0
Treatment	T2	11.60	15.30	13.20	20.50	18.4	27.78 ± 2.94
Treatment	T3	11.00	11.10	5.74	7.61	7.75	13.33 ± 3.33

Table 3-18. Se concentrations (µg/g; dw) in liver, muscle, ovarian tissue, and eggs from female white sturgeon exposed to either control (ca. 1.4 µg/g) or treatment (ca. 34 µg/g) dietary Se for approximately six months during vitellogenesis (described in Chapter 2). Se concentration and occurrence of developmental defects are shown for the progeny of each female (n = 25 – 30 larvae for stage 36; n = 60 - 90 larvae for stages 40 and 45).

[1]Newly hatched larvae (stage 36)
[2]Occurrence of edema and/or skeletal deformities at the end of yolk sac development
[3]Data from stage 36 only, due to very low hatch

Table 3-3
Summary of selenium toxicity studies evaluated in this review.

Fish	Study	Water Type	Life stage	Liver[1] NOAEL (mg/kg dw)	Liver[1] LOAEL (mg/kg dw)	Muscle[1] NOAEL (mg/kg dw)	Muscle[1] LOAEL (mg/kg dw)	Whole Body NOAEL (mg/kg dw)	Whole Body LOAEL (mg/kg dw)	Effect Threshold (mg/kg dw) Liver	Muscle	Whole Body	Endpoint
bluegill	5	fresh	Juvenile					4.7	7.5	20.3	9.5	9.0	BW, L
bluegill	7	fresh	Adult					13.0	19.6	38.4	15.4	13.8	R
bluegill	10	fresh	Adult	12.3	25.0	5.6	13.4			17.8	7.0	7.1	R
bluegill	32	fresh	Adult	6.0	12.7	4.2	7.2			14.8	7.9	7.0	BW, R, S
bluegill	63	fresh	Juvenile					1.3	2.5	11.2	2.9	3.2	S, BW, L
channel catfish	13	fresh	Adult	7.4	12.5					9.6	2.6	2.7	S
channel catfish	15	fresh	Fingerling	-	-	3.0	3.5			-	3.3	3.3	BW
channel catfish	23	fresh	Larvae[2]					0.4	10.8	24.5	6.4	7.6	BW, L
channel catfish	29	brackish	Juvenile[2]					12.6	23.2	48.3	19.3	12.1	BW, L, S
fathead minnow	9	fresh	Larvae	-		-		-	62.5	-	-	-	BW
fathead minnow	58	fresh	Juvenile			5.7	6.6	5.4	9.6	20.3	6.1	6.6	BW
fathead minnow	62	fresh	Egg	-	-	-	-	1.5	18.5	-	-	6.6	D
rainbow trout	75	fresh	Larvae					1.2	2.3	7.6	1.8	1.5	BW, L
rainbow trout	38	fresh	Juvenile	153.2	197.2	-	-			173.8	-	83.1	BW, FG, R
rainbow trout	39	fresh	Juvenile	42.0	95.6					62.2	-	19.1	BW, R, FG
rainbow trout	41	fresh	Juvenile[2]	21.0	71.7			1.3	4.0	38.0	21	3.6	BW, FG
Sacramento splittail	74	fresh	Juvenile	23.0	26.8	10.1	16.1			24.9	12.3	10.8	D
white sturgeon	55	fresh	Adult	1.4	10.4	1.3	12.1			2.9	4.6	6.2	D
white sturgeon	71	fresh	Juvenile	27.0	37.4	22.8	36.8	14.7	22.5	35.7	29.0	18.2	BW, SA

Notes:
1 - shaded cells represent concentration predicted from measurements in other tissues (see Appendix A)
2 - only results from the Selenium dietary exposure part of the study are used here
3 - data from the low carbohydrate diet were not used as the authors reported that reduced weight of fish on this diet was likely due to food avoidance, not toxicity
BW = Body Weight
D = Deformities
FG = Feed Gain ratio
L = Length
R = Reproduction
S = Survival
SA = Swimming Activity

From Tetra Tech (2008)

Table 3.1 Measured Exceedances for Placement of 303(d) List

MINIMUM NUMBER OF MEASURED EXCEEDANCES NEEDED TO PLACE A WATER SEGMENT ON THE SECTION 303(D) LIST FOR TOXICANTS.

Null Hypothesis: Actual exceedance proportion ≤ 3 percent.
Alternate Hypothesis: Actual exceedance proportion > 18 percent.
The minimum effect size is 15 percent.

Sample Size	List if the number of exceedances equal or is greater than
2 – 24	2*
25 – 36	3
37 – 47	4
48 – 59	5
60 – 71	6
72 – 82	7
83 – 94	8
95 – 106	9
107 – 117	10
108 – 129	11

* Application of the binomial test requires a minimum sample size of 16. The number of exceedances required using the binomial test at a sample size of 16 is extended to smaller sample sizes.

For sample sizes greater than 129, the minimum number of measured exceedances is established where α and $\beta \leq 0.2$ and where $|\alpha - \beta|$ is minimized.

α = Excel® Function BINOMDIST(n-k, n, 1 – 0.03, TRUE)
β = Excel® Function BINOMDIST(k-1, n, 0.18, TRUE)

where n = the number of samples,
k = minimum number of measured exceedances to place a water on the section 303(d) list,
0.03 = acceptable exceedance proportion
0.18 = unacceptable exceedance proportion

Source: SWRCB 2004

Table 4 From SWRCB (2004)

Table 4.1 - Measured Exceedances for Delisting

MAXIMUM NUMBER OF MEASURED EXCEEDANCES ALLOWED TO REMOVE A WATER SEGMENT FROM THE SECTION 303(D) LIST FOR TOXICANTS.

Null Hypothesis: Actual exceedance proportion ≥ 18 percent.
Alternate Hypothesis: Actual proportion < 3 percent of the samples
The minimum effect size is 15 percent.

Sample Size	Delist if the number of exceedances equal or is less than
28 - 36	2
37 – 47	3
48 – 59	4
60 – 71	5
72 – 82	6
83 – 94	7
95 – 106	8
107 – 117	9
108 – 129	10

For sample sizes greater than 129, the maximum number of measured exceedances allowed is established where α and $\beta \leq 0.10$ and where $|\alpha - \beta|$ is minimized.

α = Excel® Function BINOMDIST(k, n, 0.18, TRUE)
β = Excel® Function BINOMDIST(n-k-1, n, 1 – 0.03, TRUE)

where n = the number of samples,
k = maximum number of measured exceedances allowed
0.03 = acceptable exceedance proportion
0.18 = unacceptable exceedance proportion

Source: SWRCB 2004

Table 5 From SWRCB (2004)

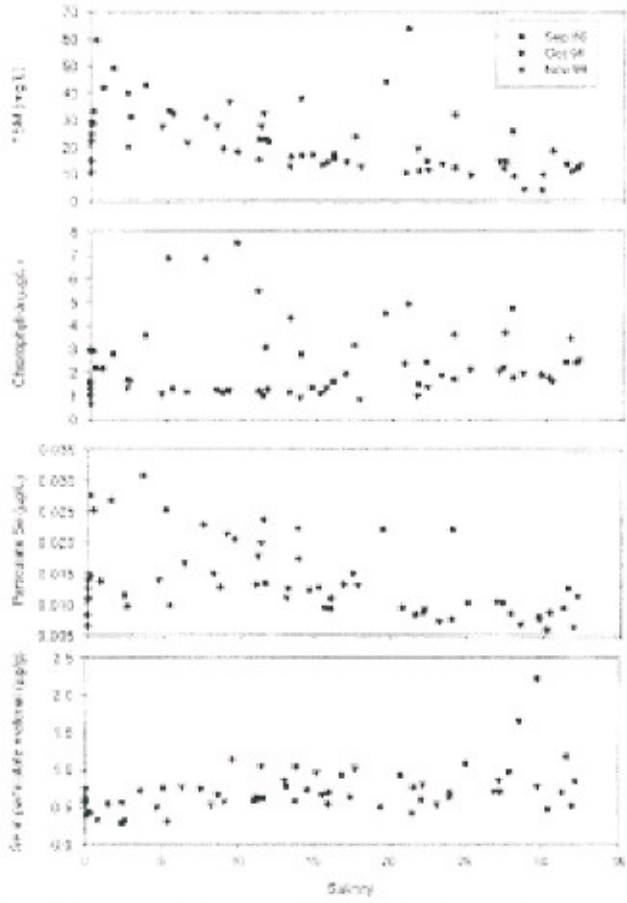

Figure 3-5 Low flow: Transects of TSM, chlorophyll-a, particulate selenium and selenium in particulate material (September 1998, October 1998, and November 1999; Doblin et al. 2006 and electronic database provided by Dr. Cutter).

Figure 9 from TetraTech Inc. (2009)

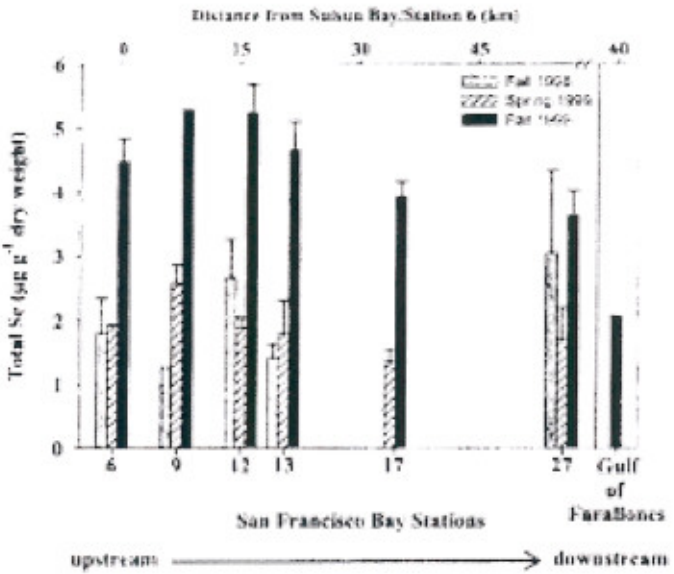

Figure 3-11 Zooplankton data collected in NSFB compared with a reference site in the Gulf of Farallones. Figure reproduced from Pukerson et al. (2003).

Figure 10 from TetraTech Inc. (2008c)

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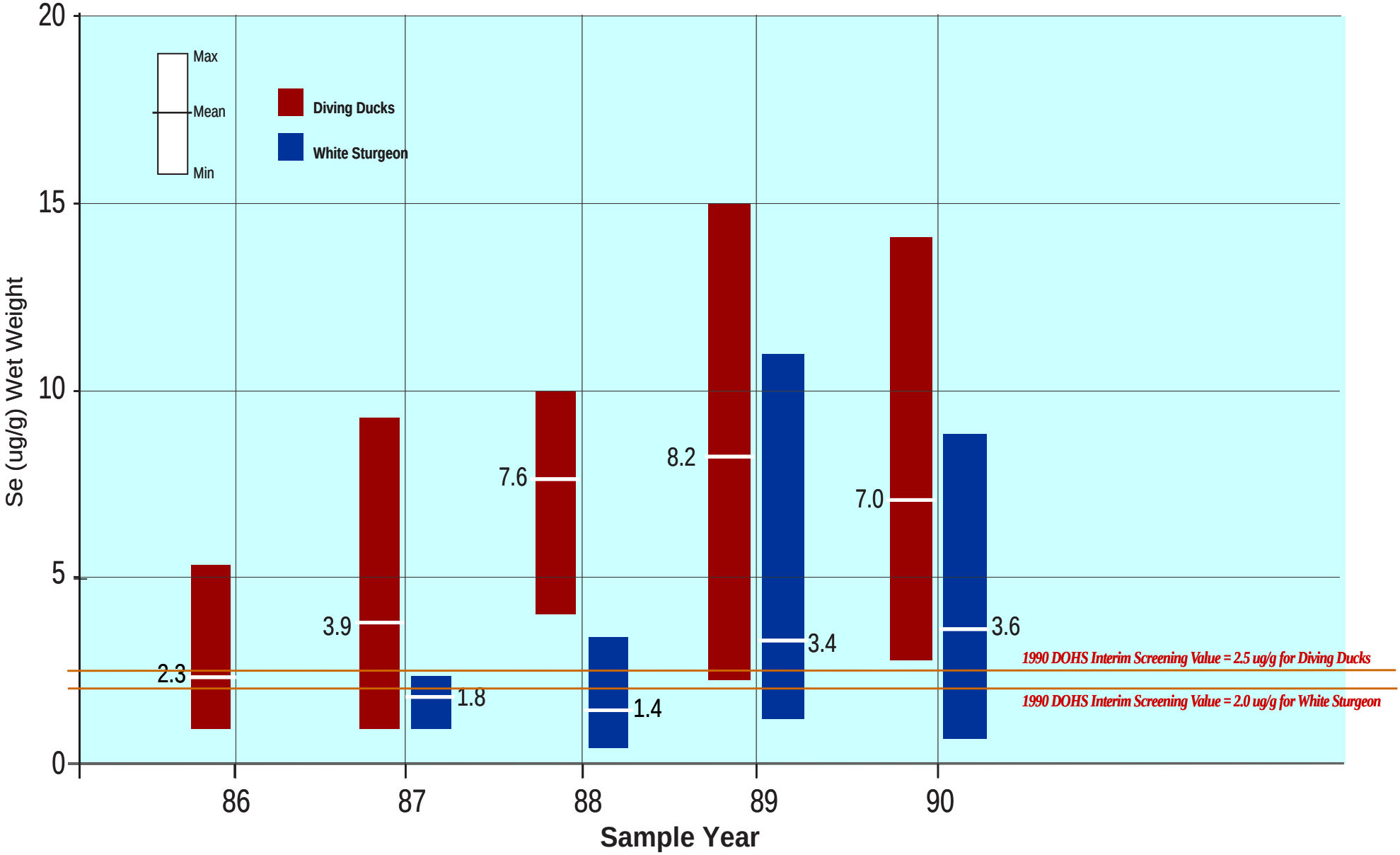
Figure 1

Selenium Concentration* (ug/g wet wt) in Diving Ducks and White Sturgeon (1986-1990) in Relation to CA DOHS 1990 Interim Screening Value

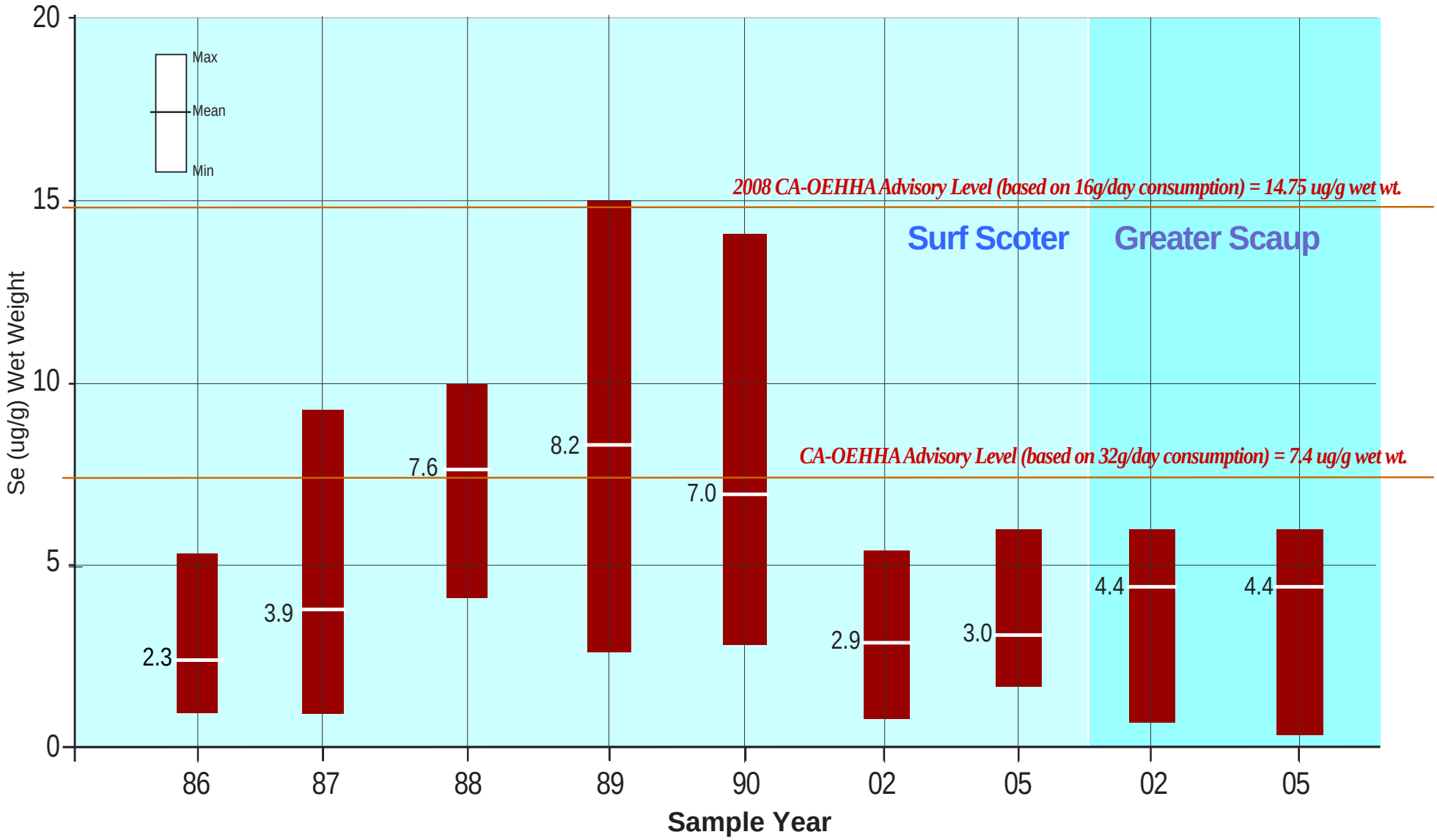


* In muscle tissue, average and range

SOURCE: Selenium Verification Study. (SWRCB 1991)

Figure 2

Selenium Concentration* (ug/g wet wt) in Diving Ducks (1986-2005) in Relation to CA OEHHA 2008 Tissue Advisory Level

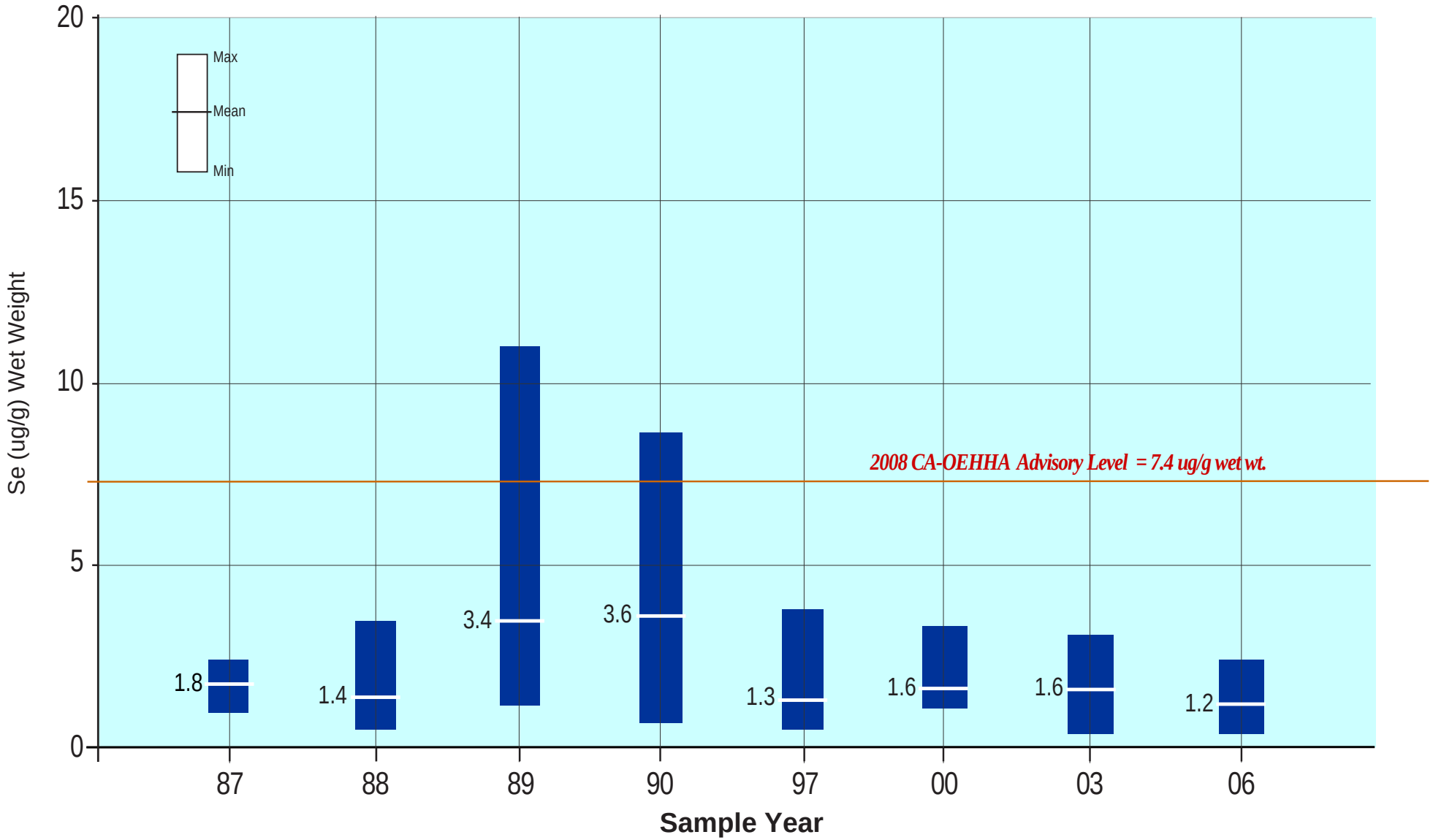


* In muscle tissue, average and range

SOURCE: Selenium Verification Study. (SWRCB 1991) and (SFEI 2008)

Figure 3

Selenium Concentration* (ug/g wet wt.) in White Sturgeon (1987- 2006) in Relation to CA OEHHA 2008 Tissue Advisory Level

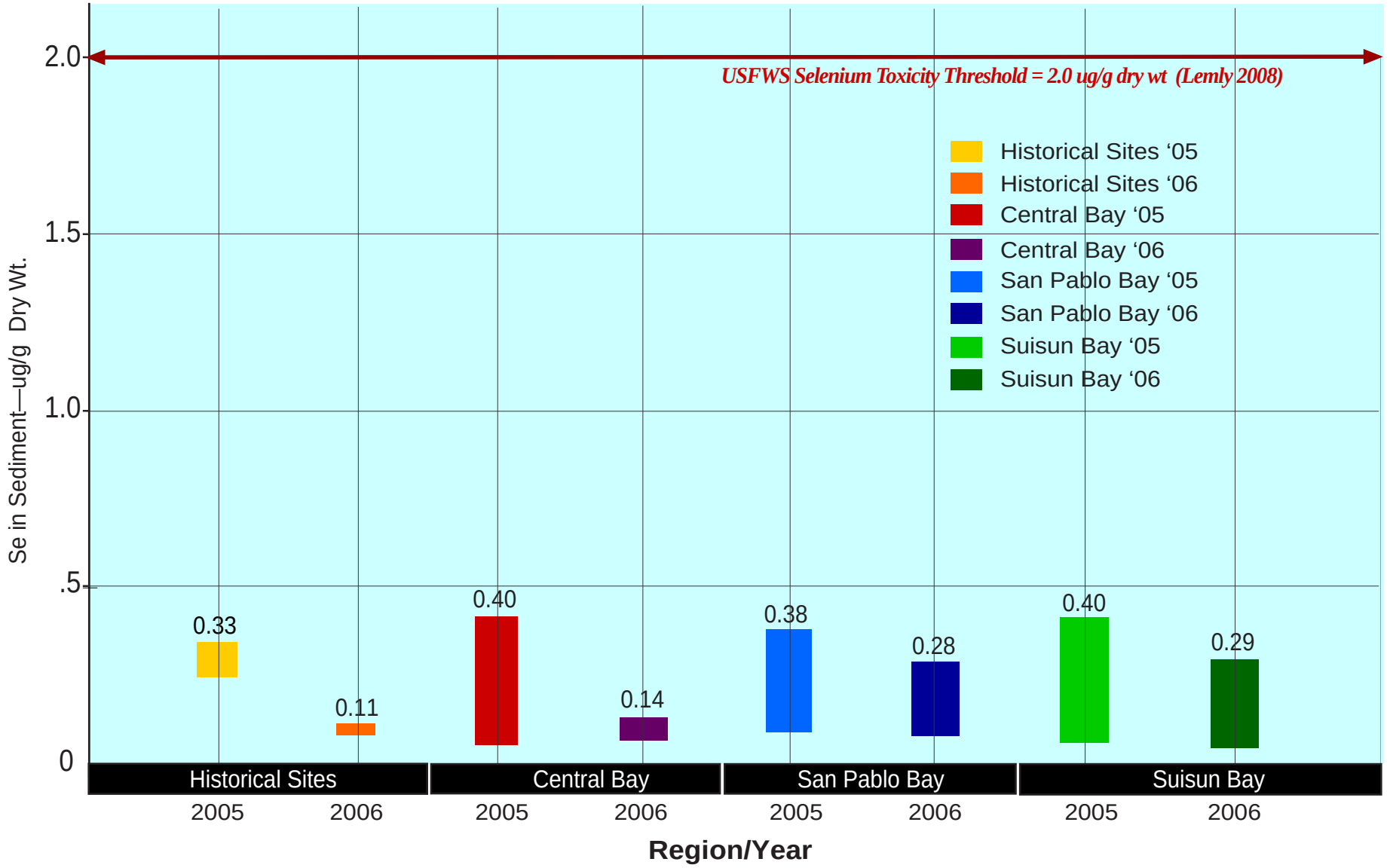


* In muscle tissue, average and range

SOURCE: Selenium Verification Study. (SWRCB 1991) and RMP Annual Report 1997-2006

Figure 4

Selenium Concentration range (ug/g dry wt.) in Sediments (Surface) from North San Francisco Bay (2005 - 2006) in relation to USFWS Selenium Toxicity Threshold



* Source 2005-2006 RMP Annual Reports.

Figure 5

Selenium Concentration (ug/g dry wt.) in eggs of Diving Ducks and Wading Birds from San Francisco Bay complex in relation to egg Selenium concentration Thresholds

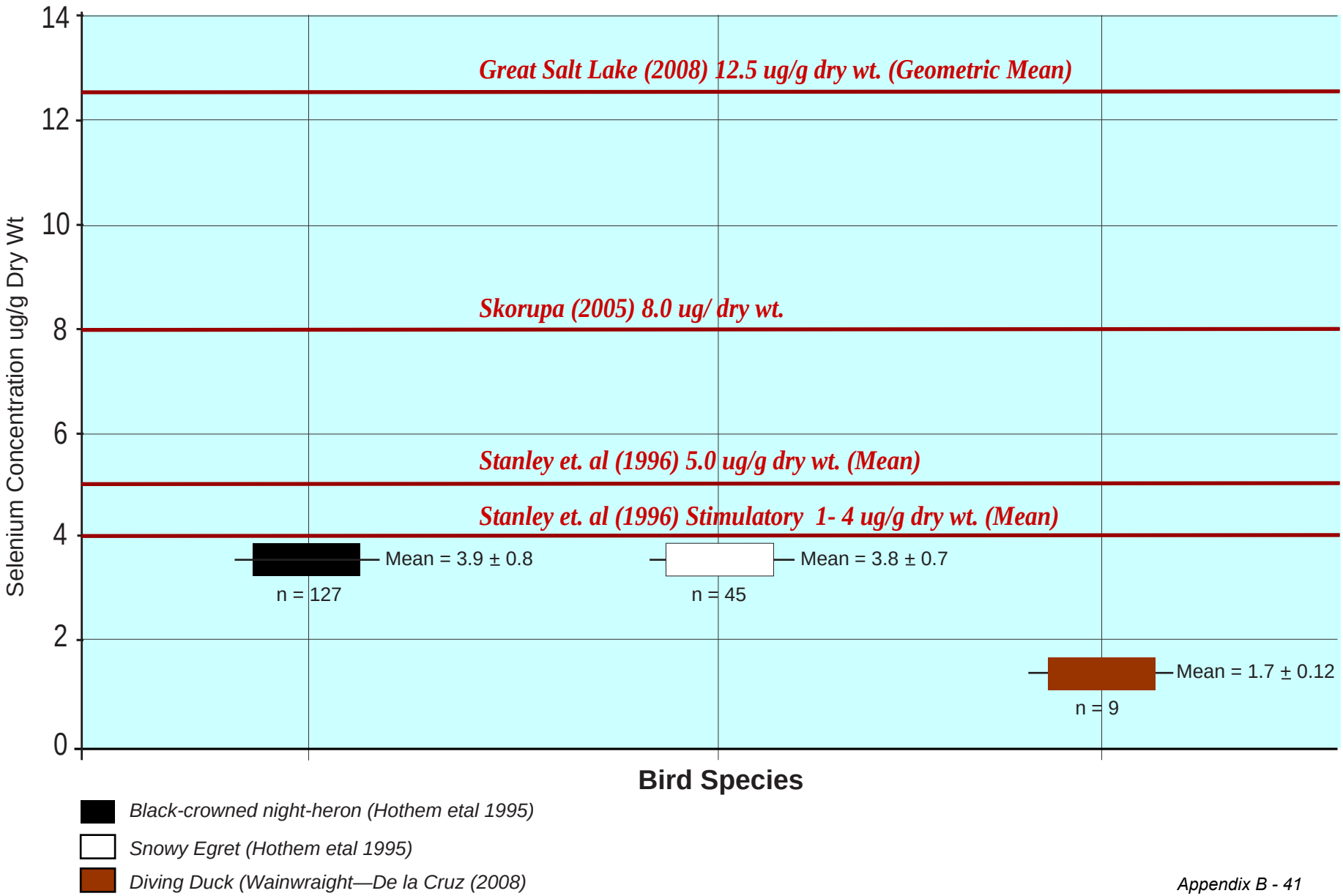
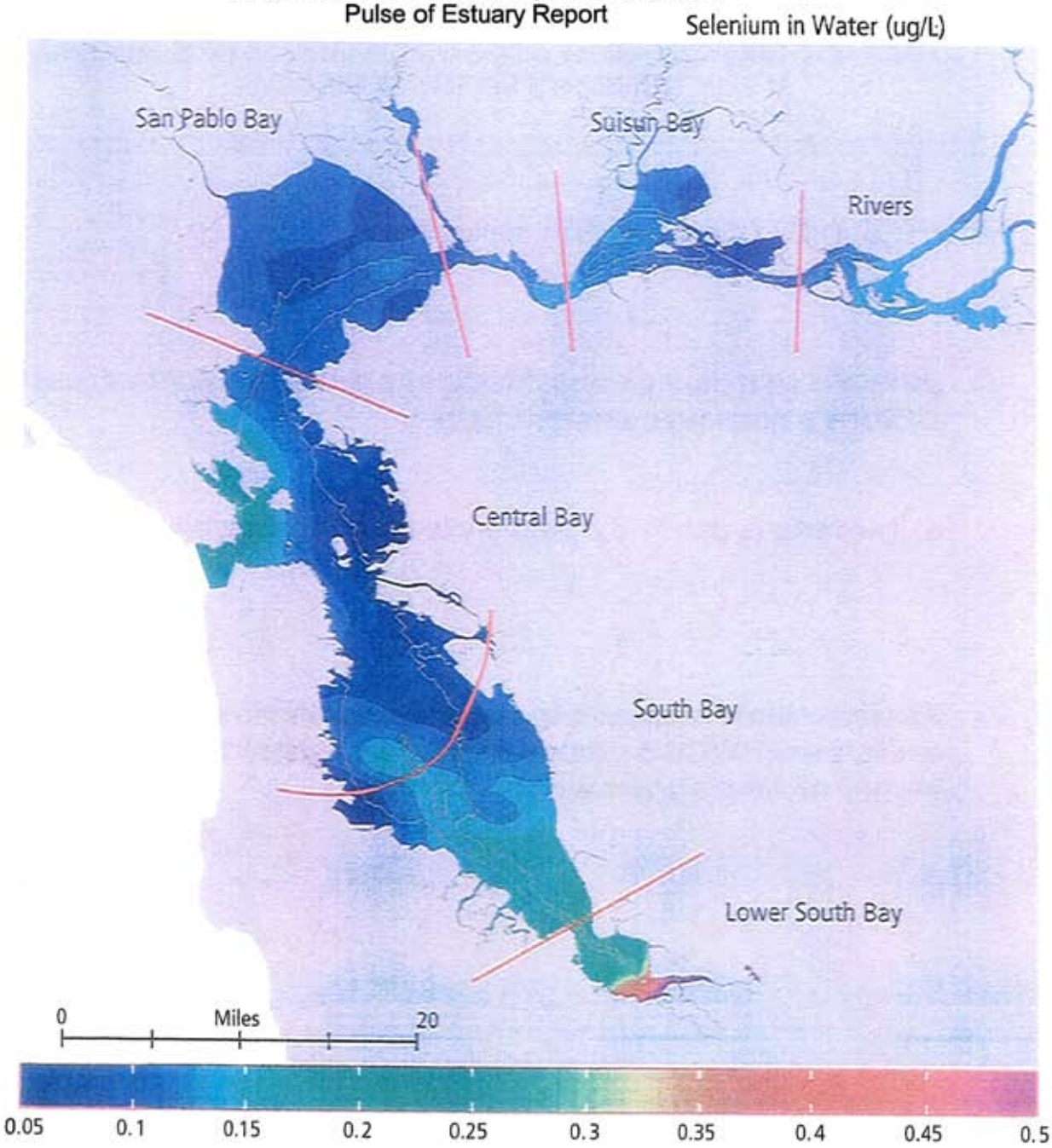


Figure 6
From San Francisco Estuary Institute (2008)
Pulse of Estuary Report

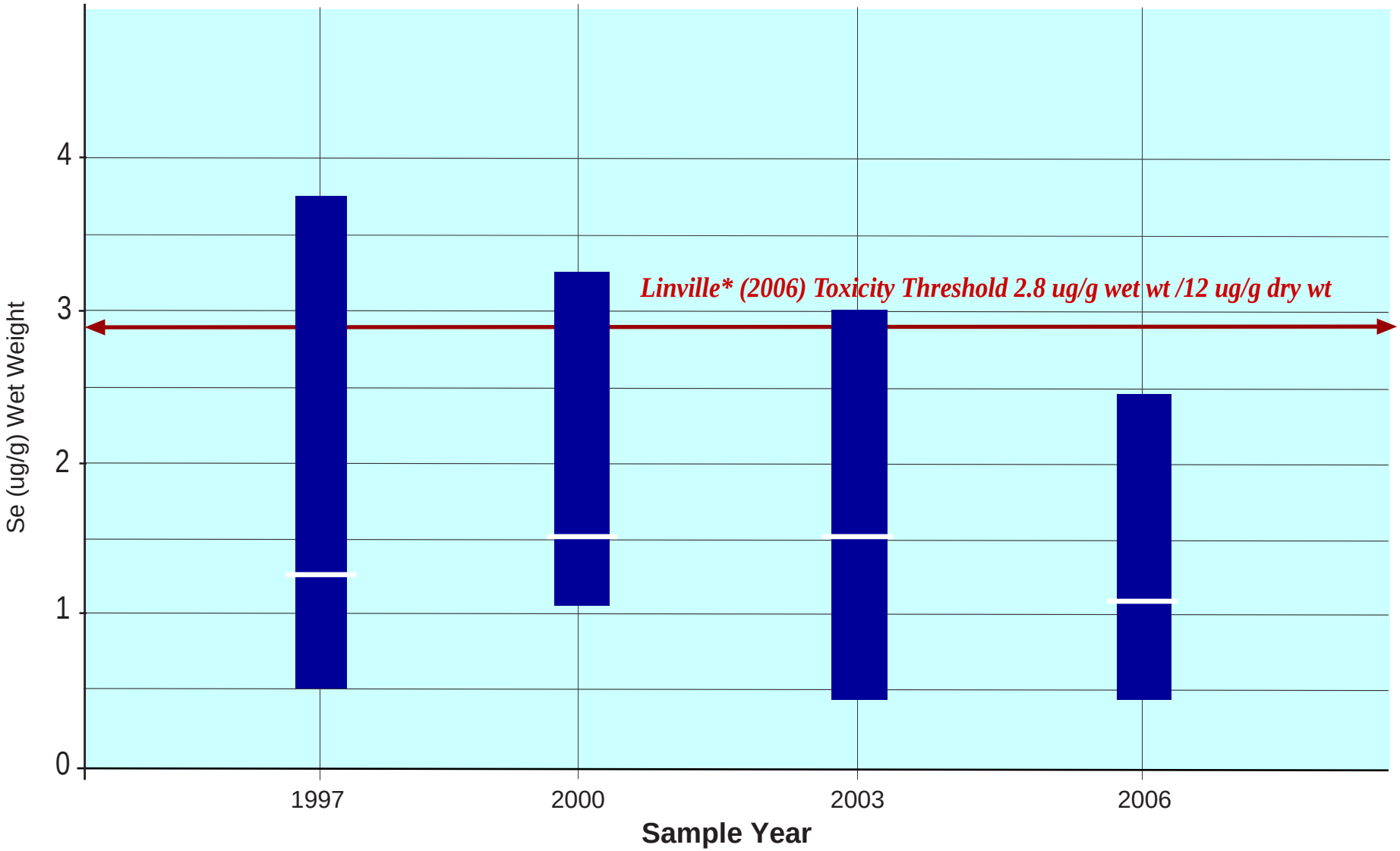


Footnote: Plot based on 167 RMP data points from 2002 – 2007. The maximum concentration was 1.2 µg/L at a historical station in the Southern Sloughs in 2002. Data are for total selenium.

Selenium concentrations in water are well below the water quality objective established by the California Toxics Rule. However, concerns still exist for human exposure as indicated by a duck consumption advisory and for wildlife exposure as indicated by studies on early life-stages of fish. The highest concentration observed in water from 2002 to 2007 was 1.15 µg/L, much lower than the CTR objective (5 µg/L). The Lower South Bay had a higher average concentration over this period (0.25 µg/L) than the other Bay segments, which had strikingly consistent average concentrations (all other averages were between 0.12 and 0.13 µg/L). The Bay-wide average concentration in 2007 (0.10 µg/L) was slightly below the long-term average (0.12 µg/L).

Figure 7

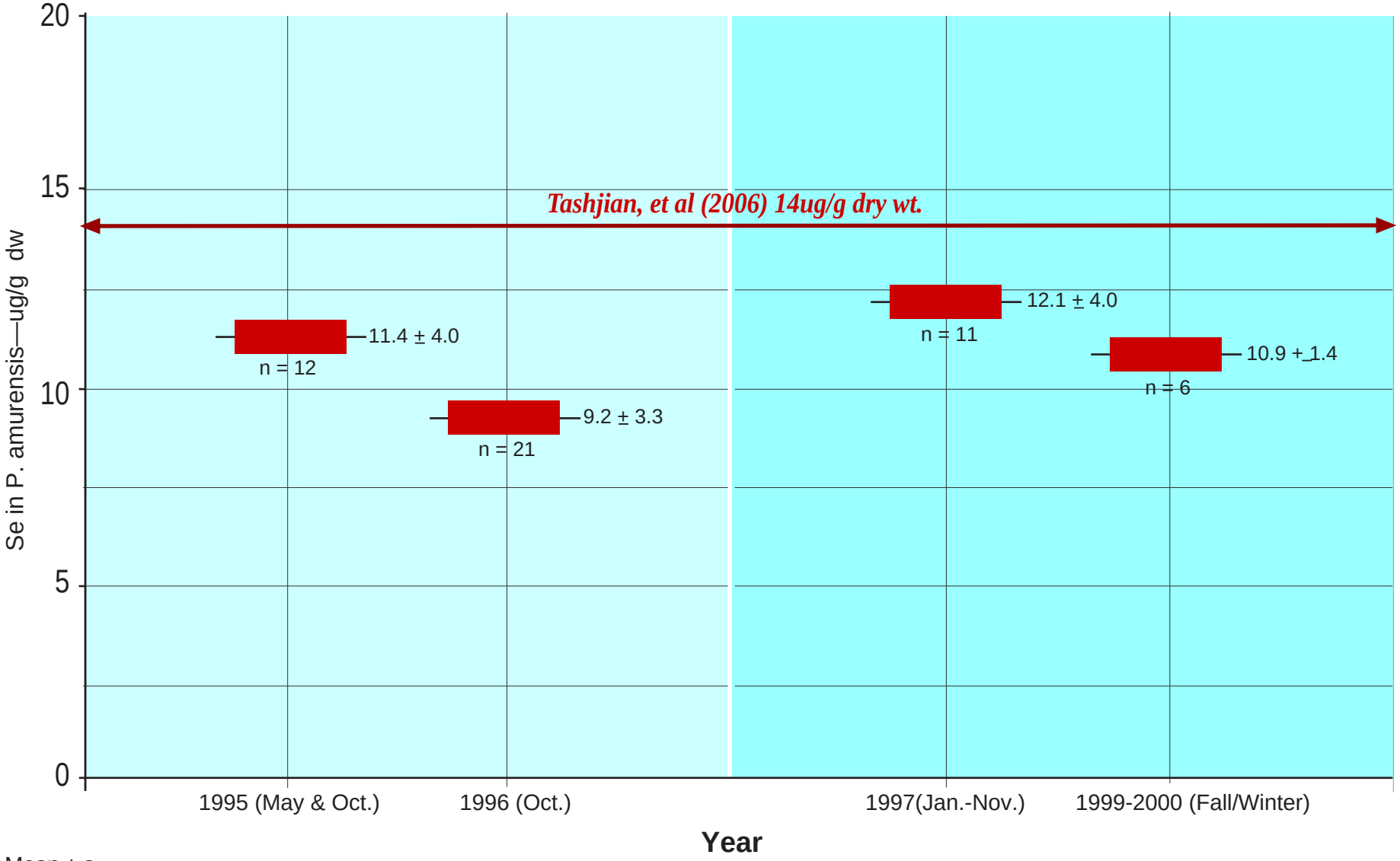
Selenium Concentration (ug/g wet wt.) in Adult White Sturgeon in San Francisco Bay (1997-2006) in Relation to Linville* (2006) Toxicity Threshold



*Our calculated value from Linville (2006) maternal experiments. (see text)
SOURCE: RMP Annual Report 1997-2006: muscle tissue, average and range.

Figure 8

Selenium Concentration* (ug/g dry wt.) in P. amurensis from North San Francisco Bay in Relation to Selenium Dietary Exposure Threshold



* Mean ± s

SOURCE: Linville et. al. (2002), Stewart et. al (2004) and Stewart (2008)

Figure 9 from TetraTech Inc. (2009)

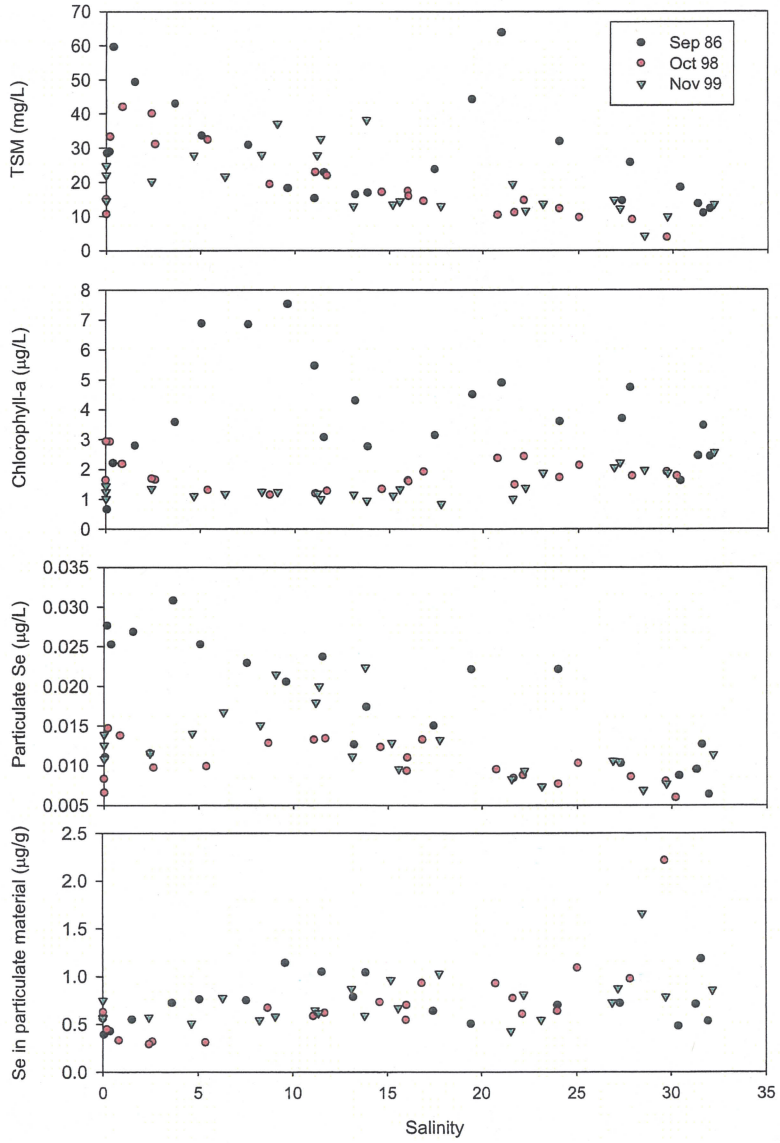


Figure 3-5 Low flow: Transects of TSM, chlorophyll-a, particulate selenium and selenium in particulate material (September 1986, October 1998, and November 1999; Doblin et al. 2006 and electronic database provided by Dr. Cutter).

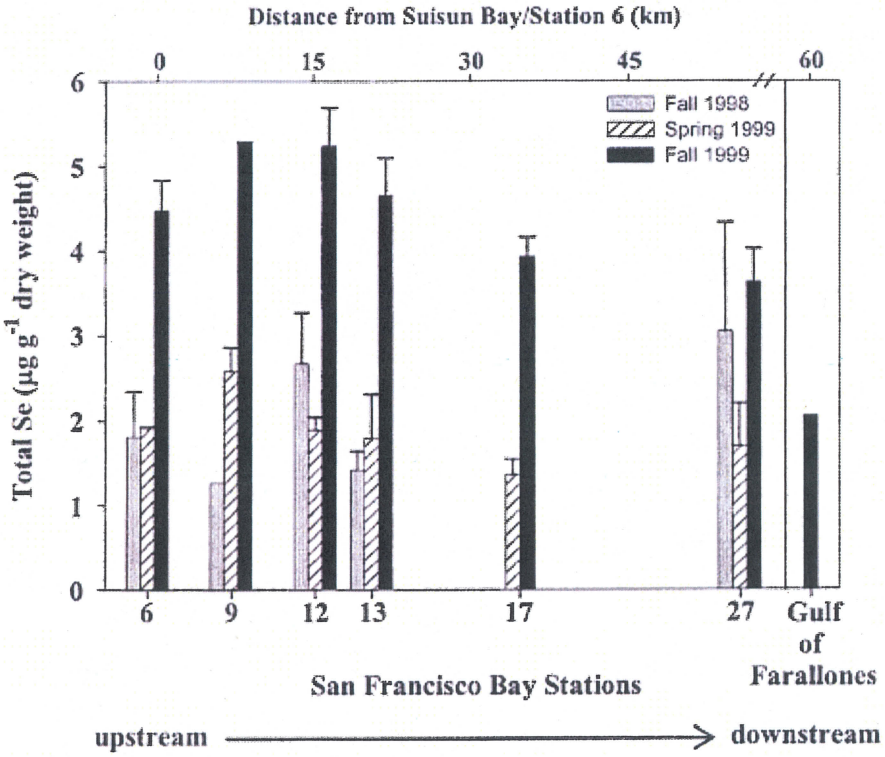


Figure 3-11 Zooplankton data collected in NSFB compared with a reference site in the Gulf of Farallones. Figure reproduced from Pukerson et al. (2003).

Alameda Countywide
Clean Water Program

Contra Costa
Clean Water Program

Fairfield-Suisun
Urban Runoff
Management Program

Marin County
Stormwater Pollution
Prevention Program

San Mateo Countywide
Stormwater Pollution
Prevention Program

Santa Clara Valley
Urban Runoff Pollution
Prevention Program

Vallejo
Sanitation and Flood
Control District

B A S M A A

December 4, 2008

Ms. Barbara Baginska
California Regional Water Quality Control Board, San Francisco Bay Region

Dear Ms. Baginska:

SUBJECT: Proposed Revisions to the 303(d) List of Impaired Water Bodies (October 30, 2008 Notice of Availability of Proposed Revisions)

Thank you for the opportunity to comment on the proposed revisions to the 303(d) list of impaired waterbodies. These comments are submitted on behalf of the Bay Area Stormwater Management Agencies Association (BASMAA), a consortium of eight municipal stormwater programs in the San Francisco Bay Area representing 90 agencies, including 79 cities and 7 counties. BASMAA is focused on regional challenges and opportunities to improving the quality of stormwater that flows to our local creeks, San Francisco Bay and Delta, and the Ocean. The members of BASMAA are responsible for complying with the requirements of municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) permits issued by the San Francisco Bay Regional Water Quality Control Board (Water Board).

BASMAA agrees with the comments submitted by its member agencies and incorporates them by reference for the purposes of the administrative record of the subject proceedings. As a regional organization, BASMAA has one major additional concern regarding the proposed listings of trash and the approach taken of: 1) listing entire water bodies as impaired and 2) doing so based only upon very limited and non-representative samples. As discussed in some detail in our member agencies comments, this approach is contrary to the Water Boards' own *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (California Water Boards: State Water Resources Control Board / Regional Water Quality Control Boards, 2004) (Listing Policy). The fact that the approach taken deviates so much from the Listing Policy is doubly troubling to BASMAA given the Water Boards have also collectively established a clear policy statement regarding the degree to which a local Regional Water Board should follow statewide guidance and policy:

At their October 2006 meeting the Water Boards' Water Quality Coordinating Committee (WQCC) adopted the following:

- "On questions of law and overarching policy the State Board should provide guidance and build a basic policy framework from which the regions can appropriately tailor action.

- Water Boards are committed to developing procedures and policies to minimize inappropriate inconsistency."

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These policy statements have since been affirmed and formally adopted in the Water Boards' own Strategic Plan (*Strategic Plan Update: 2008-2012*, California Water Boards: State Water Resources Control Board / Regional Water Quality Control Boards, 2008) (Strategic Plan).

The scientific and procedural aspects of the approach taken to support the proposed listings are inappropriately inconsistent with the State's own Listing Policy. And this inappropriate inconsistency is in direct conflict with the Water Boards own Strategic Plan in which "Consistency" is a top priority. The Strategic Plan notes the reason for consistency being a high organizational priority is "…stakeholders and the Legislature have named consistency in enforcement of the State's water quality laws as one of the most important issues facing the Water Boards." The Strategic Plan goes on to state that "the Water Boards will target areas where consistency has been raised as a concern, initiate actions to achieve warranted consistency, and ensure these improvements are implemented.

BASMAA recommends that the Water Board adopt a 303(d) listing approach that is not inappropriately inconsistent with its Listing Policy.

Basing trash listings on representative samples and limiting the spatial extent of the listings would be consistent with the Listing Policy, and it would also help to focus the very limited resources of municipalities toward real problem areas.

Thank you again for opportunity to provide input. We look forward to continuing the dialogue on this issue. Feel free to contact me with questions.

Sincerely,

Donald P. Freitas
BASMAA Executive Board Chair

cc: Bruce Wolfe, San Francisco Bay Water Board
Tom Mumley, San Francisco Bay Water Board
Richard Looker, San Francisco Bay Water Board
BASMAA Executive Board

SAN FRANCISCO BAYKEEPER

December 4, 2008

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

Sent via electronic mail to bbaginska@waterboards.ca.gov

RE: Proposed list of impaired waters under Clean Water Act section 303(d)

Dear Chair Muller and Board Members:

These comments on the proposed 2008 Federal Clean Water Act section 303(d) List of Water Quality Limited Segments ("303(d) list") are submitted on behalf of San Francisco Baykeeper ("Baykeeper") and its more than 2,000 local members, who use and enjoy the San Francisco Bay and its tributaries. Two years ago, Baykeeper submitted comments on the 2006 303(d) list in which we requested, among other things, the following listings: Bay Area creeks for trash, Kirker Creek for pyrethroids, and the San Francisco Bay for polybrominated diphenylethers ("PBDEs"). While we were disappointed that our request did not result in these listings during the 2006 cycle, we are very pleased to see that our request for the listing of Bay Area creeks for trash and Kirker Creek for pyrethroids are being proposed for this listing cycle. We continue to support these listings and hope that the San Francisco Bay Regional Water Quality Control Board ("Regional Board") will finalize them at its January hearing.

We are concerned, however, that the 2008 proposal does not include listing San Francisco Bay for PBDEs. PBDEs, of which there are more than 209 congeners, are organic compounds used as flame retardants in a variety of products. Despite California's ban on products containing some of these 209 congeners, PBDEs still pose a significant threat to the health of the environment and San Francisco Bay. Since 2002, Baykeeper has consistently urged listing of the Bay for PBDEs and continues to believe that listing is appropriate based on all available information.

This past year, the San Francisco Estuary Institute ("SFEI") published a mass budget of PBDEs to facilitate understanding of the sources and fate of PBDEs in the San Francisco Bay.[1] As noted in the article, published in *Environmental International*, "California, and in particular, San Francisco Bay, is a known global PBDE hotspot." To date, studies have established elevated PBDE concentrations in San Francisco Bay seals,[2] fish,[3] bird eggs,[4] bivalves, sediment and

[1] Oram, J.J., *et al.*, "A mass budget of polybrominated diphenyl ethers in San Francisco Bay, CA," *Environ Int.* 34(8):1137-47 (Nov. 2008).
[2] She, J. *et al.*, "PBDEs in the San Francisco Bay Area: measurements in harbor seal blubber and human breast adipose tissue," *Chemosphere* 46 697–707 (2002).

water.[5] Concentrations in San Francisco bivalves are some of the highest reported in the world, and levels in San Francisco Bay fish are at least an order of magnitude greater than those found in fish in Japan or Europe. Collectively, the available data demonstrate that PBDE levels have been increasing in organisms for more than a decade.

While it is clear that PBDEs have been accumulating in Bay aquatic life, relatively little information is available about the potential impacts of PBDEs on aquatic organisms. Currently, there are at least two studies that appear to show that PBDEs do harm marine life. Last year NOAA Fisheries published a paper with the first evidence that embryonic exposure to PBDE 47 can cause significant development abnormalities in fish larvae.[6] Additionally, PBDE levels in San Francisco Bay harbor seals have been positively correlated with white blood cell counts and inversely correlated with red blood cell counts.[7] Baykeeper believes that these new data are sufficient for the Regional Board to find that PBDEs harm existing beneficial uses and, thus, the reason for not listing PBDEs in 2006 (that there was not enough data) is unpersuasive.

The San Francisco Bay Basin Plan clearly prohibits the detrimental bioaccumulation of toxic substances in bottom sediments or aquatic life. As described above and in our comment letters submitted in 2002 and 2006, PBDEs are clearly present in Bay sediments, are accumulating in Bay organisms, and are known to negatively impact aquatic life. For these reasons, the Regional Board should list the Bay for PBDEs in this 2008 listing cycle.

Thank you for your consideration of these comments.

Sincerely,

Amy Chastain

Amy Chastain, Staff Attorney

Sejal Choksi, Program Director

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[3] Holden A., *et al.*, "PBDEs in the San Francisco Bay area: measurements in fish," *Organohalog Comp* 61:255–8 (2003); Brown F.R., *et al.*, "Levels of PBDEs, PCDDs, PCDFs, and coplanar PCBs in edible fish from California coastal waters," *Chemosphere* 64:276–86 (2006).

[4] She, J. et al. "Highest PBDE Levels (max 63 ppm) Yet Found In Biota Measured in Seabird Eggs from San Francisco Bay." Organohalogen Compounds 66:3939-3944 (2004).

[5] *Oros D.R., et al., "Levels and distribution of polybrominated diphenyl ethers in water, surface sediments, and bivalves from the San Francisco Estuary." Environ. Sci. Technol. 39:33–41 (2005).*

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[7] Neale, J.C., *et al.*, "Contaminant loads and hematological correlates in the harbor seal (Phoca vitulina) of San Francisco Bay, California," *J Toxicol. Environ Health* 68(8):617-33 (April 2005).

Sent via electronic and certified mail

November 24, 2008

Barbara Baginska
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Re: San Francisco Bay Area List of Impaired Waterbodies under Clean Water Act Section 303(d)

On behalf of the Center for Biological Diversity, these comments are submitted in response to the Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region. The proposed 303(d) List failed to include Pacific Ocean waters impaired by ocean acidification. This comment letter supports the inclusion of these waters on the list.

The ocean absorbs carbon dioxide causing seawater to become more acidic. Among various adverse impacts to marine life, this process—termed ocean acidification—impairs the ability of calcifying organisms to build their protective structures. Already ocean pH has changed significantly due to human sources of carbon dioxide. On the current trajectory, ocean ecosystems are likely to become severely degraded due to ocean acidification.

On February 27, 2007, the Center for Biological Diversity submitted scientific information supporting the inclusion of ocean waters on California's 303(d) List. Since then, it has only become more apparent that ocean acidification poses a serious threat to seawater quality with adverse effects on marine life. On June 11, 2008, the Center for Biological Diversity submitted additional scientific information concerning the latest findings on ocean acidification. Nonetheless, San Francisco Bay Area's proposed 303(d) List failed to include any ocean segments impaired by carbon dioxide pollution or mention ocean acidification. The overwhelming scientific evidence supports the inclusion of ocean waters on the 303(d) List because of impairment caused by ocean acidification. This letter and its source documents should be taken under consideration in support of listing ocean waters, and the Center's previous letters and documents are incorporated by reference.

The Regional and State Water Resources Control Boards are urged to take ocean acidification seriously and to take prompt steps to halt this threat to our ocean ecosystems. The Boards should place California's ocean water segments on the 303(d) List and develop a TMDL for carbon dioxide pollution that is impairing our seawater quality.

The Clean Water Act Requires California to Include Ocean Waters Impaired by Ocean Acidification on Its 303(d) List

Under the Clean Water Act, each state must establish water quality standards that take into account the water's "use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes." 33 U.S.C. § 1313(c)(2). The Clean Water Act's section 303(d) requires each state to identify waters for which existing regulations are inadequate to protect water quality—resulting in a "303(d) List." 33 U.S.C. § 1313(d). "Each state shall identify those waters within its boundaries for which the effluent limitations … are not stringent enough to implement any water quality standard applicable to such waters." 33 U.S.C. § 1313(d)(1)(a). A water body failing to meet any numeric criteria, narrative criteria, waterbody uses, or antidegradation requirements shall be included as a water-quality limited segment on the 303(d) List. 40 C.F.R. § 130.7(b)(3). Relevant here, one of the conventional pollutants recognized under the Clean Water Act is pH. 33 U.S.C. § 1314(a)(4). Consequently, an unacceptable change in pH constitutes a basis for inclusion in the 303(d) List.

The Clean Water Act's 303(d) List was intended as a mechanism to address problems such as ocean acidification, and the 303(d) List is an effective mechanism to address atmospheric deposition. EPA's *Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* acknowledges that atmospheric deposition must be a factor considered by states during their water quality assessments (available at http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html). Moreover, 303(d) listing and the establishment of total maximum daily loads has been an approach applied to parallel air deposition pollutants causing water quality problems such as mercury and acid rain.

Ocean Acidification Has Impaired Ocean Waters with Adverse Impacts to Marine Life

Carbon dioxide absorbed by the oceans is causing seawater to become more acidic. This process, known as ocean acidification, will have serious consequences for marine life. These human-induced changes are altering seawater chemistry at an unprecedented rate with potentially devastating impacts on the ocean ecosystem.

The oceans have absorbed approximately 30 percent of the carbon dioxide emitted into the atmosphere by human activities (Feely et al. 2004, Sabine et al. 2007). About three-fourths of manmade carbon dioxide emissions come from fossil fuel burning, and most of the remaining emissions are due to land-use changes, primarily deforestation (Denman et al. 2007). The atmospheric carbon dioxide concentration is 383 ppm, and rising at over 2 ppm per year (Guinotte & Fabry 2008; Denman et al. 2007).

Ocean acidification has caused seawater pH to decrease by 0.11 units on average, which is equivalent to a 30 percent change in acidity (Caldeira & Wickett 2003; Orr et al. 2005;

Caldeira et al. 2007; Feely et al. 2008).[1] By the end of this century, the pH of the ocean is predicted to drop by another 0.3 or 0.4 units, amounting to a 100–150 percent change in acidity (Orr et al. 2005, Meehl et al. 2007). A pH change of this magnitude has not occurred for more than 20 million years (Feely et al. 2004).

One of the major impacts of ocean acidification is that it impairs the ability of marine organisms to build protective shells and skeletons. The uptake of carbon dioxide by the ocean impairs calcification in animals because carbonate minerals, calcite and aragonite, become unavailable in seawater. A recent survey of the Pacific Coast revealed that the effects of ocean acidification are occurring more rapidly than predicted (Feely et al. 2008). Researchers found seawater undersaturated with respect to aragonite upwelling onto large portions of the continental shelf, reaching shallow depths of 40 to 120 meters (Feely et al. 2008). As a result, marine organisms in surface waters, in the water column, and on the sea floor along the west coast are being exposed to corrosive water during the upwelling season.

Ocean acidification may adversely affect many marine organisms from plankton to corals. A brief review of the rapidly emerging science on ocean acidification suggests perilous biological consequences. For example, ocean acidification threatens the future of corals. Calcification rates of reef-building corals are expected to decrease 30-40 percent with a doubling of atmospheric carbon dioxide (Kleypas et al. 2006; Hoegh-Guldberg et al. 2007; Guinotte and Fabry 2008). Scientists predict that ocean acidification coupled with increasing ocean temperatures will destroy the world's reefs by mid-century (Hoegh-Guldberg et al. 2007). Cold-water corals may be even more sensitive to reduced carbonate saturation because they already live in conditions less favorable to calcification, and 70 percent of scleractinian cold-water corals could be in water undersaturated with respect to aragonite by the end of the century (Royal Society 2005; Guinotte & Fabry 2008).

Plankton, which form the basis of the marine food web, are among the calcifying organisms likely to be adversely affected by ocean acidification. Studies of coccolithophorids showed that carbon dioxide related changes to seawater caused reduced calcification, resulting in malformed and incomplete shells (Riebesell 2000). Experiments also show that the shells of pteropods dissolve as seawater becomes undersaturated with aragonite (Orr et al. 2005). Elevated carbon dioxide concentrations also reduce the shell mass of foraminifera (Kleypas et al. 2006). While some species of plankton react differently under high concentrations of carbon dioxide, most calcareous plankton studied thus far exhibit reduced calcification (Guinette & Fabry 2008).

Scientists predict that ocean acidification will also decrease calcification in shellfish significantly by the end of the century (Gazeau et al. 2007). For example, a recent study found that the calcification rates of the edible mussel and Pacific oyster decrease with increases in carbon dioxide (Gazeau et al. 2007). Experiments revealed that moderate increases in

[1] Acidity is the concentration of H^+ ions, and it is measured in pH units. A pH decrease of 1 unit means a 10-fold increase in the concentration of H+, or acidity.

atmospheric carbon dioxide had significant effects on the survival and growth of sea urchins and snails (Shirayama 2005).

Ocean acidification also disrupts metabolism and other biological functions in marine life. Changes in the ocean's carbon dioxide concentration result in accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, called hypercapnia, and increased acidity in the body fluids, called acidosis. These impacts can cause a variety of problems for marine animals including difficulty with acid-base regulation, calcification, growth, respiration, energy turnover, and mode of metabolism (Pörtner et al.2004). Squid, for example, show a very high sensitivity to pH because of their energy intensive manner of swimming (Pörtner et al. 2004; Royal Society 2005). Because of their energy demand, even under a moderate 0.15 pH change squid have reduced capacity to carry oxygen and higher carbon dioxide pressures are likely to be lethal (Pörtner et al. 2004). In fish, high concentrations of carbon dioxide in seawater can lead to cardiac failure (Ishimatsu et al. 2004). Some studies show that juvenile marine organisms are particularly susceptible to ocean acidification (Ishimatsu et al. 2004; Kurihara & Shirayama 2004).

The consequences of ocean acidification on marine life are complex, but they could disrupt the marine food web with potentially detrimental consequences. Additionally, ocean acidification coupled with other environmental changes such as global warming can have cumulative and synergistic adverse impacts on ocean biodiversity (Guinotte & Fabry 2008).

Ocean Waters Should Have Been Included in the San Francisco Bay Area's 303(d) List

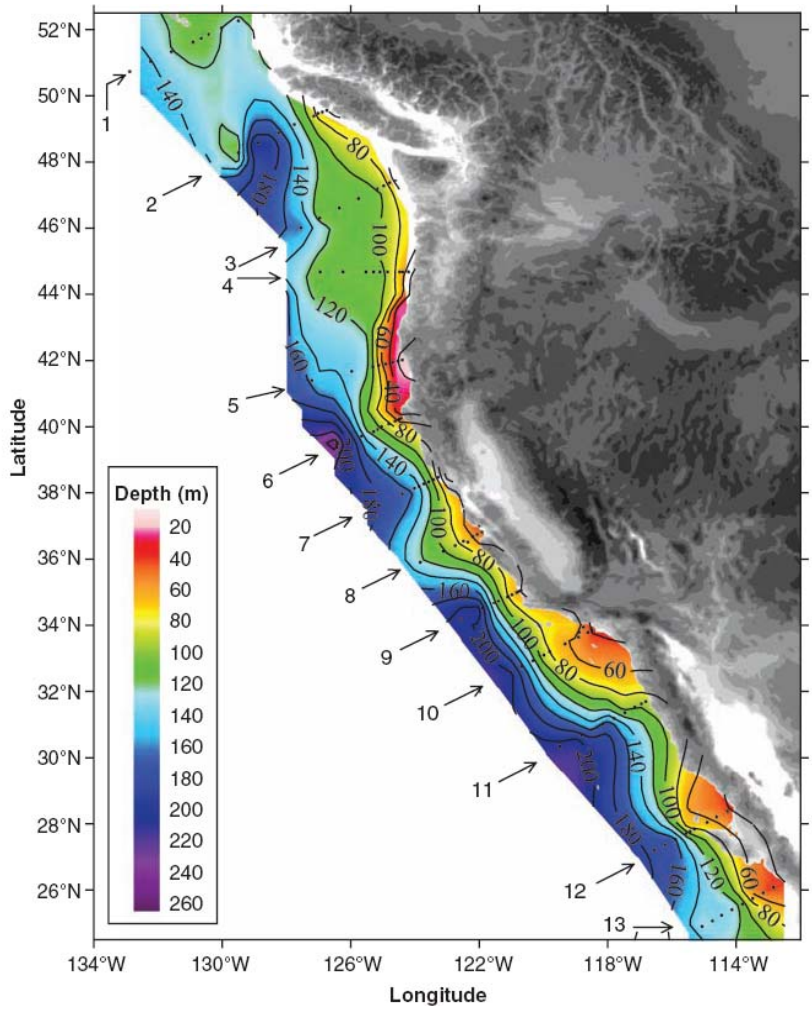
California's ocean waters meet one or more of the 303(d) listing factors enumerated in California's Water Quality Control Policy ("WQCP"). First, California's ocean waters are experiencing a trend of declining water quality for pH. Second, ocean acidification is causing degradation of marine communities.

Ocean pH has already changed by over 0.1 pH units on average. Thus, the ocean is on a declining trend and must be listed as impaired. Recent studies show that the magnitude of ocean acidification is among the highest off the coast of northern California (Feely et al. 2008). Thus, ocean waters should be listed as impaired because ocean acidification threatens the aquatic life uses, and it violates the antidegradation policy.

The "saturation horizon" for aragonite and calcite has already shifted toward the surface by 50 to 200 m. This means that calcareous organisms cannot survive at the same depths they once could. The depth of water in which they can survive will continue to become shallower in the coming decades (Feely 2004). New data on ocean acidification on the west coast of the United States demonstrates that the problem of ocean acidification is much worse than previously thought. Feely et al. (2008) conducted hydrographic surveys along the continental shelf of western North America from central Canada to northern Mexico in May-June 2007 and calculated aragonite and calcite saturation from water samples at depth. This study found that seawater undersaturated in aragonite, with pH values less than 7.75, was upwelling onto large

portions of the continental shelf from Canada to Mexico, reaching mid-shelf depths of 40-120 m along most of the surveyed areas (Figure 1) (Feely et al. 2008). As a result, marine organisms in surface waters, in the water column, and on the sea floor along the west coast are being exposed to corrosive water during the upwelling season.

Figure 1. Distribution of the depths of water undersaturated with respect to aragonite on the continental shelf of western North America from Queen Charlotte Sound, Canada, to San Gregorio, Baja California Sur, Mexico. On transect line 5, corrosive water reaches all the way to the surface in inshore waters near the coast. The black dots represent station locations.
Source: Feely et al. (2008): Figure 1.



The findings of Feely et al. (2008) add to the evidence that ocean acidification poses a significant threat to marine life in the foreseeable future. First, Feely et al. (2008) highlight that ocean acidification is impacting the continental shelf of western North America much earlier than predicted. They note that the occurrence at the surface of open-ocean water undersaturated in aragonite was not predicted to occur until 2050 (under a IS92a business-as-usual emissions

scenario where atmospheric CO_2 concentration reached 550 ppmv) and only in the Southern Ocean—not along the west coast of North America (Feely et al. 2008). Secondly, the researchers calculated that *without the anthropogenic signal of CO_2,* the equilibrium aragonite saturation level would be deeper by about 50 m across the shelf and no undersaturated waters would reach the surface. The aragonite and calcite saturation depths in the North Pacific are already among the shallowest in the global ocean (Feely et al. 2004: Figure 2). The uptake of anthropogenic CO_2 has caused aragonite saturation depths in the North Pacific to migrate upwards by 50-100 m since pre-industrial times, with current upward migration occurring at a rate of 1-2 meters per year, while calcite saturation depths have moved upwards by 40-100 m since pre-industrial times (Feely et al. 2004, Fabry et al. 2008, Feely et al. 2008). Seasonal upwelling is enhancing the advancement of the corrosive deep water into broad regions of the California Current System with large predicted impacts on marine species (Feely et al. 2008).

Moreover, California's water quality standard for pH is woefully inadequate to protect ocean waters. Zeebe et al. (2008) highlighted the importance of addressing ocean acidification before seawater pH change exceeds the 0.2 unit water quality criterion recommended by the EPA (and implemented through California's water quality standard):

> Thus, although the response of different organisms is expected to be inhomogeneous (*9*), current evidence suggests that large and rapid changes in ocean pH will have adverse effects on a number of marine organisms. Yet, environmental standards for tolerable pH changes have not been updated in decades. For example, the seawater quality criteria of the U.S. Environmental Protection Agency date back to 1976 and state that for marine aquatic life, pH should not be changed by more than 0.2 units outside of the normally occurring range (*10*). These standards must be reevaluated based on the latest research on pH effects on marine organisms. Once new ranges of tolerable pH are adopted, CO_2 emission targets must be established to meet those requirements in terms of future seawater chemistry changes (Zeebe et al. 2008: 52).

In light of the insufficiency of the existing numeric water quality criterion, the Board should gauge the need to list waters due to ocean acidification on the 303(d) list by the impacts on water quality and marine life. Here, the trajectory of ocean acidification and its adverse impacts on marine life warrant placing ocean waters on California's 303(d) List.

The San Francisco Regional Water Quality Board Was Required to Consider Scientific Evidence of Ocean Acidification Submitted by the Center for Biological Diversity.

In preparing its 2008 303(d) List, the Board has a duty to consider the information submitted by the Center for Biological Diversity. The regulations governing implementation of the Clean Water Act's section 303(d) *require* that a state "evaluate all existing and readily available water quality-related data and information to develop the list." 40 C.F.R. § 130.7(b)(5); *see also Sierra Club v. Leavitt*, 488 F.3d 904 (11th Cir. 2007).

To the degree that the Regional Board failed to consider scientific data on ocean acidification, the State Board must reconsider the state's 303(d) List and consider adding ocean waters for impairment of pH. The failure of a state to consider the data before it concerning ocean acidification upsets the purpose of the Clean Water Act to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a).

The lack of segment-specific numeric monitoring data that showing exceedances of the pH standard does not obviate the need for the Board to consider the scientific data concerning the impacts of ocean acidification on California's ocean waters. Both narrative and numeric data can fulfill the information requirements for listing waters under the 303(d) List. The data and information provided by the Center for Biological Diversity on ocean acidification was from quality scientific journals. These credible sources and must be considered because information provided in to the state was from reliable, high quality scientific journals and reports. Not only is the scientific understanding of ocean acidification well established, but also the magnitude of the problem and likely effects are predictable with a high degree of certainty.

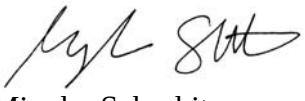
Conclusion

The materials submitted with previous letters and this letter support a finding that California's oceans are impaired. Ocean pH has decreased by 0.11 units since the industrial age and will continue to decrease at an accelerated rate if carbon dioxide emissions continue to increase as predicted. The decrease in ocean pH has already begun to impair the calcification of some aquatic organisms, and catastrophic effects are predicted for the next decades.

The purpose of water quality standards is to protect the biological diversity of California's waters as well as recreational and commercial uses. Ocean acidification will have significant negative impacts on the survival of calcareous organisms as well as fish and other marine species. Commercial and recreational uses will be harmed as a result, which will particularly affect the shellfish and fishing industries that are so important to California's residents.

The coastal waters must be listed as impaired under section 303(d) now so that TMDLs can be established to protect California's coastal waters.

Respectfully submitted,



Miyoko Sakashita

Sources

Most of these sources were supplied to the Board with previous submissions. The following sources marked with an * *are enclosed*.

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December 4, 2008

VIA US MAIL AND EMAIL (bbaginska@waterboards.ca.gov)

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Re: California 2008 303(d) Listing Process: Stege Marsh

Dear Ms. Baginska:

I am writing to offer the following comments on the San Francisco Bay Regional Water Quality Control Board's ("RWQCB's" or "Regional Board's") proposed revisions to the 303(d) list of impaired waters for the San Francisco Bay Region. During the 2006 listing process, which we are told was largely overseen by the State Water Resource Control Board ("SWRCB" or "the Board") due to unique time and resource constraints, the State made the unfortunate decision to not list Stege Marsh as an impaired water body in need of Total Maximum Daily Load ("TMDL") standards for a variety of pollutants. Based on information that has not been updated in almost a decade, the SWRCB placed Stege Marsh instead on another list for "Water Quality Limited Segments Being Addressed By Actions Other Than TMDLs." Specifically, the Board concluded that the significant and widely known contamination in Stege Marsh would be better addressed by the SWRCB Consolidated Toxic Hot Spot Cleanup Plan ("CTHSCP") (SWRCB Resolution No. 99-065), which was to be implemented by the Regional Board through Cleanup and Abatement Orders ("CAOs").

However, the only CAOs ever issued for Stege Marsh were rescinded while the SWRCB was conducting its 2006 listing process and the Regional Board has not publicly indicated that it has any future plans to reinstate or reissue CAOs regarding Stege Marsh. Moreover, while the Department of Toxic Substances Control ("DTSC" or "the Department") has addressed certain parts of the Marsh, the Department is not addressing other highly contaminated parts of the marsh that require remediation. There is, in short, no Action being taken under another program to cleanup and abate significant pollution in Stege Marsh.

We would prefer that the Board take action to reissue CAOs regarding Stege Marsh. Alternatively, prior to doing so, the Board could ask various potential dischargers to provide it with information pursuant to Water Code Section 13267. These processes are more likely to lead to a more expeditious cleanup of the marsh. However, if the Regional Board has in fact abandoned cleanup of the marsh under the CTHSCP, then the continued listing of the marsh on the "Being Addressed By Other Actions" list is inappropriate and the Regional Board should add this water body to the "Water Quality Limited Segments Still Needing Total Maximum Daily Loads" list.

I realize that the Board has a clear procedure for accepting and evaluating evidence that a water body within its jurisdiction does not meet water quality standards and effluent limitations and therefore warrants placement on the State's 303(d) list of impaired waters. However, in light of the fact that as a consequence of an the extended review process for the 2006 list, the comment period for the 2008 list closed before the United States Environmental Protection Agency ("EPA") made a final decision on the earlier list, I ask that you consider our somewhat unorthodox submission.[1] Indeed, because procedural missteps on our part do not relieve the water boards of their freestanding obligation to "assemble and evaluate all existing and readily available water quality-related data and information to develop the list",[2] regardless of whether members of the public advocate for a particular listing, we believe that the RWQCB is duty-bound to consider our comments on the listing process, which are based entirely on readily available data.[3]

A. The Erroneous Decision to Not List Stege Marsh

In the September 2005 draft reports for listing decisions in the San Francisco Bay Region (Region 2), [4] SWRCB indicated that it intended to list Stege Marsh for the following contaminants: Chlordane, Copper, Dieldrin, Mercury, Polychlorinated biphenyls ("PCBs"), and Zinc. However, in the fine print of the fact sheet, SWRCB further explained that its staff had concluded "that the water body should be placed in the Water Quality Limited Segments Being Addressed category of the section 303(d) list because applicable water quality standards are exceeded and another program is addressing the problem."[5] Despite SWRCB's contrary assertions, the decision to place Stege Marsh on anything other than the "Water Quality Limited Segments Still Needing Total Maximum Daily Loads" list was essentially a decision to not list the marsh.[6]

As an initial matter, most people appear to agree that the sediment and water in Stege Marsh is highly contaminated. Former operations on the land adjacent to the tidal marsh and mudflats included the manufacture and testing of explosives, the manufacture of sulfuric acid (with pyrite cinders as a byproduct), and the

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[1] http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/integrated2008/notice_ solicitation.pdf (noticing the public comment period for the 2008 update of the 303(d) list, which closed on February 28, 2007).

[2] 40 C.F.R. § 130.7(b).

[3] In fact, despite the fact that the solicitation period for the 2006 list ended in 2004, SWRCB continued to accept data submitted in 2005 and 2006. EPA Partial Disapproval Letter from Alexis Strauss, EPA, to Tom Howard, SWRCB 4 (Mar. 8, 2007), http://www.epa.gov/region09/water/tmdl/303d-pdf/ca-2006-303d-letterhead-final-together.pdf.

[4] Fact Sheets Supporting Revision of the Section 303(d) List, Region 2 (Sept. 2005) http://www.swrcb.ca.gov/water_issues/programs/tmdl/docs/303d_update/r2_v2.pdf.

[5] *See, e.g.*, *id.* at 68 (Fact Sheet for Stege Marsh (Chlordane)).

[6] *See* Comments by Alexis Strauss, EPA (Oct. 19, 2006), http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/comments/alexis_strauss.pdf (urging the State "to clarify the basis for its assessment that [Stege Marsh] should not be included on the final list"); *see also* SWRCB, "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List", 3 (Sept. 2004), http://www.waterboards.ca.gov/water_issues/ programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf (hereinafter "303(d) Listing Policy") (describing the three versions of 303(d)-related lists in California: (1) Water Quality Limited Segments Still Needing Total Maximum Daily Loads; (2) Water Quality Limited Segments Being Addressed By U.S. EPA Approved TMDLs; and (3) Water Quality Limited Segments Being Addressed By Actions Other Than TMDLs); 40 C.F.R. § 130.7(b)(1) (federal regulations authorizing multiple lists); EPA, "2002 Integrated Water Quality Monitoring and Assessment Report Guidance" (Nov. 19, 2001), http://www.epa.gov/owow/tmdl/2002wqma.html (hereinafter "Integrated Report").

manufacture of phosphate fertilizer.[7] The contamination resulting from careless disposal practices associated with these activities, including the mass burial of pyrite cinders, is well documented.[8]

Nevertheless, as just described, the SWRCB elected to exclude Stege Marsh from the list of waters requiring the development of TMDLs. Moreover, it made this decision based entirely on a single report on environmental conditions at the site[9] and on the seemingly mistaken belief that the Consolidated Toxic Hot Spot Cleanup Plan (SWRCB Resolution No. 99-065) allegedly being implemented by the RWQCB through CAOs would sufficiently address the water quality problems in Stege Marsh.[10] Significantly, the RWQCB rescinded the CAOs applicable to Stege Marsh in 2005 when DTSC, at the request of the California EPA, assumed control over the cleanup of part of the marsh and adjacent upland areas.[11] We are not aware of the RWQCB's intention to issue any additional CAOs pursuant to the Consolidated Toxic Hot Spot Cleanup Plan in the future and if this is indeed the case, then this program cannot be cited as evidence that the restoration of water quality in Stege Marsh will be addressed by actions other than TMDLs. (See below for further discussion of why, with regards to some areas of the marsh, the RWQCB cannot fix this error by simply replacing reliance on the Consolidated Toxic Hot Spot Cleanup Plan with citations to the remediation orders that DTSC has issued since assuming oversight authority.)

One might respond to the above statements by observing that at the time of the 2006 303(d) listing decision, the rescinded CAOs had largely been implemented. Admittedly, the remedial activities required by the orders and completed in 2004/2005 resulted in the replacement of some contaminated sediment with clean fill. However, as described in more detail in the next section, these activities literally only scratched the surface of the problem, leaving significantly contaminated soil beneath the fill material. Moreover, this solution failed to address the upland source of the migrating contamination.

B. Past and Present Evidence of Contamination in East Stege Marsh

As alluded to above, the SWRCB claims to have based its 2006 303(d) listing decision regarding Stege Marsh on just one document, the 1998 "Sediment Quality and Biological Effects in San Francisco Bay: Bay Protection and Toxic Cleanup Program-Final Technical Report" ("BPTCP Technical Report").[12] In preparing this report pursuant to the Bay Protection and Toxic Cleanup Program ("BPTCP") (later incorporated into the CTHSCP), the RWQCB discovered that the concentrations of arsenic and selenium in Stege Marsh were the highest of 544 samples collected statewide. Similarly, Stege Marsh had the highest concentration of Dieldrin, endosulphan sulfate, mirex, oxadiazon and toxaphene out of 600 statewide samples. Copper, mercury, zinc, DDTs, and PCBs exceeded ambient concentrations as well as the National Oceanic and Atmospheric

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[7] The placement of the Marsh on *any* of the "Water Quality Limited Segments" lists would require that sufficient data support a finding that the water body is impaired.

[8] *See, e.g.*, "Sediment Quality and Biological Effects in San Francisco Bay: Bay Protection and Toxic Cleanup Program-Final Technical Report" (Aug. 1998), http://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/ reg2report.pdf (hereinafter "BPTCP Technical Report"); U.S. Dep't of Health & Human Servs., Pub. Health Serv., Agency for Toxic Substances & Disease Registry ("ATSDR"), Evaluation of Exposure to Contaminants from the Zeneca/Campus Bay Site (July 28, 2008), http://www.ehib.org/projects/ZenecaPHAPC.pdf (hereinafter "Public Health Assessment").

[9] *See* BPTCP Technical Report, *supra* note 8.

[10] *See, e.g.*, Revised Fact Sheet for Stege Marsh (Chlordane) at 31 (Nov. 2006), http://www.swrcb.ca.gov/water_issues/programs/tmdl/docs/303d_update/r2_v2.pdf.

[11] San Francisco Bay Region RWQCB Order Nos. R2-2005-0054, R2-2005-0055

[12] BPTCP Technical Report, *supra* note 8. This was the only document that the SWRCB supplied in response to a Public Records Act ("PRA") request seeking all documents that the SWRCB relied on in its 2006 303(d) listing decision for Stege Marsh.

Administration's Effects Range Median ("ERM") values. Chlorinated pesticides were also detected at elevated concentrations. As a result of these findings, Stege Marsh was identified as one of the eight sites with the highest chemical concentrations and greatest biological effects in the region.

In 1999, in a document allegedly not considered by the SWRCB in its 303(d) listing decision yet cited in the fact sheets it prepared in support of the listing,[13] the Board recommended listing Stege Marsh as a candidate toxic hot spot based on the presence of arsenic, copper, mercury, selenium, zinc, chlorodane, dieldrin, DDT (ppDDE), dacthal, endosulfan I, endosulfan sulfate, dichlorobenzophenone, heptachlor, epoxide, hexachlorobenzene, mirex, oxadiazon, toxaphene, and PCBs. The "Final Toxic Hot Spot Cleanup Plan" relied on no less than nine studies conducted on environmental conditions in the marsh, many of which predated and one which post-dated the 1998 BPTCP Technical Report. Given that the State is required, by its own policy, to "actively solicit, assemble, and consider all readily available data and information", including "selected data possessed by the RWQCBs" and "readily available water quality data and information reported by local, state and federal agencies (including receiving water monitoring data from discharger monitoring reports), citizen monitoring groups, academic institutions, and the public", the SWRCB's failure to consider these other reports was unfortunate.

Had the Board carefully considered other readily available information like the 1999 Toxic Hot Spots Cleanup Plan, they might have realized that the dig and fill solution that the RWQCB already implemented will probably not, standing alone, permanently address water quality problems in Stege Marsh. Indeed, burying the contamination (pyrite cinders) under a one-foot clay layer and one-foot topsoil layer in the 1970s obviously failed to prevent further sediment contamination, as demonstrated by numerous studies conducted in the 1990s that found greatly elevated concentrations of contamination consisting of a variety of substances (see above). As noted in the Toxic Hot Spots Cleanup Plan, one of the reasons for recommending Stege Marsh as a candidate toxic hot spot was "*recurrent* sediment toxicity".[14]

Subsequent scientific and visual observations[15] additionally suggest that the remediation work has failed to provide a lasting remedy. The dredging activities that took place in late 2004 through early 2005 removed sediment from only 10 of the 23 acres of Eastern Stege Marsh to depths ranging from 0.3 to 8 feet. These areas were then filled with allegedly clean bay mud taken from the Port of Sonoma, the Martinez Marina, and Brentwood.[16] Subsequent sampling in June, 2006, however, revealed that maximum concentrations of arsenic, lead and mercury still exceed comparison/screening levels.[17] Additional testing in June, 2007 similarly revealed that concentrations of metals (arsenic, copper, and mercury) in the allegedly clean fill material now exceed the import criteria originally used to select suitable materials. Arsenic, nickel and copper concentrations in pore water samples likewise exceeded their respective screening criteria.[18]

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[13] *See id.*

[14] RWQCB San Francisco Bay Region, Final Regional Toxic Hot Spot Cleanup Plan 76 (Mar. 1999), http://www.waterboards.ca.gov/water_issues/programs/tmdl/records/region_2/2003/ref1297.pdf (emphasis added).

[15] *See* 303(d) Listing Policy, *supra* note 6, at 4 ("Visual assessments or other semi-quantitative assessments shall also be considered as ancillary lines of evidence to support a section 303(d) listing.").

[16] Public Health Assessment, *supra* note 8, at 16-17; Contra Costa County Health Servs. Dep't & Cal. Dep't of Health Servs., Provisional Joint Health Statement Summary: The Zeneca and UC Richmond Field Station Sites 7 (June 23, 2005), http://rfs.berkeley.edu/pdf/ZenecaFullStatement.pdf; http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/2519474625/Fig%204-Excavation%20extent.pdf (map of the extent of the excavation of Eastern Stege Marsh).

[17] Public Health Assessment, *supra* note 8, at 17.

[18] LFR, Inc., Results of Pore Water and Sediment Sampling and Analysis, Campus Bay, Richmond, California 5 (Oct. 10, 2007), *available at* http://www.envirostor.dtsc.ca.gov/public/community_involvement/7089688956/rpt-PoreWaterSed-Oct07-09359.pdf.

After the sampling in 2007, DTSC asked for additional pore water samples, which were collected in April, 2008. In this second round of sampling, pesticides, not detected above laboratory reporting limits in 2007, were detected at low concentrations. Arsenic, copper and mercury, discovered in 2007, as well as cadmium, selenium and zinc concentrations all exceeded the fill screening criteria for sediment. The concentration of zinc in pore water samples also increased between 2007 and 2008, as did the number of samples that exceeded the National Ambient Water Quality Criteria ("NAWQC") for nickel.[19]
Aside from concrete test results, other studies and observations have revealed that contamination continues to impact the biology and appearance of the marsh. Recent studies by the Pacific Estuarine Ecosystem Research Consortium ("PEEIR") have uncovered endocrine disruption and tumor development in the longjawed mudsucker attributed to contamination in the marsh.[20] Similarly, PEEIR has discovered that the salt marsh cordgrass is drawing mercury out of sediments, as evidenced by tests of the salt exudates that form on the leaves of the grass.[21] Finally, photographs of the western end of the excavated area taken in October, 2008 show a depressed area with standing water that cannot typically be attributed to tidal flows (meaning it presumably consists of or has a connection to groundwater). More alarming, however, is a patch of orange-tinged mud and a lack of vegetation in the area surrounding the standing water, which suggests that the environmental health of the area has not been restored.[22]

We believe that all of the above constitutes evidence that the dredge and fill solution, as implemented, has failed. Logically, this solution does not guard against the possibility that groundwater and soil contamination from the former onshore manufacturing facilities will not migrate into the "clean" areas and continue to pollute the tidally influenced marsh. But more concretely, the test results described above demonstrate at best fluctuating and at worst increasing levels of contamination. Given this evidence, the prior efforts under rescinded RWQCB orders have apparently failed to restore water and sediment quality and should not serve as the basis for excluding the marsh from the 303(d) list of waters requiring TMDLs.[23]

C. Evidence that the Contaminated Area in Stege Marsh is Larger than 29 Acres

Additionally, it would also be useful if the Board would provide clearer guidance regarding the areas of Stege Marsh covered by the 303(d) listing decision. The Toxic Hot Spots Cleanup Plan and BPTCP Technical Report dealt with a 23 acre area of the marsh and the 2006 303(d) "Being Addressed by Another Program" listing decision applies to a 29 acre parcel. The boundaries of the covered 29 acre parcel are consequently unclear, although it seems likely that the listing applies to the roughly 29 acre East Stege Marsh, the site of evaporation ponds thought to have contributed to the contamination (of which only 10 acres have been addressed by cleanup efforts). However, the marsh is significantly larger than 29 acres. Bordering the water and separated from East Stege Marsh by a public recreation trail, is the roughly 50 acre Southeast Stege Marsh. West Stege Marsh, on the neighboring University of California Richmond Field Station ("UCRFS"), consists of another 15 acres north of the recreation trail and like East Stege Marsh, abuts a portion of the property where

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[19] LFR, Inc., Results of 2008 Pore Water and Sediment Sampling and Analysis, Campus Bay, Richmond, California 5-7 (Sept. 19, 2008) , *available at* http://www.envirostor.dtsc.ca.gov/public/community_involvement/2304731070/rpt-PoreWaterSed_Results-Sep08-09359.pdf.

[20] PEEIR, Ovarian Apoptosis and Tumors As Indicators of Reproductive Impairment in a Marsh Fish, at http://www-bml.ucdavis.edu/peeir/brochures/Fish_Apoptosis.pdf.

[21] PEEIR, Plant Salt Exudates as Landscape-Scale Measures of Metals Mobilization in Marshes, at http://www-bml.ucdavis.edu/peeir/brochures/Plants_Salt_Exudates.pdf.

[22] *See* Attachment A (photos taken of Stege Marsh at low tide on October 28, 2008).

[23] Public Health Assessment, *supra* note 8, at 17.

toxic pyrite cinders were buried. A fourth segment, Southwest Stege Marsh, is south of that and consists of roughly 50 acres.

Most of the readily available studies and investigations discussed here or available through DTSC's Envirostor database[24] have focused on contamination in the East and West areas. However, I am told that the PEEIR studies discussed above took samples throughout the marsh, including from the Southeast and Southwest portions, meaning that we have biological evidence that contamination extends into these areas as well.

For purposes of a 303(d) listing, the West Stege Marsh/UCRFS area admittedly faces some unique obstacles. Numerous reports available on Envirostor and the University's own website[25] have documented significant contamination in the marsh and the neighboring Meeker Slough.[26] However, unlike the other three sections of the marsh, this area is being actively addressed under DTSC's site investigation and remediation orders.[27] Given the Regional Board's option to list waters as "Being Addressed By Other Actions", we expect that the Regional Board will decide that this portion of the marsh is not, for now, eligible for the 303(d) list of waters that will be addressed through the development of TMDLs. Nevertheless, this finding should not impact the areas of the marsh for which DTSC currently has no further plans for much needed remediation. Along these lines, DTSC's investigation and remediation orders also appear to exclude the neighboring and hydrologically connected Baxter Creek, which separates East Stege Marsh from the "Southeast Parcel" (Stege Property Pistol Range). Known soil contamination exists on both banks of the creek, which is additionally fed by water that runs through other properties presently being characterized for contamination (the Blair Landfill and nearby Union Pacific Railroad property). Based on DTSC's investigation and remediation order No. IS/E-RAO 06/07-005, it appears that the only plan for Baxter Creek is to cleanup the shoreline. However, this work will not address contamination already in the creek waters and sediment. [28] Accordingly, TMDLs are necessary and warranted for the creek.

D. Conclusion

If the RWQCB is no longer pursuing the Consolidated Toxic Hot Spot Cleanup Plan for Stege Marsh, or is otherwise not pursuing other regulatory tools to order a cleanup, it appears that the decision not to place the

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[24] *See* http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=07280002 (former Zeneca site) and http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=07730003 (UCRFS).

[25] *See* UCRFS Environmental Website, http://rfs.berkeley.edu/index.html.

[26] *See, e.g.*, Final Current Conditions Report, University of California, Berkeley Richmond Field Station, Richmond, California (Nov. 21, 2008), http://rfs.berkeley.edu/documents/2008.11.21.RFS.FinalCCRTextandTables.pdf; Draft Current Conditions Report, University of California, Berkeley Richmond Field Station, Richmond, California (Apr. 5, 2007), http://www.envirostor.dtsc.ca.gov/public/community_involvement/3344037711/Current%20Conditions% 20Report_RFS.pdf.

[27] DTSC Docket No. IS/E-RAO 06/07-004 (Sept. 15, 2006), http://rfs.berkeley.edu/documents/Final_RFS_Order_15Sept06_signed_000.pdf; *see also* DTSC Docket No. IS/E-RAO 06/07-005 (Sept. 15, 2006), http://rfs.berkeley.edu/documents/Zeneca_FinalOrder_15Sept06_signed_000.pdf; DTSC Docket No.04/05-006 (Feb. 8, 2005), http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/7159040153/Zeneca_ENF_Investigation-Order.pdf (similar orders for the Zeneca site). In particular, in section 2.2.1, DTSC's IS/E-RAO 06/07-005 limits the "Site" subject to the order to the area north of the East Bay Regional Park District San Francisco Bay Trail.

[28] See Attachment B (sampling results taken from Phase II Investigation Report Addendum, Zeneca Inc. Richmond Facility prepared by LFR Levine-Fricke (Oct. 25, 2000) and map of sample site locations taken from Southeast Parcel Site Investigation Letter Report, Campus Bay, Former Zeneca Facility, Richmond, California prepared by LFR Levine-Fricke (July 25, 2008), *available at* http://www.envirostor.dtsc.ca.gov/public/community_involvement/5977735221/ltr-CampusBay-SE_Parcel-Jul08-09359.pdf); *see also* IS/E-RAO 06/07-005, § 2.7.3 ("The potential exists for contamination located on [the Southeast Parcel] to discharge via surface water runoff into the creek and San Francisco Bay.").

marsh on the State's 303(d) list for Water Quality Limited Segments Still Needing Total Maximum Daily Loads should not stand based on cleanup orders that will never be issued under that largely defunct program. The fact that remedial work has already been conducted at the site—and appears to have failed—strongly suggests that the marsh is still impaired. Moreover, the remediation of a mere 10 acre parcel, given the size of the entire marsh and evidence of contamination throughout this area, can hardly be said to have sufficiently addressed water impairment issues in lieu of TMDLs. As we see it, the RWQCB can undertake a serious effort to revive its work under the CTHSCP (in other words, take action other than the creation of TMDLs to address contamination in the marsh) or identify Stege Marsh as an impaired water body in need of TMDLs through the present (2008) 303(d) listing process. Either way, the marsh deserves prompt attention from the RWQCB and the public deserves an honest explanation of what action is really being taken to restore this water body.
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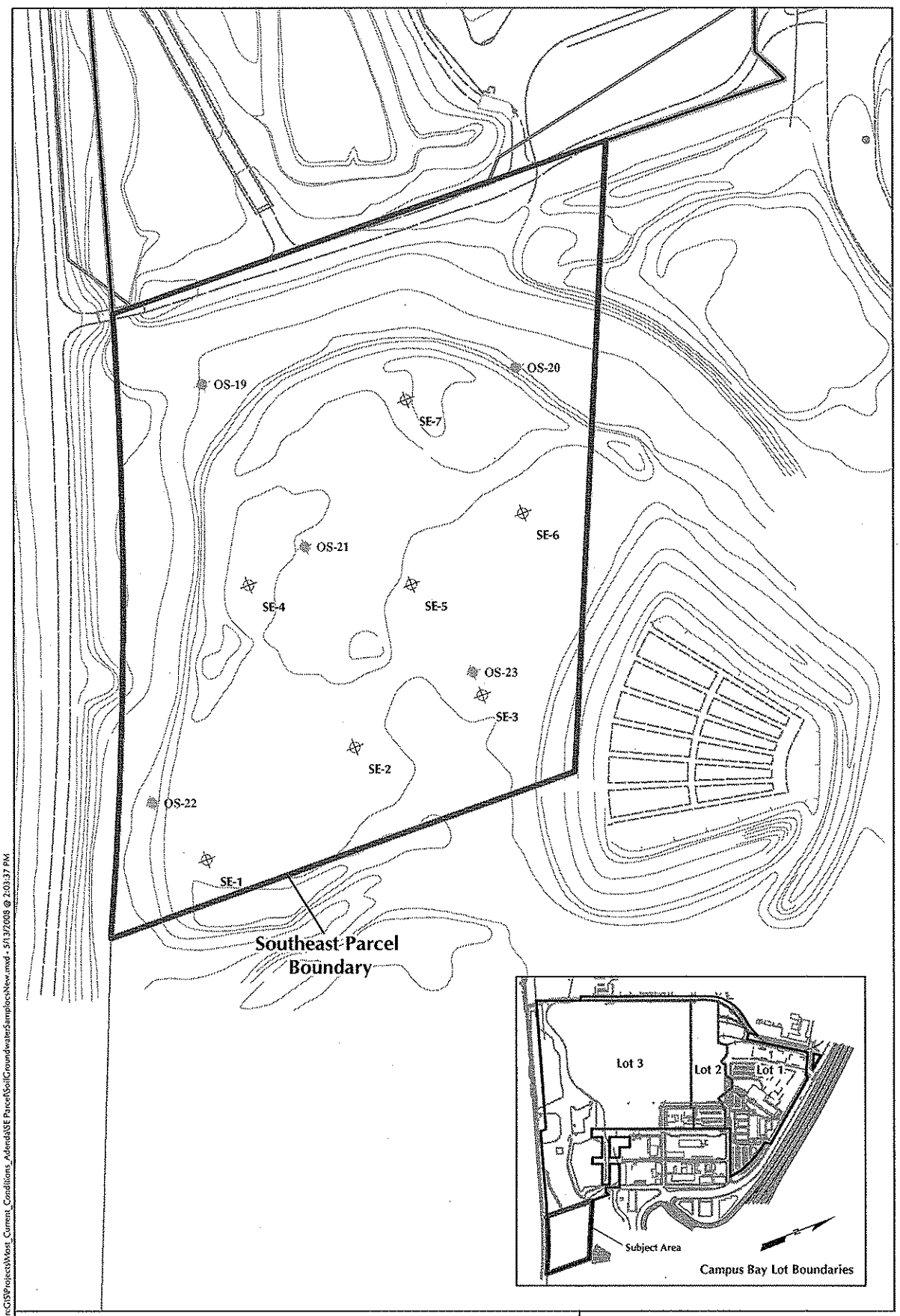
I hope that you find the above information useful in making the 2008 listing decisions and appreciate your consideration.

Sincerely,

/s/

Robert C. Cheasty
President
Citizens for East Shore Parks

ATTACHMENT B



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Soil and Grab Groundwater Sample Locations Southeast Parcel

Campus Bay, Richmond, California

LFR

Figure 2

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
1. Metals			
Antimony (ug/l)	60 U	60 U	60 U
Arsenic (ug/l)	**110**	**960**	**150**
Barium (ug/l)	**46**	**57**	**40**
Beryllium (ug/l)	2 U	2 U	2 U
Cadmium (ug/l)	5 U	5 U	5 U
Chromium (ug/l)	10 U	10 U	10 U
Cobalt (ug/l)	20 U	20 U	20 U
Copper (ug/l)	10 U	10 U	10 U
Lead (ug/l)	3 U	3 U	3 U
Mercury (ug/l)	0.2 U	0.2 U	0.2 U
Molybdenum (ug/l)	20 U	20 U	20 U
Nickel (ug/l)	20 U	20 U	20 U
Selenium (ug/l)	5 U	**8.3**	5 U
Silver (ug/l)	5 U	5 U	5 U
Thallium (ug/l)	5 U	5 U	5 U
Vanadium (ug/l)	10 U	**14**	10 U
Zinc (ug/l)	20 U	**40**	20 U
3. VOCs			
1,1,1,2-Tetrachloroethane (ug/l)	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane (ug/l)	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane (ug/l)	0.5 U	0.5 U	0.5 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides
Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
1,1,2-Trichloroethane (ug/l)	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane (ug/l)	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene (ug/l)	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene (ug/l)	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane (ug/l)	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-Chloropropane (ug/l)	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane (ug/l)	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane (ug/l)	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane (ug/l)	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane (ug/l)	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane (ug/l)	0.5 U	0.5 U	0.5 U
2-Butanone (ug/l)	10 U	10 U	10 U
2-Chloroethylvinylether (ug/l)	10 U	10 U	10 U
2-Chlorotoluene (ug/l)	0.5 U	0.5 U	0.5 U
2-Hexanone (ug/l)	10 U	10 U	10 U
4-Chlorotoluene (ug/l)	0.5 U	0.5 U	0.5 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
4-Methyl-2-Pentanone (ug/l)	10 U	10 U	10 U
Acetone (ug/l)	10 U	**15**	10 U
Benzene (ug/l)	0.5 U	0.5 U	0.5 U
Bromobenzene (ug/l)	0.5 U	0.5 U	0.5 U
Bromochloromethane (ug/l)	0.5 U	0.5 U	0.5 U
Bromodichloromethane (ug/l)	0.5 U	0.5 U	0.5 U
Bromoform (ug/l)	1 U	1 U	1 U
Bromomethane (ug/l)	1 U	1 U	1 U
Carbon Disulfide (ug/l)	**6.3**	**6.7**	**38**
Carbon Tetrachloride (ug/l)	0.5 U	0.5 U	0.5 U
Chlorobenzene (ug/l)	0.5 U	0.5 U	0.5 U
Chloroethane (ug/l)	1 U	1 U	1 U
Chloroform (ug/l)	0.5 U	0.5 U	0.5 U
Chloromethane (ug/l)	1 U	1 U	1 U
cis-1,2-Dichloroethene (ug/l)	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene (ug/l)	0.5 U	0.5 U	0.5 U
Dibromochloromethane (ug/l)	0.5 U	0.5 U	0.5 U
Dibromomethane (ug/l)	0.5 U	0.5 U	0.5 U
Ethylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
Freon 113 (ug/l)	5 U	5 U	5 U
Freon 12 (ug/l)	1 U	1 U	1 U
Hexachlorobutadiene (ug/l)	0.5 U	0.5 U	0.5 U
Isopropylbenzene (ug/l)	0.5 U	0.5 U	0.5 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
m,p-Xylenes (ug/l)	0.5 U	0.5 U	0.5 U
Methylene Chloride (ug/l)	5 U	5 U	5 U
MTBE (ug/l)	0.5 U	0.5 U	0.5 U
n-Butylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
Naphthalene (ug/l)	0.5 U	0.5 U	0.5 U
o-Xylene (ug/l)	0.5 U	0.5 U	0.5 U
para-Isopropyl Toluene (ug/l)	0.5 U	0.5 U	0.5 U
Propylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
sec-Butylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
Styrene (ug/l)	0.5 U	0.5 U	0.5 U
tert-Butylbenzene (ug/l)	0.5 U	0.5 U	0.5 U
Tetrachloroethene (ug/l)	0.5 U	0.5 U	0.5 U
Toluene (ug/l)	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene (ug/l)	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene (ug/l)	0.5 U	0.5 U	0.5 U
Trichloroethene (ug/l)	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane (ug/l)	0.5 U	0.5 U	0.5 U
Vinyl Acetate (ug/l)	10 U	10 U	10 U
Vinyl Chloride (ug/l)	0.5 U	0.5 U	0.5 U
4. Semivolatiles			
2,4,5-Trichlorophenol (ug/l)	10 U		11 U
2,4,6-Trichlorophenol (ug/l)	10 U		11 U
2,4-Dichlorophenol (ug/l)	10 U		11 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
2,4-Dimethylphenol (ug/l)	10 U		11 U
2,4-Dinitrophenol (ug/l)	50 U		53 U
2,4-Dinitrotoluene (ug/l)	10 U		11 U
2,6-Dinitrotoluene (ug/l)	10 U		11 U
2-Chloronaphthalene (ug/l)	10 U		11 U
2-Chlorophenol (ug/l)	10 U		11 U
2-Methylnaphthalene (ug/l)	10 U		11 U
2-Methylphenol (ug/l)	10 U		11 U
2-Nitroaniline (ug/l)	50 U		53 U
2-Nitrophenol (ug/l)	50 U		53 U
3,3'-Dichlorobenzidine (ug/l)	50 U		53 U
3-,4-Methylphenol (ug/l)	10 U		11 U
3-Nitroaniline (ug/l)	50 U		53 U
4,6-Dinitro-2-methylphenol (ug/l)	50 U		53 U
4-Bromophenyl-phenylether (ug/l)	10 U		11 U
4-Chloro-3-methylphenol (ug/l)	10 U		11 U
4-Chloroaniline (ug/l)	10 U		11 U
4-Chlorophenyl-phenylether (ug/l)	10 U		11 U
4-Nitroaniline (ug/l)	50 U		53 U
4-Nitrophenol (ug/l)	50 U		53 U
Acenaphthene (ug/l)	10 U		11 U
Acenaphthylene (ug/l)	10 U		11 U
Anthracene (ug/l)	10 U		11 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides
Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
Azobenzene (ug/l)	10 U		11 U
Benzo(a)anthracene (ug/l)	10 U		11 U
Benzo(a)pyrene (ug/l)	10 U		11 U
Benzo(b,k)fluoranthene (ug/l)	10 U		11 U
Benzo(g,h,i)perylene (ug/l)	10 U		11 U
Benzoic acid (ug/l)	50 U		53 U
Benzyl alcohol (ug/l)	10 U		11 U
bis(2-Chloroethoxy)methane (ug/l)	10 U		11 U
bis(2-Chloroethyl)ether (ug/l)	10 U		11 U
bis(2-Chloroisopropyl) ether (ug/l)	10 U		11 U
bis(2-Ethylhexyl)phthalate (ug/l)	10 U		11 U
Butylbenzylphthalate (ug/l)	10 U		11 U
Chrysene (ug/l)	10 U		11 U
Di-n-butylphthalate (ug/l)	10 U		11 U
Di-n-octylphthalate (ug/l)	10 U		11 U
Dibenz(a,h)anthracene (ug/l)	10 U		11 U
Dibenzofuran (ug/l)	10 U		11 U
Diethylphthalate (ug/l)	10 U		11 U
Dimethylphthalate (ug/l)	10 U		11 U
Fluoranthene (ug/l)	10 U		11 U
Fluorene (ug/l)	10 U		11 U
Hexachlorobenzene (ug/l)	10 U		11 U
Hexachlorocyclopentadiene (ug/l)	50 U		53 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
Hexachloroethane (ug/l)	10 U		11 U
Indeno(1,2,3-cd)pyrene (ug/l)	10 U		11 U
Isophorone (ug/l)	10 U		11 U
N-Nitroso-di-n-propylamine (ug/l)	10 U		11 U
N-Nitrosodimethylamine (ug/l)	10 U		11 U
N-Nitrosodiphenylamine (ug/l)	10 U		11 U
Nitrobenzene (ug/l)	10 U		11 U
Pentachlorophenol (ug/l)	50 U		53 U
Phenanthrene (ug/l)	10 U		11 U
Phenol (ug/l)	10 U		11 U
Pyrene (ug/l)	10 U		11 U
5. Pesticides/PCBs			
4,4'-DDD (ug/l)	0.1 U		0.1 U
4,4'-DDE (ug/l)	0.1 U		0.1 U
4,4'-DDT (ug/l)	0.1 U		0.1 U
Aldrin (ug/l)	0.1 U		0.1 U
Alpha-BHC (ug/l)	0.1 U		0.1 U
Aroclor-1016 (ug/l)	1 U		1 U
Aroclor-1221 (ug/l)	1 U		1 U
Aroclor-1232 (ug/l)	1 U		1 U
Aroclor-1242 (ug/l)	1 U		1 U
Aroclor-1248 (ug/l)	1 U		1 U
Aroclor-1254 (ug/l)	1 U		1 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
Aroclor-1260 (ug/l)	1 U		1 U
Aroclor-1262 (ug/l)	1 U		1 U
Beta-BHC (ug/l)	0.1 U		0.1 U
Chlordane (ug/l)	1 U		1 U
Delta-BHC (ug/l)	0.1 U		0.1 U
Dieldrin (ug/l)	0.1 U		0.1 U
Endosulfan I (ug/l)	0.1 U		0.1 U
Endosulfan II (ug/l)	0.1 U		0.1 U
Endosulfan Sulfate (ug/l)	0.1 U		0.1 U
Endrin (ug/l)	0.1 U		0.1 U
Endrin Aldehyde (ug/l)	0.1 U		0.1 U
Gamma-BHC (ug/l)	0.1 U		0.1 U
Heptachlor (ug/l)	0.1 U		0.1 U
Heptachlor Epoxide (ug/l)	0.1 U		0.1 U
Methoxychlor (ug/l)	0.1 U		0.1 U
Toxaphene (ug/l)	1 U		1 U
6. Proprietary Pesticides			
bensulide (ug/l)	32 U	45 U	45 U
Butylate (ug/l)		1.4 U	1 U
captan (ug/l)	**25**	36 U	36 U
carbophenothion (ug/l)		1.4 U	1 U
Cycloate (ug/l)		1.4 U	1 U
EPTC (ug/l)		1.4 U	**2**

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			
flurochloridone (ug/l)		7 U	5 U
Fonofos (ug/l)		1.4 U	1 U
Metam sodium (ug/l)	9 U	9 U	9 U
Molinate (ug/l)		1.4 U	1 U
Napropamide (ug/l)		1.4 U	1 U
Pebulate (ug/l)		1.4 U	1 U
phosmet (ug/l)	5 U	7 U	7 U
R25788 (ug/l)		1.4 U	1 U
R29148 (ug/l)		1.4 U	1 U
Vernolate (ug/l)		1.4 U	1 U

Table 3f Open Space Area Analytical Results of Water Samples Analyzed for Metals, pH, VOCs, SVOCs, Pesticides/PCBs, and Proprietary Pesticides Zeneca Richmond Facility, Richmond, California

Area	non-lag.	non-lag.	non-lag.
Sample ID	OS-19	OS-20	OS-22
Sample Date	10/20/99	10/20/99	10/20/99
Horizon			

Notes

Bolded values indicate detected compounds.

J = Result is detected below the reporting limit or is an estimated concentration.

U = Not detected. Result shown is the detection limit.

mg/kg = milligrams per kilogram
ug/l = micrograms per liter
PCBs = Polychlorinated biphenyls
SVOCs = Semivolatile organic compounds
SU = Standard units
VOCs = Volatile organic compounds

Town of Colma

Public Works / Engineering Department
1188 El Camino Real, Colma, CA 94014-3212
Phone: (650) 757-8888 Fax: (650) 757-8890

December 3, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Proposed Addition of Colma Creek to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Ms. Baginska:

The Town of Colma appreciates this opportunity to comment on the San Francisco Bay Regional Water Quality Control Board Staffs' proposed impaired water quality listings under Section 303(d) of the Clean Water Act Section. Colma Creek in San Mateo County is proposed for listing due to impairment by trash.

For Colma Creek, it appears from Appendix C (listing recommendations) of the Public Notice that the sites where the data was collected to support this listing is located near the downstream ends of the creek (Mitchell Avenue, Utah Avenue, etc). This exhibit does not provide any trash data or documented/photographic evidence of trash impairment in the upstream stretches of the Colma Creek channel. Trash levels may be site specific. For example, trash and litter levels in creeks vary greatly depending on the locations of homeless encampments, road overcrossings, and nearby land uses. The proposed 303(d) listing should therefore be limited to portions of the creek where evidence of impairment exists rather than listing entire creeks.

Our field observations find that very little amount of trash has been visually seen in the creek section that runs through the Town. Furthermore, Colma aggressively programs and budgets for cleaning the creek prior to the rainy season every year.

Furthermore, only photographic evidence of some specific locations of the creek was used to interpret the water quality criteria of the entire creek. The entire creek was not assessed using the standard Rapid Trash Assessment (RTA) methodology. If the objective of this listing is to evaluate trash conditions for the entire creek, several sites representing a range of trash impacts would need to be scientifically assessed.

We strongly object listing of the Colma creek section within the Town's jurisdiction without substantial evidence. Please provide us a copy of the documentation that supports listing the Colma Creek section that runs through the Town. We would also appreciate reviewing the standard/scientific assessment methodology that was used to

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justify listing of the entire creek, specifically the Colma creek section that runs through the Town.

I can be reached at (650)757-8888 or via email at brad.donohue@colma.ca.gov if you have any questions.

Sincerely,

Brad Donohue

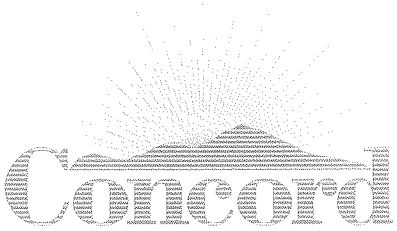
Brad Donohue
Deputy Public Works Director

cc: Laura Allen, Interim City Manager
Rick Mao, City Engineer

City of Concord
1455 Gasoline Alley
Concord, California 94520-4805
FAX: (925) 680-1660

Public Works
Qamar Khan, Director

Telephone: (925) 671-3231



December 3. 2008

Bruce H. Wolfe, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland CA 94612

RE: San Francisco Bay Regional Water Quality Control Board Staff's Proposed Revisions to the 303(d) List of Impaired Water Bodies

Dear Mr. Wolfe:

This letter is in response to your staff's October 30, 2008 request for comments on their Administrative Draft of Proposed Revisions to the 303(d) List of Impaired Water Bodies. The City of Concord has four concerns about the proposed listing of Mount Diablo Creek as being impaired by toxicity:

1. The listing is based on four water samples conducted in January and April 2003. We feel that the results of this testing do not accurately reflect current conditions in Mount Diablo Creek. Since 2003, the City of Concord and the City of Clayton have conducted vigorous programs to reduce water pollution. The details of our efforts are described in Concord's 1,300 page annual reports. Last year alone, the City of Concord distributed an amazing 442,134 educational items to residents and businesses! In December 2007, 146,587 items were distributed. This is just one example of our many successful pollution prevention programs.

2. Of the four samples collected in 2003, only two showed toxicity. This is a very tenuous way to describe the entire 23,846 acres of the Mount Diablo Creek watershed. There are a total of 79.95 miles of creek channel in the Mount Diablo Creek watershed. Board staff is proposing listing all of it as impaired based on two water samples that showed toxicity over five years ago.

3. Board staff is proposing that Mount Diablo Creek be listed as impaired for "toxicity" rather than a specific chemical constituent. There is no way to determine sources or assign a Total Maximum Daily Load for something as nebulous as "toxicity." If the water body is impaired by a specific constituent, that constituent should be identified in the listing, e.g.; mercury, copper, or Diazanon. That way, we can do something about identifying and controlling the sources. It is possible that the test results were caused by naturally occurring phenomena that cannot be controlled.

4. Concord, like many California cities, has been severely impacted by the economic recession. We do not have adequate revenues to continue our current pollution prevention programs let alone expand. Adding Mount Diablo Creek to the 303(d) List of Impaired Water Bodies would increase requirements and costs at a time when vital municipal programs are being cut.

I look forward to working with you on developing a 303(d) List of Impaired Water Bodies that makes sense. Should you have any questions regarding these comments, please contact my staff at (925) 671-3394.

Very truly yours,

Qamar Khan
Director of Public Works

CONTRA COSTA
CLEAN WATER
PROGRAM

Donald P. Freitas
Program Manager

December 3, 2008

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

Subject: Comments regarding the proposed revisions to the Clean Water Act Section 303(d) List of Water Quality Limited Segments

Dear Ms. Baginska,

The Contra Costa Clean Water Program (Program) appreciates the opportunity to provide written comments on the San Francisco Bay Regional Water Quality Control Board's (Water Board's) proposed revisions to the 2008 303(d) list contained in the Water Board's ***Draft Staff Report: Evaluation of Water Quality Conditions for the San Francisco Bay Region – Proposed Revisions to Section 303(d) List*** dated October 2008. The Program's comments are provided on behalf of its 21 Co-permitees[1].

The Program's comments are restricted to only those listings that are new in 2008 and that are located within Contra Costa County. This encompasses the following water bodies: Baxter Creek; Cerrito Creek; Grayson Creek; Kirker Creek; Mt. Diablo Creek; San Francisco Bay, Central (shoreline); and, San Pablo Creek. The Program's comments below are organized into general comments, which are related to all the new listings in Contra Costa County, and specific comments on each newly listed waterbody.

General Comments

The first general comment relevant to all the fact sheets for the above-named waterbodies is they appear to be incomplete and/or contain errors or inconsistencies. It is very difficult to evaluate and provide comments when the language in the fact sheets is vague in terms of the locations and dates of samples and assessments. In some fact sheets, dates are only referred to by month and year making it difficult to verify the results in the references. The same difficultly applies to verifying sample and/or assessment locations. Providing specific locations and dates is absolutely necessary in order for the Program to evaluate the evidence used in listing decisions by Water Board staff. Furthermore, inconsistencies were also uncovered in the reference reports where data was culled for the fact sheets.

[1] Contra Costa County, City of Antioch, City of Brentwood, City of Clayton, City of Concord, Town of Danville, City of El Cerrito, City of Hercules, City of Lafayette, City of Martinez, Town of Moraga, City of Oakley, City of Orinda, City of Pinole, City of Pittsburg, City of Pleasant Hill, City of Richmond, City of San Pablo, City of San Ramon, City of Walnut Creek and Contra Costa County Flood Control and Water Conservation District.

Examples of this are provided in the "**Waterbody-Specific Comments**" section located on page 3.

A second general comment involves the lack of evidence and information provided for a listing decision encompassing an entire creek when the evidence and listing factors suggest only a segment of the creek length may be impaired. This is most pertinent in the case of trash, but also applies to the pyrethroids and toxicity listing decisions. Listing Policy 6.1.5 contained in the State Water Resources Control Board's ***Water Quality Policy For Developing California's Clean Water Act Section 303(d) List adopted September 2004*** (State's Listing Policy) states: "Before determining if water quality standards are exceeded, RWQCBs have wide discretion establishing how data and information are to be evaluated, *including the flexibility to establish water segmentation...*" Listing Policy 6.1.5.4 states: "In the absence of a Basin Plan segmentation system, *the RWQCBs should define distinct reaches based on hydrology and relatively homogeneous land use.*" The Listing Policy recognizes that an impact to one or several reaches of the stream does not necessarily constitute a problem in the entire stream; and, listings should be confined to those segments or reaches where the evidence supports a listing decision. By limiting listings to the impacted creek segments, local governments will be better able to focus their efforts and resources on actual impairments resulting in faster attainment of water quality standards.

The third general comment involves Water Board staff's review and use of outdated sample and assessment evidence in several of its proposed listing decisions. In several cases, management actions taken subsequent to the sample and assessment dates have drastically improved the condition of some waterbodies proposed for listing. As shown in the photographs provided with these comments and as discussed in the "Water-Body Specific" comment section, current conditions for several creek segments have improved dramatically. These changes are the result of ongoing citizen volunteer efforts, restoration projects, and/or enhanced trash management programs.

The Program supports and is committed to reducing trash impacts to our local creeks and the San Francisco Bay/Delta. Trash in creeks is seasonal and migratory in nature and a symptom of much larger social issues. For example, homeless encampments can be a significant source of trash in certain creek segments. Many cities already spend significant resources removing these encampments only to have them re-appear again.

The trash problem is also symptomatic of our "throwaway" society and the planned obsolescence of many consumer products. These products, including their packaging, end up as trash. The Program is currently a partner in the California Product Stewardship Council's (CPSC's) Extended Producer Responsibility initiative. Many local governments are also partners in the CPSC. The CPSC is a non-profit organization working to promote a new paradigm in managing and reducing disposable product waste by requiring <u>producer</u> responsibility for their discarded products; and, creating market incentives that promote environmental sustainability. We encourage the Water Board's participation in this effort.

Another general comment involves Water Board staff's proposed listing decisions for trash, which are based upon the Rapid Trash Assessment (RTA) protocol developed and

implemented by Water Board staff as part of the Surface Water Ambient Monitoring Program (SWAMP). While this may be an acceptable evaluation protocol for assessing a nuisance impact in accordance with the State's Listing Policy, this may not be the best or only acceptable evaluation methodology. For example, the Santa Clara Valley Urban Runoff Pollution Prevention Program has adapted the RTA for urban creeks (i.e., Urban RTA or URTA). Other assessment methodologies, yet to be developed and implemented, may also be acceptable and preferred, particularly for the purposes of evaluating management actions. The Program is not aware of any formal action involving public review and comment for establishing the RTA as an acceptable objective, criteria or guideline for a trash 303(d) listing decision. In the absence of a public review of the acceptability of the RTA for listing decisions, the Program urges the Water Board not to list urban creeks for trash at this time. Furthermore, with implementation of enhanced trash reduction provisions contained in the anticipated Municipal Regional Permit, it is expected applicable listing factors for trash will not exist by the next listing cycle (i.e., 2010 CWA Section 303(d) List).

Finally, the RTAs and fact sheets do not document or indicate the sources of trash. If the source of trash cannot be ascertained from the RTA method, how can one determine what portion is generated within the watershed and what is generated outside the watershed or from other watersheds outside a city's jurisdiction? It also doesn't give any indication whether the trash is conveyed via the municipal separate storm system versus what might have been windblown or deposited as illegal dumping.

Water Board staff's proposed trash listings for Grayson Creek and San Francisco Bay Central (shoreline) are based upon a review of submitted photographic evidence. Water Board staff trained to conduct RTAs viewed the photographs, and then concluded the evidence was sufficient and supported a listing decision. The RTA does not address, nor does it preclude, use of photographs for evaluating the "Level of Trash" and "Threat to Aquatic Life" parameters in the RTA. However, absent any discussion or public review of the practice of using photographs in evaluating trash assessment parameters in the RTA, and absent sufficient discussion and documentation of this procedure in support of a listing decision, the Program opposes a listing decision for Grayson Creek and San Francisco Bay Central (shoreline) at this time. The Program is committed to evaluating and developing effective methods for assessing trash impacts on beneficial uses and for evaluating the effectiveness of the enhanced trash reduction actions that will be implemented under the anticipated Municipal Regional Permit.

Waterbody-Specific Comments

Baxter Creek –Line of Evidence #5212, Trash, Non-Contact Recreation

Page C-20 of Appendix C shows there were five (5) exceedances out of eight (8) total samples. However, the narrative preceding it in Decision ID 7634 states: "The RTA 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*". By referring to it in one place as "number of

exceedances per number of samples," but in the narrative as "number of locations on number of different dates," it's comparing "apples to oranges" and makes it very hard to verify what the fact sheet is saying. Not only are these two statements in apparent conflict with one another, neither one is correct according to the data reference "***A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region: Trash Measurement in Streams, April 2007***." The correct interpretation seems to be there were four (4) exceedances out of eight (8) samples for Parameter 1, "Level of Trash". To complicate matters, the link provided in the List of References refers to a report dated August 2005, not April 2007. Is April 2007 a typo or is there a different report from where this data was taken?

Assuming the August 2005 report is indeed the correct reference, the data in that report were examined in an attempt to validate the information in Line of Evidence (LOE) #5212; however, as previously mentioned, apparent inconsistencies were uncovered in this document as well. For example, Figure 14 does not agree with the data provided in Table 1, and Table 1 appears to be missing a number of important sample dates when compared with Appendix C of the same report where all the station IDs are shown with RTA Scores.

After an exhaustive examination of all this information, it appears there are three (3) assessment sites on Baxter Creek: BAX030, BAX040 and BAX080. BAX030 was assessed on March 19, 2004, July 12, 2004, November 19, 2004 and June 8, 2005. BAX040 and BAX080 were both assessed on November 12, 2004 and June 8, 2005. So the sentence in the paragraph contained under the heading "Data Used to Assess Water Quality" is incorrect (i.e., "These results are available for field visits/trash surveys conducted in March, July and November 2004 and June and August 2005..."). For example, assessments were never collected in August 2005.

It appears there were four (4) assessments at BAX030; two (2) assessments at BAX040; and two (2) assessments at BAX080. So there were eight (8) assessments conducted on five (5) dates at three (3) sample sites for Parameter 1, "Level of Trash," but exceedances were only found on four (4) of those dates, and there were eight (8) assessments conducted on five (5) dates at three (3) sample sites for Parameter 3, "Threat to Aquatic Life" with eight (8) exceedances. This raises another point – discussion of both Parameters 1 and 3 are often combined in the fact sheets when they should be separated. LOE #5212 is only supposed to relate to "Level of Trash," so the discussion of "Threat to Aquatic Life" is confusing and should not be included. And conversely, LOE# 5276 is supposed to relate to "Threat to Aquatic Life," and so should not contain any discussion of "Level of Trash." This co-mingling of data for different "Lines of Evidence" occurs in many of the other fact sheets as well.

As to the question of the number of exceedances, one needs to dig into Appendix C of the reference report. Of the eight (8) assessments, only four (4) scored in the "poor" category for Parameter 1, "Level of Trash." This does appear to be consistent with the Listing Policy. However, at a minimum, it calls into question the listing of the entire length of Baxter Creek when evidence suggests the trash problem is limited to only a portion of it. As mentioned in our general comments, according to Listing Policy 6.1.5 "...RWQCBs have wide discretion establishing how data and information are to be evaluated, *including the flexibility to*

establish water segmentation..." In Listing Policy 6.1.5.4, it says "In the absence of a Basin Plan segmentation system, the RWQCBs should define distinct reaches based on hydrology and relatively homogeneous land use." It would appear the Listing Policy recognizes the fact that for contaminants like trash, an impact to one or several reaches of the stream does not necessarily constitute a problem in the entire stream. A listing decision should be confined to only those stream segments where the evidence supports the listing.

Furthermore, as referred to in the "General Comments" section, RTA samples and assessments used in the Water Board's listing decisions for trash may not reflect current conditions. For example, a listing decision for Baxter Creek is based upon RTA's conducted in 2004 and 2005. Enclosed are five (5) photographs taken at BAX030, which is just West of San Pablo Avenue. These photographs were taken on December 4, 2008 and reflect current conditions. This area is now cleaned daily by a citizen volunteer. Furthermore, the City of Richmond's Parks Department, in coordination with the Watershed Project, conducts creek clean-ups along this segment of Baxter Creek.

Baxter Creek –Line of Evidence #5276, Trash, Wildlife Habitat

Many of the comments raised under LOE #5212 above, also apply to LOE #5276. As described above, the Program understands that there were eight (8) assessments conducted on five (5) dates at three (3) sample sites with eight (8) exceedances for Parameter 3, "Threat to Wildlife." Again, no assessments were conducted in August 2005, so the fact sheet is incorrect, if not confusing, since it mixes the discussion of Parameter 1 scores when it is only supposed to address Parameter 3 scores.

Under "Spatial Representation," the fact sheet never explains the eight (8) exceedances for Parameter 3, "Threat to Aquatic Life," which relates to the beneficial use "Wildlife Habitat" (WILD). It simply restates the exceedances for REC-2.

While trash impairments may exist in some segments along Baxter Creek, the RTA's conducted in 2004 and 2005 do not reflect current conditions for creek segments assessed (i.e., BAX030, BAX040 and BAX080). As discussed above and illustrated in enclosed photographs, the 2004 and 2005 assessments at sample site (BAX030) are no longer impaired and should be removed from the proposed list. Similarly, the area upstream of BAX040 (east of San Pablo Avenue) referred to as the "Baxter Creek Gateway" and the area downstream of Cypress Avenue should also not be listed. A restoration project, funded in part by the SWRCB, was completed in September 2006 at the Gateway site and has been a major success story. Prior to the restoration, there were trash problems and homeless encampments; since the restoration there have not been any homeless encampments. The city continually monitors the area for trash. There has been no illegal dumping. They have volunteers who focus on trash and have monthly work parties. The city's biggest problem at the Gateway site is graffiti, which comes in waves and is usually resolved quickly. Photographs taken in June 2007, January 2008 and December 2008 are attached for reference and reflect current conditions along Baxter Creek at Booker T. Anderson Park and San Pablo Avenue.

Cerrito Creek – Lines of Evidence # 5347 and 5349, Trash

The information on these two fact sheets appears to be correct although the information in the two lines of evidence is exactly the same. As previously mentioned, the information relating to Parameter 1 exceedances should be discussed separately from Parameter 3 exceedances (i.e., in the corresponding "Line of Evidence"). As discussed above, the Program needs specific sample locations and dates in order to review and evaluate the evidence for a listing decision.

Grayson Creek – Line of Evidence # 5409, Trash, Wildlife Habitat

Grayson Creek is one of two listings for trash in Contra Costa County where photographs are the only evidence evaluated for the listing decision. This fact sheet, unlike the others, provided the dates and locations of the photographs submitted as evidence. However, in the Decision ID 7643 discussion, when it states "this waterbody had 'threat to aquatic life' parameter scores in the poor category (indicating threat to Wildlife Habitat beneficial use) *at two different locations on two different dates*," it does not specify which of these locations and dates was deemed poor. It would be helpful if the fact sheet specified these locations and dates. Also, since the photographs of failing sites were not included in the package, the Program does not have any opportunity to evaluate the evidence.

As mentioned in our **General Comments**, the Program believes that until there has been an opportunity for public review and comment on the acceptability of photographic evidence in conducting an RTA and for supporting a listing decision, a listing for Grayson Creek should not be made at this time.

Kirker Creek – Decision ID 7583, Water Toxicity, Line of Evidence #5340

Episodes of toxicity in Kirker Creek are documented in this fact sheet. However, it is questionable whether or not the toxicity can be tied to pyrethroids because pyrethroids were not sampled in this study. In this fact sheet, two (2) exceedances were noted from five (5) water samples obtained by SWAMP in 2003. However, one of the exceedances was from a sample point, KIR115, located in the upper portion of the watershed that drains rangeland and East Bay Regional Park District lands. Pyrethroids were not sampled by SWAMP in 2003. Therefore, it is impossible to determine if the toxicity at this location is due to pyrethroids. Furthermore, it is hard to imagine a source for pyrethroids in the largely undeveloped portion of the watershed. In that same sample, selanastrum growth was limited but since pyrethroids are not known to affect aquatic plants, it points to there being some other factor causing the toxicity. It is possible the toxicity to Ceriodaphnia and selanastrum growth limitations are due to another pollutant, combination of pollutants, or perhaps from naturally-occurring elements like chromium and nickel that were also detected.

Kirker Creek – Decision ID 7583, Sediment Toxicity, Line of Evidence #5341

One episode of sediment toxicity in Kirker Creek was documented in this fact sheet for station KIR020 in the lower watershed close to the mouth of the creek. However, it is questionable whether or not that toxicity can be tied to pyrethroids because pyrethroids were not sampled in this study. It is possible the toxicity to Hyalella azteca is due to another pollutant, combination of pollutants, or perhaps from naturally-occurring elements like chromium and nickel. In fact, from page 3-3 of the SWAMP report ***Water Quality Monitoring and Bioassessment in Four San Francisco Bay Region Watersheds in 2003-2004,*** "Kirker Creek sediments from this site contained concentrations of arsenic, chromium, copper, nickel, and zinc that exceeded the Threshold Effect Concentrations." From Table 3.1-1 of the same report, exceedances of water quality benchmarks were also noted at KIR020 for chlorpyrifos and diazinon. They could have caused or contributed to the toxicity by themselves or in combination with other naturally-occurring elements.

Evidence is provided to list Kirker Creek for pyrethroids. However, the existing Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL would presumably be used to cover the pyrethroids-related toxicity in Kirker creek. Because the Program is already required to address the existing pesticide toxicity TMDL, this proposed listing decision appears unnecessary.

Mt. Diablo Creek – Line of Evidence #8541, Toxicity

The fact sheet indicates "The number of samples with detected significant water toxicity exceeds the allowable frequency listed in Table 3.1 of the Listing Policy and sediment toxicity is also observed." Although toxicity was observed in two (2) of four (4) samples, the sediment toxicity could have been caused by high chromium and nickel concentrations, which are "a common occurrence due to the geology of the area" according to page 3-10 of the reference report provided for this listing - "Water Quality Monitoring and Bioassessment in Four SF Bay Region Watersheds in 2003-2004." On page 3-10 of the SWAMP report, the ecological significance of the toxicity results is questioned as follows: "Statistically-significant effects on Ceriodaphnia reproduction were observed in the two samples collected at MTD010 and MTD100 during the winter trip, *but the effect may not be ecologically significant." "Selanastrum growth was significantly reduced in the sampled collected at MTD010 in winter, and fathead growth was reduced in the MTD100 spring sample; however, the ecological significance is not clear in these cases as well (see Discussion)." Also, the data are from 2003 and may not reflect current conditions.*

The sentence under "spatial representation" is misleading. As noted previously, this could be cleared up if specific sample site locations and dates were provided. The sentence reads "Data were collected at two sampling locations representative of the lower reach of the creek (2 samples) and the upstream tributary (2 samples)." The sentence would be more accurate if it read: "Data were collected at one sample location, MTD010, on two (2) occasions, representative of the lower reach of the creek. Data were collected at one sample location, MTD100, on two occasions, representative of the upstream tributary. Two (2) of these four (4) samples demonstrated exceedances."

Since no toxicity identification evaluations were performed, it is impossible to determine the cause of the toxicity in Mt. Diablo Creek. It could be due to any number of different pollutants or pollutant combinations, or due to naturally occurring elements such as the aforementioned chromium and nickel. To list a creek as impaired for toxicity rather than a specific chemical constituent makes it difficult to understand how a waste load allocation would even be derived, and a TMDL implemented. Would a toxicity TMDL have to be developed or would this listing fall under the "Diazinon and Pesticide-Related Toxicity TMDL" that's already in effect? The latter wouldn't seem to apply since nothing has tied the toxicity specifically to pesticides.

San Francisco Bay, Central (shoreline) - Line of Evidence #5509, Trash, Non-Contact Recreation

San Francisco Bay, Central (shoreline) is the second of two listings (the first being Grayson Creek) for trash in Contra Costa County for which photographs are provided as the only evidence of a trash problem. The fact sheet was much more thorough than some in indicating the locations of all photographs submitted as evidence, most of which were also dated. The only location where a dated photograph was not provided was at Richmond Field Station. It indicated the date of the photograph was 2007, but in the narrative description under the heading "temporal representation" it said the photograph was taken in February 2007. It is unclear whether the date is actually unknown or whether February is correct.

The Program's main issue with this listing is that in Decision ID 7654 when it states "...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*," it does not specify which two (2) of the eight (8) locations and dates was deemed poor. Also, since the photographs of failing sites were not included in the package, the Program does not have any opportunity to review and comment on the evidence.

Since it is unclear whether the Richmond Field Station was indeed one (1) of the two (2) sites deemed poor for Parameter 1, "Level of Trash," we don't feel the listing decision is justified at this time. Moreover, if Richmond Field Station were one of the poorly graded sites, we do not feel photographs from one unspecified day in 2007 warrant a listing. At a minimum, if the entire Central Shoreline is to be listed, the City of Richmond should be specifically excluded from that listing, as should other cities where poor scores were not documented. Also, the Richmond Field Station is entirely within the tidal zone and as such, any trash deposited there may have been swept in by the tide rather than conveyed downstream. Of course, it is likely at least some of the trash originated in the City of Richmond, but photographs are not enough to parse out what part of it should be the City's responsibility.

San Francisco Bay, Central (shoreline) - Line of Evidence #5508, Trash, Wildlife Habitat

Again, San Francisco Bay, Central (shoreline) is the second of two (2) listings for trash in Contra Costa County for which photographs are provided as the only evidence of a trash problem. The fact sheet was much more thorough than some in showing the locations of all photos submitted as evidence, most of which were also dated.

The fact sheet states "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.*" However, it does not indicate which sites were deemed poor and since the photos of failing sites were not included in the package, the Program does not have any opportunity to verify this claim or perform its own analysis.

It should also be noted the listing encompasses a very large area of shoreline. The photographs provided as evidence were taken on three (3) different dates at eight (8) sites. This is a very small sample size for such an enormous listing area. We believe much more photographic and RTA evidence would be necessary to justify this listing. If a listing is made, then it should be restricted to those sites where evidence of impairment is documented.

San Pablo Creek, Line of Evidence #5661, Trash, Non-Contact Recreation

The evidence for this proposed listing decision was very difficult to evaluate because the Data Reference, "Rapid Trash Assessment (RTA) data collected by the Water Board's SWAMP from 2002-2005 and method description" was not included in the List of References; and, no link to it could be found on the SWAMP website.

The fact sheet indicates that RTA was conducted and data were collected on two (2) different dates, July 18 and 30, 2002 and data from both dates were in the "poor condition" category for the Level of Trash Parameter. If this is true, then this is not consistent with the Listing Policy, Section 6.1.5.3 Temporal Representation, in which it states "In general, samples should be available from two (2) or more seasons or from two (2) or more events when effects on water quality objective exceedances would be expected to be clearly manifested." These two (2) events are only twelve (12) days apart and do not provide the temporal representation necessary to justify a listing.

Also, the fact sheet indicates "The RTA methodology results showed this waterbody had 'level of trash' scores in the poor category (indicating impairment of non-contact recreational beneficial uses) *at two different locations and on two different dates*". This conflicts with the "Line of Evidence" information indicating three (3) exceedances in three (3) samples. Furthermore, without specific sample site locations and dates, it is impossible for us to evaluate the evidence supporting the proposed listing decision.

Conclusion

For the aforementioned reasons, the Program strongly opposes the Water Board's intention to hold an adoption hearing on January 14, 2009. It's simply premature. The Program recommends the Water Board staff correct, revise, and re-release the Draft Staff Report and proposed listings for a second round of public review and comment. We appreciate the opportunity to comment on the proposed revision of the Clean Water Act Section 303(d) list of water quality impaired segments, and look forward to reviewing your response to our comments.

Sincerely,

FOR: Donald P. Freitas
Program Manager
Contra Costa Clean Water Program

DPF:kh:TD
Enclosures
G:\NPDES\WAM\303d list\303d List Comment Letter 12 4 08.doc

Baxter Creek Gateway 15_June 5 07

Baxter Creek Gateway 16_June 5 07

Baxter Creek Gateway 17_June 5 07

Baxter Creek Gateway 44_June 5 07

Baxter Creek Gateway 18_June 5 07

Baxter Creek Gateway 21_June 5 07

Baxter Creek Gateway 26_June 5 07

Baxter Creek Gateway 35_June 5 07

Baxter Creek Gateway 46_June 5 07

Baxter Creek Gateway 2_January 7 2008

Baxter Creek Gateway 3_January 7 2008

Baxter Creek Gateway 4_January 7 2008

Baxter Creek Gateway 5_January 7 2008

Baxter Creek Gateway 6_January 7 2008

Baxter Creek Gateway 7_January 7 2008

Baxter Creek Gateway 8_January 7 2008

Baxter Creek Gateway 9_January 7 2008

Baxter Creek Gateway 10_January 7 2008

Baxter Creek reach west of San Pablo Ave, upstream view stormwater 007

Baxter Creek reach west of San Pablo Ave, just prior to entering cement channel

Booker T Anderson 12 4 08, bottom reach closest to housing, stormwater 003

Booker T Anderson 12 4 08, downstream of bridge, stormwater 001

Received: Monday, November 3, 2008
From: Michael F. Cox
21700 Almaden Road
San Jose, CA 95120-4314

Dear Ms. Baginska,

As a community member, I am commenting on the October 30, 2008 "Notice of Availability of Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region." I applaud the intent of the Board to bring attention to trash, but I believe the method of listing waters as 303(d) impaired due to trash is flawed. I am worried that the 303(d) listings will result in regulatory burdens and costs that will actually retard creek and waterway cleanup.

The 303(d) listings impose costly bias toward pollutant fate and transport studies rather than pollutant cleanup. It does not make sense to study trash rather than clean it up. Waterways where I have personally worked on periodic trash collection projects are not listed. Trash collection is a highly feasible and effective control technology. The Regional Water Quality Control Boards could simply encourage public and not-for-profit agencies to expand waterway trash collection activities.

With respect to the above notice, I think it is not wise for the San Francisco Regional Board to seek the listing of so many waterways for trash prior to reaching out to volunteer creek cleanup projects to remedy the issue. If I am not mistaken, waterways are not to be listed as impaired under the Clean Water Act until it can be shown that feasible control measures have failed. Volunteer trash collection could easily be expanded to the proposed listings and thereby negate the need for the listings.

If I am not mistaken, the Regional Boards are given 303(d) assistance monies from the Federal government but assign the cost burden for the extra 303(d) studies to whoever is held responsible for the trash- generally local and regional public agencies. In my opinion, this is a grave conflict of interest. To make matters worse, the public agencies cannot afford both the burden of the extra 303(d) administration and studies on top of the trash collection activities, so the trash collection activities will likely suffer.

Please expand support for the waterway trash collection projects and not the 303(d) listings for wasteful trash studies and administration!

Sincerely,

Michael

Michael F. Cox
21700 Almaden Road
San Jose, CA 95120-4314

Post-it® Fax Note 7671	Date 12-4-08	# of pages ▶ 2
To Barbara Kaysen	From Kerry Burns	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

CITY OF DALY CITY

333-90TH STREET
DALY CITY, CA 94015-1895
PHONE: (650) 991-8000

December 4, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Comments on Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Ms. Baginska:

The City of Daly City appreciates the opportunity to comment on staff's proposed listing of impaired water bodies to be included in the Regional Board's 2008 updated 303(d) list. While Daly City understands and appreciates its responsibility to proactively address trash, it is troubling to see the inclusion of Colma Creek as a trash impaired body of water for the reasons set forth below.

It appears that the rationale to list Colma Creek relies upon outdated photographic evidence at three selected downstream portions of the watershed on six dates ranging as far back as December 2002 and continuing only until April 2006. Daly City believes that these photographs are unrepresentative of current creek conditions that have benefited from ongoing community clean up efforts and are not appropriate for conducting Rapid Trash Assessments (RTA's). RTA's should be conducted in the field in order to ensure their accuracy. Also, the virtual RTA's were conducted using photographs from only three locations on Colma Creek representing approximately 300 feet of the approximately five miles of open creek. It thereby does not accuracy portray the entire creek conditions and does not accurately characterize impairment that would justify inclusion to the 303(d) list.

As an example, absent from staff's weight of evidence assessment is any mention of the Colma Creek Maintenance Monitoring Program initiated in 2006 which involves scheduled quarterly inspections and inspections following major storm events. These inspections cover 8 locations along a 5 mile stretch of Colma Creek. It is also worth noting that since 2004 the San Mateo County Department of Public Works has coordinated a monthly trash cleanup program along Colma Creek conducted by the County Sheriff's Offender Program. Trash is removed primarily along the north side of the lower reaches of Colma Creek between the Utah Avenue Crossing and Highway 101. Cleanup does not take place in June or July so not to disturb wildlife using the saltwater habitat. Members of the Regional Board should review the most recent documented data available from the mitigation program. Reliance upon outdated information in light of more recent proactive mitigation efforts leads to inaccurate conclusions about the status of trash in Colma Creek and overlooks the progress being made to address trash issues within local jurisdictions.

Moreover, it is unclear what stretches of Colma Creek are intended for designation. Figure 3 of staff's recommended action is only a graphic representation absent specific mapping of jurisdictions affected. Rather than listing the entire creek, any proposed 303(d) listing should be limited solely to portions of the creek where there is current evidence of impairment. As the Regional Board may already know, the Colma Creek Watershed begins in San Bruno Mountain and on its way south toward San Francisco Bay passes through areas under the jurisdiction of the County of San Mateo, the City of Daly City, Caltrans, the Town of Colma, the City of Pacifica and the City of South San Francisco. Should the Regional Board choose to list Colma Creek as an impaired water body, it remains unclear what criteria and process would be used to then develop an effective Total Maximum Daily Load to equitably address trash.

Since Fiscal Year 2004, the City of Daly City's source control efforts in meeting its local municipal stormwater permit requirements has documented 13,784 cubic yards of trash removed from reaching local waterways. With its illicit enforcement and education activities over this same time period, 288 actions have been taken with a very small number, 18 or 6%, being related to trash. Public awareness regarding trash has heightened over the time period as evidenced by increased public participation in San Mateo County's Coastal Cleanup Day and the State's "Don't Trash California" campaign. As the Board is aware, sources of trash vary and in many cases the root causes are outside the effective purview of local agencies to control. However, through a nexus of local maintenance, community outreach and enforcement efforts, Daly City believes that effective and aggressive source control measures can be very productive advocates of trash prevention in the watershed.

As such, it seems premature to list Colma Creek as a trash impaired body of water as it neglects any weight of evidence that is more current nor does it acknowledge ongoing local efforts that have made improvements. Any proposed listing should more fully take into account specific locations where impairments exist and should rely on the most current available information. Based on this we respectfully request that Colma Creek be removed from the listing until a more accurate representation can be conducted to determine if the listing is appropriate.

Thank you in advance for your consideration of our comments opposed to the listing of Colma Creek as a trash impaired body of water.

Sincerely,

Patricia E. Martel
City Manager

City of Foster City

ESTERO MUNICIPAL IMPROVEMENT DISTRICT

610 FOSTER CITY BOULEVARD
FOSTER CITY, CA 94404-2222
(650) 286-3200
FAX (650) 574-3483

December 3, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: PROPOSED REVISIONS TO THE 303(D) LIST OF IMPAIRED WATER BODIES IN THE SAN FRANCISCO BAY REGION

Dear Ms. Baginska:

The City of Foster City concurs with the comments provided by the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) in regard to the proposed impaired water body listings under Section 303(d) of the Clean Water Act, which were announced in a document dated October 30, 2008. The SMCWPPP's comments are provided in a letter dated December 4, 2008 from the SMCWPPP Coordinator, Mr. Matt Fabry. In addition to Mr. Matt Fabry's comments, the following observations are provided in support of Foster City's request that the San Francisco Bay Lower shoreline fronting the City of Foster City not be included in the proposed listing for impairment by trash.

The San Francisco Bay Lower shoreline was included in the proposed listings for trash based on the photographic evidences from two locations. As was stated in Mr. Matt Fabry's letter, it is unclear which geographic area the photographs were taken and how this area compares to the wetland areas with defined beneficial uses described in Table 2-10 and Figure 2.11 of the Basin Plan (SFBRWQCB 1995). The geographic definition and areal extent of "San Francisco Bay Lower (shoreline)" should be clarified along with the basis for proposing to list this potentially large shoreline area using the very limited available photographic evidence. It should also be noted that establishing the origin of trash transported by the Bay to shoreline areas will be difficult if the listing is approved and a Total Maximum Daily Load (TMDL) is performed in response.

The City of Foster City inspected its shoreline on November 19, 2008 and includes with this letter 22 pictures taken from the west end of the San Mateo Bridge to the City limit of the City of San Mateo as shown in the Attachment A and Attachment B. The photographs clearly show that "trash impairment" is not a problem in Foster City. The

Foster City levee and its shoreline areas are used daily by joggers, bikers, pedestrians, windsurfers, and kite surfers. They would certainly have reported if the shoreline is impaired by trash. To our knowledge, no complaints have been received. Furthermore, the City of Foster City has a self-contained storm water detention basin (lagoon system) with a single discharge point to the Bay. Trash racks are installed at the discharge point to prevent debris from entering the bay.

In summary, we feel that in order for trash controls along the shoreline to be effective and allow local jurisdiction to allocate resources efficiently, we should first identify problem areas accurately, and target only those areas for mitigation. Proposed listing of the entire San Francisco Bay Lower shoreline as impairment by trash is not accurate and it does not serve the intended purpose.

We look forward to continuing to work with you during the development of the 2008 303(d) list. Please call me if you have any questions or comments.

Sincerely,

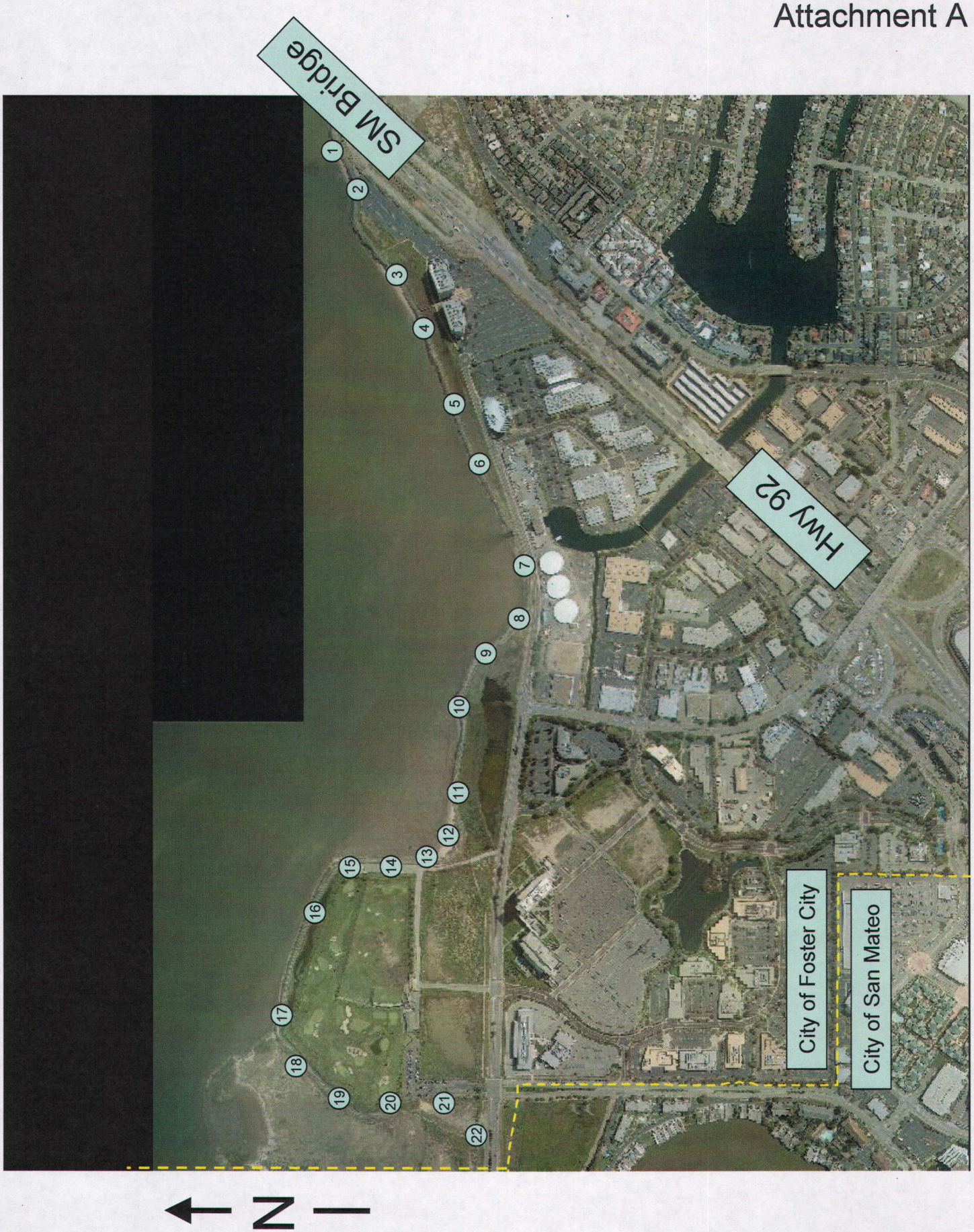
Ramon M. Towne

Ramon M. Towne
Director of Public Works

Attachments: A. - Index Map of the City of Foster City Shoreline
B. - Photographs 1-22

cc: James C. Hardy, City Manager
Norman Dorais, City of Foster City Public Works Maintenance Manager
Sue Ma, Regional Water Board Staff

Attachment A

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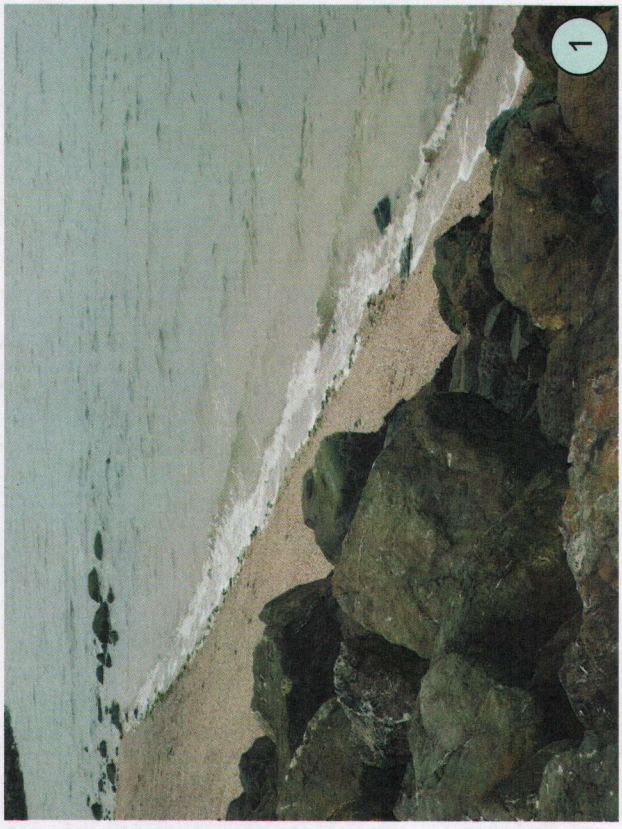
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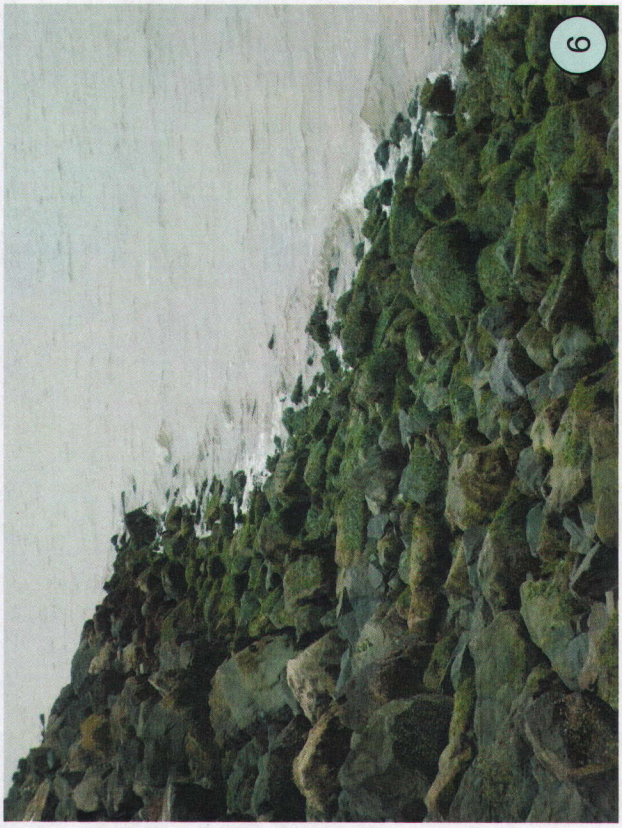
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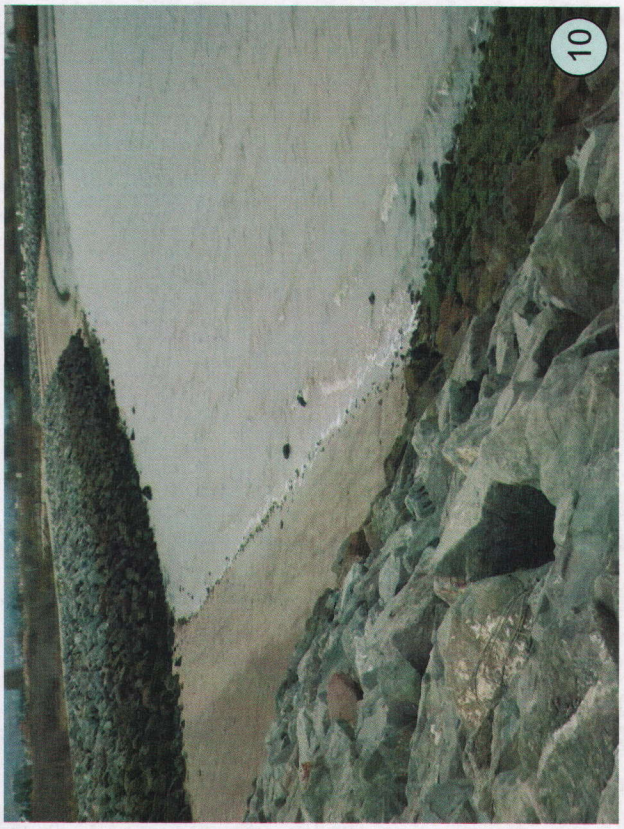
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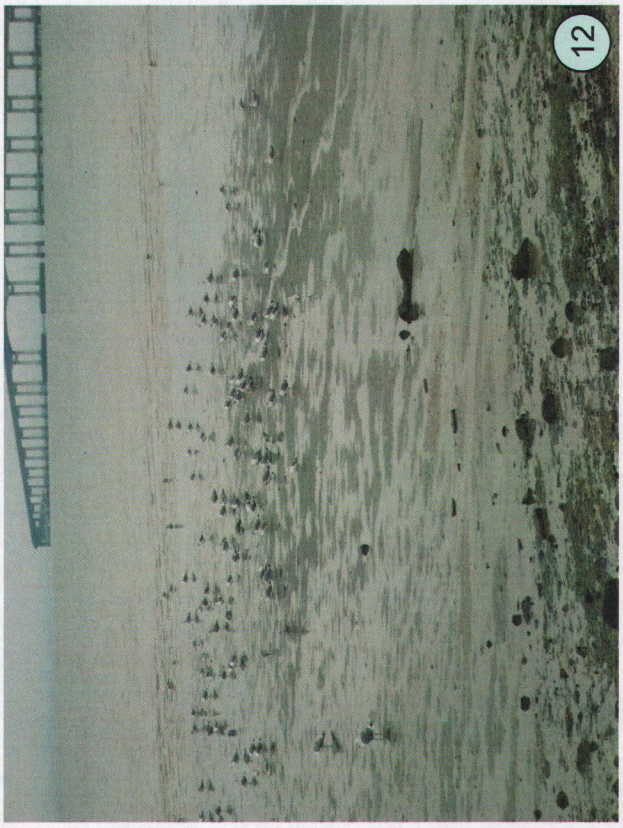
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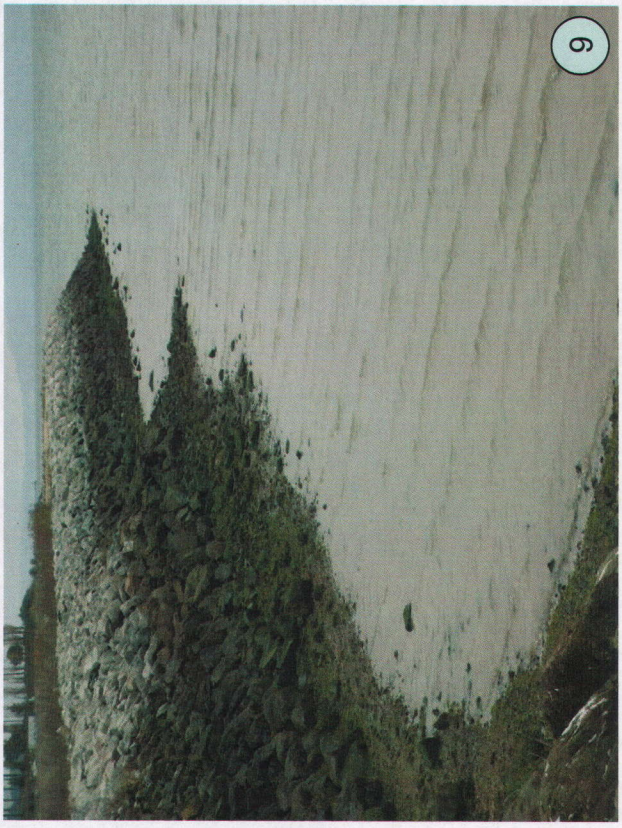
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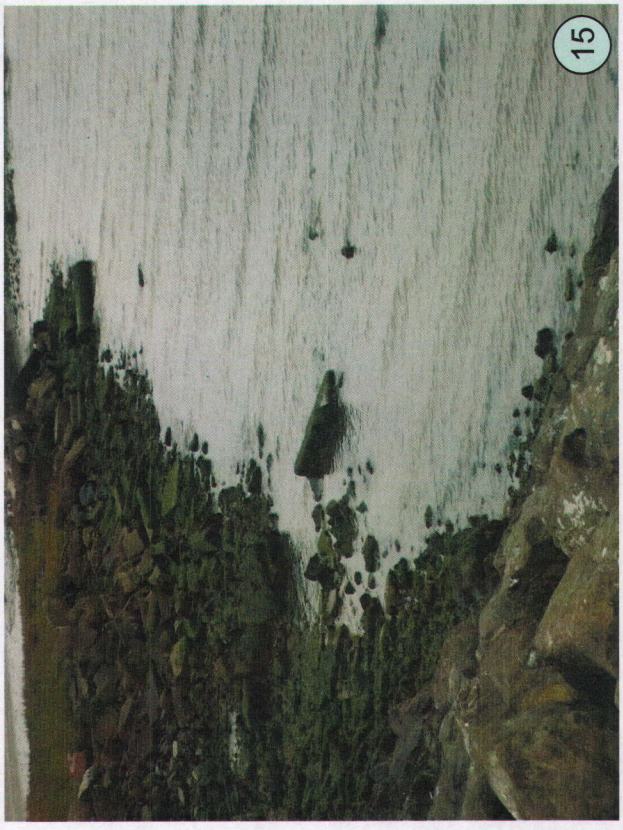
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To whom it may concern,

I am writing in support of adding Rindler Creek (Solano County) to the 2008 303d list.
Included with this written request are approx. 500 photos of Rindler (2007-2008) This section of creek immediately west of interstate 80 is a collection point, one area that our watershed drains into. This section of creek is subject to a multitude of trash contributors, Interstate 80, commercial industries (Home Depot, Movie Theatres, Costco, etc) acres of parking lots, Fairgrounds, heavy drive by and walking traffic within 15 feet of this creek (Fairgrounds Drive) and our storm drains flood this creek with all sorts of debris collected within our watershed, commercial and residential.

I have been involved in regular clean ups of this creek for the last five years, if this creek didn't have a problem it wouldn't be in need of regular clean ups. My city government (Vallejo) is not environmentally aware or conscientious, (bankrupt as well) my attempts of searching for a solution to this problematic situation has led me to the 303d list. No agency or entity is going to voluntarily provide any solution to preventing the inundation of debris this creek is subject to.

This section of creek is diverse in aquatic and wildlife, it is also spawning habitat for Bluegill and Crappie. This creek is immediately adjacent to the inlet of Lake Chabot itself. Trash wise, the plastics and Styrofoam's are the biggest of my concerns, there is such a wide variety of these 2 forms of pollutants. This creek is subject to a multitude of pollutants, trash being only one of the contributors.
Without the 303d listing this section of creek will continue to collect and pollute our waterways and the life that is dependant upon them. This listing will also support a greater understanding and awareness within our city; it will support efforts of concerned citizens and organizations such as myself in their pursuit for environmental awareness, protection, enhancement and action. It will provide much needed awareness to our city government as to why they should mitigate on behalf of our watershed, i.e. upcoming complete Fairgrounds redevelopment project, fast food tax, etc, sources that could financially support studies, efforts and programs directed at preventing the onslaught of what this creek endures.

A 303d listing can bring much more than just "storm water permit requirements" Storm water permitting efforts alone will not solve this problem; it's a great start and will certainly have a positive impact.. As an advocate for my watershed I see a multitude of benefits coming from this proposed 303d listing. My community as a whole needs to come together (city government, agencies, businesses, residents, schools, organizations) and get involved. A 303d listing would also support the concerns and efforts expressed by myself and other organizations. Enforcement of action on your part will also bring awareness; this awareness can then be promoted to encourage community involvement, education and participation. I don't see a 303d listing as the answer to this problem; I see it as the first step to implementing solutions by involving others on a larger scale. Whether or not this creek makes the listing my efforts for the preservation and protection of this watershed will continue.

May the photo's I have submitted provide your agency with a further detailed understanding of my local creek. The properties within these photos have have the times and dates when they were taken. They were all taken at the section of Rindler Creek west of interstate 80.

Doug Darling
Friends of Lake Chabot
225 #B Alabama St Vallejo Ca 94590 707-373-1766

December 4, 2008

Regional Water Quality Control Board
San Francisco Bay Region
Attn: Barbara Baginska
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: **Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region**

Dear Honorable Board Members:

Our comments on the proposed list of impaired water bodies relate to the addition of 26 areas impacted by trash. Our general comments are that:

- This is a commendable effort by staff, thorough, well-written, and its recommendations amply justified. We strongly agree with the proposed addition of 26 water bodies as trash impaired.
- Existing control measures such as public education, street sweeping, storm drain inlet cleaning and inlet deflectors have been practiced by municipalities for as long as 30-years, yet the problem remains. Clearly, more needs to be done get compliance with the Basin Plan's water quality standards and NPDES Permit requirements. This problem will not solve itself.
- As the federal government seeks to identify ready to go public works projects to revive our economy, this may be an ideal time for installing trash removal devices. These devices typically have only positive environmental impact, require very little engineering compared to other public works projects, and create considerable employment to install. This would be consistent with Gov. Schwarzenegger's call for addressing our backlog of public infrastructure needs.

Our specific comments will focus on two areas – the need to add additional water bodies as impaired and enforcement of existing NPDES permits;

Listing of Additional Water Bodies

The Board's August, 2001 staff report on the 2002 Section 303(d) listing of impaired water bodies indicated that "between now and the next 303(d) listing cycle, municipalities will be expected to assess trash impairments in their jurisdiction, as documented in annual reports to the Regional Board. .... In order to ensure that this finding results in characterization, assessment, and management of trash in municipal jurisdictions, urban creeks with no new information by the next listing process will be automatically listed as impaired due to trash."

While a significant number of water bodies have been proposed for listing, several of the storm water programs have not assessed trash impairments and creeks within those jurisdictions have not been listed. While automatic listing may not be feasible following SWRCB guidance there is evidence that Walnut Creek, Vista Grande Canal and San Pablo Creek (upstream of San Pablo Reservoir) should be listed as impaired based on our February 28, 2007 submittal.

Walnut Creek – In the City of Walnut Creek we have taken pictures in San Ramon and Las Trampas Creeks immediately upstream of where they join to form Walnut Creek, at multiple locations upstream of the City (such as Lafayette Creek), and along Walnut Creek and at Pacheco Slough just upstream of the Pacheco Marsh. All of these locations had extensive trash. Many of the creeks in the Walnut Creek drainage flow in concrete channels and lined channels that are highly effective in moving large volumes of water and trash, and in mechanically breaking down styrofoam cups and food containers into small particles, leaving a "bath tub ring" that any visitor could see along the high water line for a distance of

many miles. Note that mechanical breakdown does not solve the problem; in fact it can magnify the impact, as smaller particles still resist biological breakdown, and can be easier for animals to inadvertently ingest. We believe Walnut Creek and its tributary drainages should be added as impaired water body from trash.

Vista Grande Canal – This brick lined storm drainage system between the Olympic Club Golf Course and Lake Merced carries storm water runoff from the City of Daly City and discharges to the Pacific Ocean. During periods of very high flow it overflows John Muir Drive into Lake Merced. Frequent observations throughout the length of the canal have found trash deposited along the banks, and plastic hanging from the vegetation high above low flow levels. It is reasonable to conclude that much of the trash on San Francisco's Ocean Beach comes from the Vista Grande Canal.

San Pablo Creek – This creek is at Highway 24 and the BART parking lot. Downstream of that area it surfaces in a commercial area. Trash in this downstream area is deposited on the creek banks, and we have observed plastic hanging from the vegetation high above low flow levels. Trash from the City of Orinda's library and commercial property adjacent to the creek have been reported to the RWQCB staff in addition to our February 2007 submittal. This is not the worst trash area in the region, but the Board should recognize that the creek discharges to San Pablo Reservoir – EBMUD's terminal drinking water supply reservoir.

Solano County - There are several creeks (including Ledgewood and McCoy) in Solano County that had observations at single locations. Additional observations and photographs were made at these locations in 2007 and 2008, and the creeks continue to be impaired by trash. We urge the RWQCB to require trash assessments at these two creeks for future listing considerations and/or enforcement of existing NPDES permits.

Enforcement of Existing NPDES Permits

It is discouraging to note that there's been no discernable significant reduction in the amount of trash being found in the Bay Area's creeks, wetlands and the Bay, even though municipalities have been regulated by NPDES storm water permits for over 18 years, and an estimated $700 million has been spent by those programs during this period. The persistence of this problem is even more striking given that control of sediments and litter have been long-term goals and objectives in the Bay Area, dating to the original 1968 water quality control plans and the June 1978 Environmental Management Plan (208 Plan). Control of gross pollutants including large sediments, trash and debris have been addressed in Basin Plans and included in municipal NPDES Permit as receiving water quality limitations.

Gross pollutants including trash are a public nuisance, are creating a significant impairment of water quality, adversely and unreasonably impacting beneficial water uses, and in some cases creating a contamination. The magnitude of the storm water gross pollutant and trash problem and their impacts on beneficial uses make a strong case for the proposed 303(d) listings. However, the RWQCB's next step in addressing the Bay Area's trash problems need not wait for adoption of a TMDL (which may be some years away). The Board has the responsibility, and all the legal authority it needs to take action on trash right now. Enforcement actions, at least for the worst sites should be taken now.

We are available to answer any questions you may have regarding our recommendations, and to provide copies of the documentation cited.

Sincerely,

Roger B. James
23829 NE Greens Crossing Road
Redmond, WA 980953
425-202-7495

Lawrence P. Kolb
6225 Manoa Street
Oakland, CA 94618
510.655-9720

cc/ Ms. Alexis Strauss, Director
Water Division (WTR-1)
US Environmental protection Agency, Region IX
75 Hawthorne Street/San Francisco, CA 94105

Dorothy Rice, Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

CITY OF OAKLAND

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December 4, 2008

Ms. Barbara Baginska
California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Proposed Revisions to the 303(D) List of Impaired Water Bodies

Dear Ms. Baginska:

The City of Oakland appreciates this opportunity to comment on the proposed revisions to the 303 (d) List of Impaired Water Bodies. The City of Oakland is committed to improving water quality in our creeks, lakes and the Estuary. As you know, Lake Merritt in Oakland is currently listed as impaired due to trash. The City of Oakland took that listing seriously and leveraged limited resources to embark on a successful campaign to reduce trash and improve water quality. The City is now applying these efforts and strategies to citywide efforts to reduce trash in waterways. We look forward to continuing our commitment to improving water quality.

The proposed revisions to the 303(d) list of impaired water bodies include listing two waterbodies in the City of Oakland for trash: Damon Slough and Sausal Creek. While we agree that Damon Slough meets the criteria for a trash impaired water body, we disagree that Sausal Creek meets the same threshold.

We are concerned that the listing of Sausal Creek as trash-impaired is based on very limited data and is not statistically representative of the creek as a whole or of present day conditions. According to the 303(d) List Draft Staff Report, Appendix C, Waterbody Fact Sheets Supporting New Listing and Delisting Recommendations, the Sausal Creek listing recommendation is based on three site visits to one location over a ten month time frame in 2004 and 2005. The listing of Sausal Creek is contrary to the Water Boards' Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (2004). Section 6.1.5.2 of the Policy states that "samples should represent statistically or in a consistently targeted manner the segment of the water body." Additionally, section 6.1.4 of the Listing Policy states that a sampling plan should be available that describes the rationale for selecting sampling sites that are spatially representative. The fact sheet does not describe how the sampling plan assures

the representativeness of the samples. If the sampling plan does not assure the representativeness of the samples, these data should not be considered representative of the water body as a whole and should not be used to list the entire water body.

Sausal Creek has over twelve miles of open creek and the 2004 location represents a previously unknown illegal dumping hotspot that has since been cleaned up and remains clean today (see attached photos – 22nd street location). This location and time frame is not representative of the creek as a whole in 2008. More recent data from an assessment conducted under the SWAMP program by Moore et al (2007) at two upstream sites found "remarkably low levels of trash" at the site in Joaquin Miller Park and "very low levels of trash" at the Dimond Park site.

On December 2 and 3, 2008, City of Oakland staff conducted a full site walkthrough and qualitative survey of the open stretches of Sausal Creek, including the entire lower reach that passes through the urban center of Oakland. The walkthrough and the photos (attached) from the walkthrough reveal that much of Sausal Creek is remarkably trash free, especially for an open urban creek. There are short stretches with small amounts of trash that could be characterized as "sub optimal." And there have been a couple instances of illegal dumping. Once the City is informed, we clean up the debris and follow-up with enforcement and mitigation measures to prevent future dumping.

However, the data collected, method and the analysis of the data simply does not represent a statistically supportable evaluation of Sausal Creek. Further, recent extensive field surveys reveal that Sausal Creek does not rise to the level of impaired water body.

The City of Oakland recognizes the value of Sausal Creek and has invested a significant amount of time and resources to improving and restoring the habitat and the creek. We are committed to reducing trashing and all other pollutants and we are continuing our efforts to remove spillways, concrete walls and restore additional stretches of Sausal Creek.

Sincerely,

Lesley Estes,
Stormwater Program Manager
Community and Economic Development Agency

Attachment: Sausal Creek Photo Survey, December 2 and 3, 2008,

2008 Survey of Sausal Creek

City of Oakland staff
December 2, and December 3,

During the inspections of Sausal Creek on December 2 and 3, 2008, most locations were observed as having *optimal* conditions, and a few were observed as *sub-optimal*. One location showed evidence of overland transport or of local littering in the channel. Other locations that were flow catch points (woody debris, etc.) showed minor historic accumulations of transported trash. Downstream dump sites were observed, but were on the street and were prevented from entering the channel by chain link fencing. Evidence of chronic dumping was not found. At the mouth of Sausal Creek there is no evidence of debris washed from upstream. There is however clear evidence of a localized homeless encampment on the Estuary. This site is currently slated for renovations and the homeless encampments will be addressed.

12/3/08 – Larry Lane at Ascot Drive

12/3/08 – Larry Lane

12/3/08 – Montclair Golf Course

12/3/08 – Montclair Golf Course

12/3/08 – Scout Road at Ascot Drive

10/29/08 – Dimond Park

10/29/08 – Dimond Park

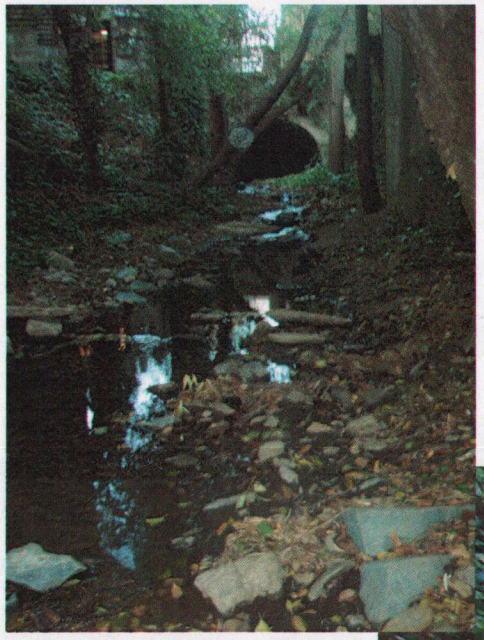
12/3/08 – El Centro Avenue Pool

12/3/08 – El Centro Avenue Pool

12/3/08 – Dimond Canyon Trail

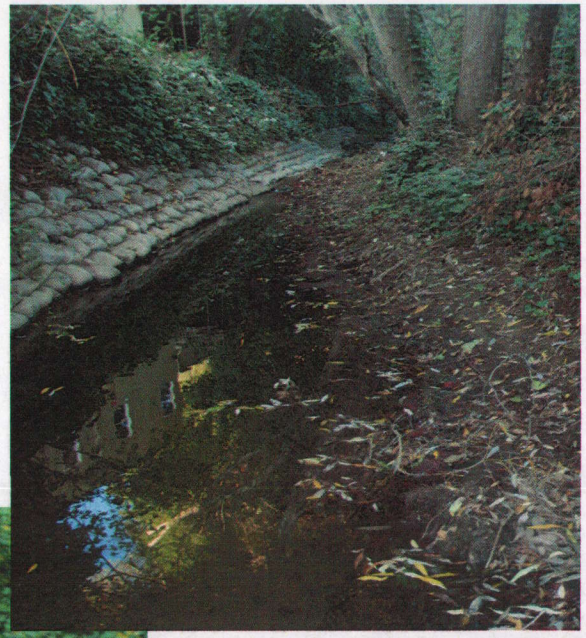
12/3/08 – Dimond Canyon Trail

Dimond Avenue to MacArthur Boulevard Reaches



Optimal sub-reach

Optimal sub-reach



Optimal sub-reach

Dimond Avenue to MacArthur Boulevard

Optimal sub-reach

Optimal sub-reach

Near MacArthur Boulevard

Sub-optimal accumulations at sub-reach catch point.

Sub-optimal and accumulations at sub-reach catch point.

Near MacArthur Boulevard

Optimal sub-reach

Sub-optimal at catch point.

Near the End of 27th Avenue

Optimal sub-reach

Optimal sub-reach

Near the End of 27th Avenue

Optimal sub-reach.

Sub optimal conditions and accumulations at catch point.

Near the End of 27th Avenue

Optimal sub-reach riffle tail-out (with eucalyptus pods).

Sub optimal conditions with accumulations and litter at sub reach riffle crest.

Near the End of 27th Avenue

Optimal sub-reach riffle

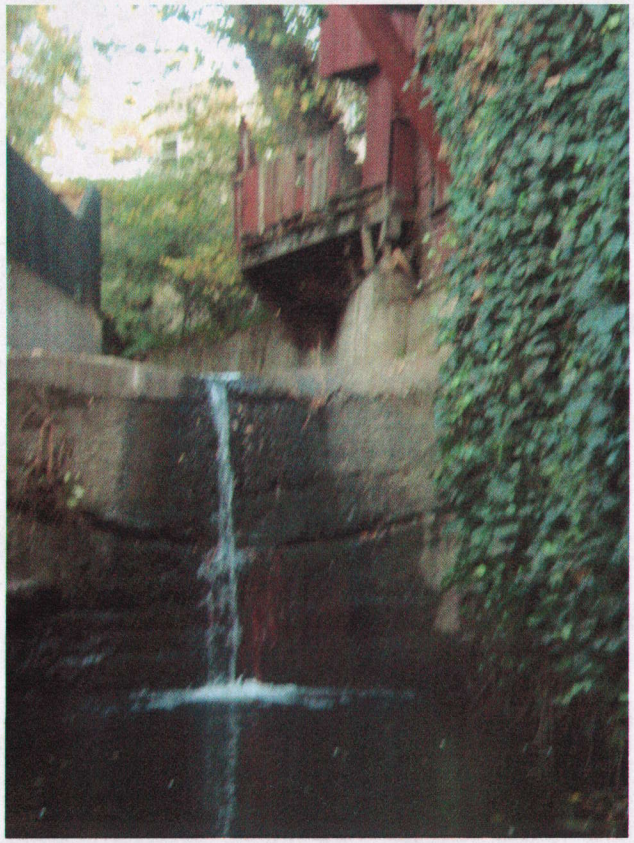
Sub optimal conditions with accumulations at collapsed gabbion.

Near the End of 27th Avenue

Optimal sub-reach riffle tail-out (eucalyptus pods).

Optimal sub-reach riffle.

Near the End of 27th Avenue



Optimal at sub-reach drop pool.

Near the End of 22nd Avenue

Sub optimal reach at pool.

Sub optimal reach at pool tail-out.

Near the End of 22nd Avenue

Sub optimal riffle.

Near Barry Place

Optimal conditions at catch point below crossing.

Optimal riffle crest.

Near Barry Place

Optimal conditions at riffle.

Optimal conditions at pool.

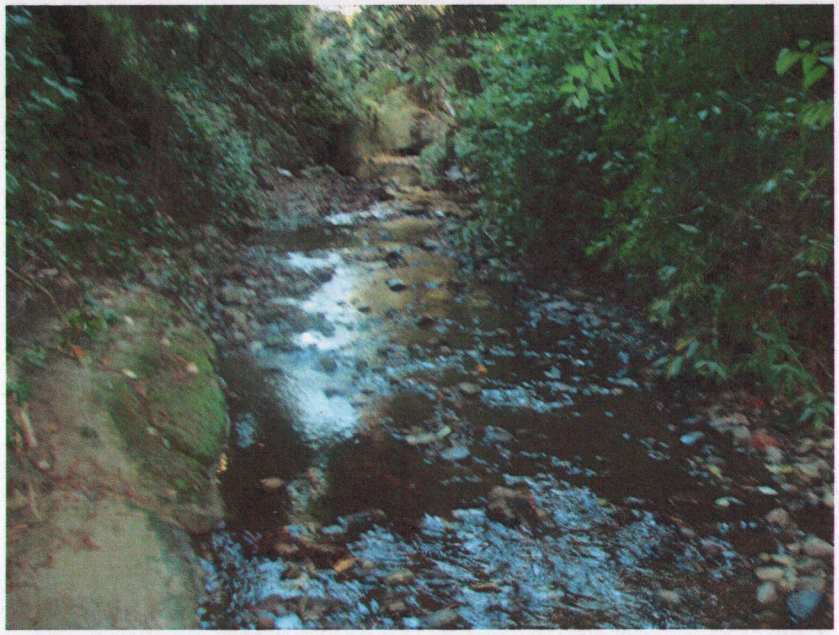
Near Barry Place

Sub optimal conditions at riffle.

Sub optimal conditions at pool tail-out.

Near the End of Davis Street

Optimal conditions at riffle.



Optimal conditions at riffle / run.

Near the End of Davis St.

Optimal conditions at riffle.

Optimal conditions at pool tailout.

Near the End of Davis St.

Optimal conditions at floodwall sub-reach.

Optimal conditions at floodwall sub-reach.

Near Galindo and Logan

Optimal conditions at floodwall sub-reach.

Near East 22nd Street

Optimal conditions at riffle.

Optimal conditions at riffle.

Near East 22nd Street

Optimal conditions at run sub-reach.

Optimal conditions run sub-reach.

Near East 22nd Street

Optimal conditions at run sub-reach.

Optimal conditions at crossing.

Near East 22nd Street

Optimal conditions at run sub-reach.

Near East 19th Street

Optimal floodwall reach.

Sub optimal floodwall reach.

Near East 19th Street

Optimal conditions at flood wall sub-reach.

Crossing adjacent to dumping site.

12/3/08 - Estuary - Mouth of Sausal Creek Culvert

12/3/08 - Estuary - Bank Near Mouth of Sausal Creek Culvert. Remnants of homeless encampments.

12/3/08 - Estuary - Bank Adjacent to Mouth of Sausal Creek Culvert. Construction Debris.

12/3/08 - Estuary - Bank Near Mouth of Sausal Creek Culvert. Remnants of homeless encampments.

ORINDA 22 orinda way • orinda • california • 94563

December 4, 2008

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

Subject: Comments regarding the proposed revisions to the Clean Water Act Section 303(d) List of Water Quality Limited Segments

Dear Ms. Baginska,

The City of Orinda appreciates the opportunity to provide written comments regarding the State of California's proposed revision of Clean Water Act Section 303(d) list of impaired water bodies. The City of Orinda has reviewed and entirely concurs with the written comments being submitted by the Contra Costa Clean Water Program (Program). The Program's comments are behalf of the Program's 21 municipal stormwater co-permitees[1].

The City of Orinda would like to take this opportunity emphasize its support of the general comment in the Program's letter regarding listing of entire creeks for a particular pollutant when in fact only a portion of the creek length is impacted by it. According to Listing Policy 6.1.5, "Before determining if water quality standards are exceeded, RWQCBs have wide discretion establishing how data and information are to be evaluated, *including the flexibility to establish water segmentation...*" In Listing Policy 6.1.5.4, "In the absence of a Basin Plan segmentation system, *the RWQCBs should define distinct reaches based on hydrology and relatively homogeneous land use*". The Listing Policy apparently recognizes the fact that for constituents like trash, an impact to one or several reaches of the stream does not necessarily constitute a problem in the entire stream and perhaps listings should be confined to only those reaches where there is a documented problem. By limiting trash listings to certain specific creek reaches, it would allow cities to concentrate their resources in areas that constitute the bulk of the problem, allowing for faster attainment of water quality standards.

The listing of San Pablo Creek for trash is difficult to evaluate (Line of Evidence #5661, Trash, Non-Contact Recreation) because the data reference ("Rapid Trash Assessment (RTA) data collected by the SF Bay Region Surface Water Ambient Water Monitoring Program from 2002-2005 and method description") was not included in the List of References and no link to it could be found on the SWAMP website. As such, neither City nor Program staff could determine where the sample locations were located. In addition, the temporal variation of the data may also not meet the Listing Policy criteria as indicated in the Program letter.

If upon rectification of these data issues, a trash TMDL is still proposed for San Pablo Creek, the City proposes that the limits of the trash TMDL for San Pablo Creek be limited to reaches

[1] Contra Costa County, City of Antioch, City of Brentwood, City of Clayton, City of Concord, Town of Danville, City of El Cerrito, City of Hercules, City of Lafayette, City of Martinez, Town of Moraga, City of Oakley, City of Orinda, City of Pinole, City of Pittsburg, City of Pleasant Hill, City of Richmond, City of San Pablo, City of San Ramon, City of Walnut Creek and Contra Costa Flood Control and Water Conservation District.

General Information (925) 253-4200 (ph) (925) 254-9158 (fax) | Administration (925) 253-4220 (ph) (925) 254-2068 (fax) | Planning (925) 253-4210 (ph) (925) 253-7719 (fax) | Parks & Recreation (925) 254-2445 (ph) (925) 253-7716 (fax) | Police (925) 254-6820 (ph) (925) 254-9158 (fax) | Public Works (925) 253-4231 (ph) (925) 253-7699 (fax)

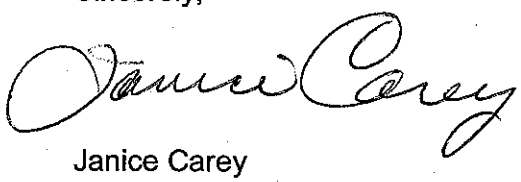
along where sampling indicates a trash problem. Or if the data were collected from reaches of San Pablo Creek downstream of the San Pablo Reservoir, the City proposes that at a minimum the listing of San Pablo Creek for trash be limited to downstream of San Pablo Reservoir.

According to East Bay Municipal Utility District (EBMUD) Environmental Impact Report (EIR) documents for San Pablo Dam Seismic Upgrades, San Pablo Reservoir serves four water supply functions: emergency standby storage, regulation of Mokelumne Aqueduct supply, conservation/storage of local runoff from Bear and San Pablo Creeks, and a source of raw water for the Sobrante and San Pablo Water Treatment Plants. Releases from San Pablo Reservoir vary due to hydrologic conditions. Water flows from San Pablo Reservoir currently reach San Pablo Creek via the spillway and the auxiliary discharge drain downstream of the dam. Further information regarding releases from the reservoir to San Pablo Creek could not be obtained in time for submittal of this comment letter but the City's understanding is that releases prior to 2004 were infrequent and occurred only to avoid flooding hazards. Based on the results of the 2004 San Pablo Dam study, EBMUD lowered the San Pablo Reservoir target operating level by 20 feet. Since that time, EBMUD has maintained the resulting target operating level at elevation 294 feet mean sea level to the extent feasible. EBMUD will maintain this lowered operating target until the seismic upgrades are complete and dam stability is improved. Reservoir releases during the construction period will vary dependent upon precipitation, runoff, and hydrology, and will be within the range of releases experienced in the past. Upon completion of the seismic upgrades, target operating levels will be returned to those that occurred prior to 2004.

In any case, San Pablo Reservoir serves to isolate the upper and lower reaches of San Pablo Creek such that trash in the lower reaches would be from a different source than trash in an upper reaches since the upstream trash would never make it past San Pablo Reservoir.

The City recognizes trash is a serious problem, however, it is one over which cities have only partial control. The vast majority of creeks in Orinda are located on private property. In addition, while Orinda does not have the problem of homeless encampments as other cities do, illegal dumping remains an issue. The City took action this fall against two commercial properties backing up to San Pablo Creek regarding inadequate best management practices at trash dumpsters. Illegal dumping continues to undermine efforts of the property owners and tenants to maintain clean trash enclosures. One property erected a gated trash enclosure and subsequently modified it to increase its height because illegal dumping continued to be problematic.

Sincerely,



Janice Carey
City Engineer

Department of Public Works

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December 4, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Dear Ms. Baginska:

Re: Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

The County of San Mateo Department of Public Works (County) in its capacity as the administrator of the San Mateo County Flood Control District (District) appreciates this opportunity to comment on the San Francisco Bay Regional Water Quality Control Board (Regional Board) staff's proposed impaired water quality listings under Section 303(d) of the Clean Water Act. The proposed listings were announced in a document dated October 30, 2008. Two creeks within specific sub-zones of the District are proposed for listing due to impairment by trash and are listed below:

1. Colma Creek (Colma Creek Flood Control Zone)

2. San Francisquito Creek (San Francisquito Creek Flood Control Zone, also partly located in Santa Clara County)

The District's comments on the proposed trash listings include general comments on the listing methodology and specific comments pertaining to Colma Creek and San Francisquito Creek. Our comments are provided below.

General Comments on the Methodology for Proposed Trash Listings
According to the Waterbody Fact Sheets, Appendix C of the Proposed 303(d) Revisions Notice, the proposed Colma Creek listing is based on virtual Rapid Trash Assessment (RTA) using photographs from three sites taken at various dates in 2002 to 2006 to interpret narrative water quality objectives for floating and settleable materials. The proposed San Francisquito Creek listing is based on trash assessment data collected from six sites (2004 to 2007) according to the Urban Rapid Trash Assessment (URTA) methodology developed by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP).

The virtual RTA involved Regional Board staff examining a limited number of photographs and assigning RTA scores for Parameter 1 (Level of Trash) and Parameter 3 (Threat to Aquatic Life) rather than conducting actual field assessments and studies. These virtual RTA scores determined by Regional Board office staff and derived from out-dated photographs (Colma Creek) and URTA field scores (San Francisquito Creek) were used to determine whether wildlife (WILD) and non-contact recreation (REC-2) beneficial uses were being impacted. A parameter 1 score of "poor" was assigned if the site "distracted the eye at first glance" and contained more

than 100 pieces of litter making the site unsuitable for recreation and therefore not supporting REC-2. A parameter 2 score of "poor condition" was given if the site had greater than 50 pieces of transportable, persistent, buoyant litter that is detrimental to aquatic life and therefore deeming WILD not supported at the site.

We agree that large amounts of trash likely impact aquatic organisms and are not ideal conditions for recreation. However, we are not confident that this methodology proves adverse impacts to these beneficial uses and is scientifically defensible. We agree with comments provided to you by the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) in a letter dated December 4, 2008 suggesting that this methodology should be evaluated and validated through a transparent scientific and public process before being used to list these water bodies for impairment. The process should include development of standards and assessments for data quality and quantity, as detailed in Sections 6.1.4 and 6.1.5 of the Water Quality Control Policy (2004), and evaluation of factors such as photograph resolution, scoring subjectivity, impairment thresholds, and site representativeness.

Comments on Colma Creek Listing
The proposed listing for Colma Creek includes eight exceedances for (WILD) and five exceedances for (REC-2) based on photographic samples. Photographs showing trash conditions at three locations along Colma Creek were submitted to Regional Board staff as potential evidence of trash impairment. The photographs were taken on six dates between December 2002 and April 2006 at the three locations listed below:

- Mitchell Avenue on 12/31/2002, 12/10/2003, 1/6/2005, 2/3/2006, 4/1/2006
- Utah Avenue crossing on 1/29/2002, 12/31/2002, 2/3/2006, 4/1/2006
- Pedestrian bridge on 12/31/2002

These photographs may not be representative of current conditions or conditions along the entire creek channel. Since 2006, a collaborative program (described below) has been implemented and has resulted in significant reductions in the amount of trash in and along Colma Creek. The proposed listing for the entire creek channel (approximately 5 miles) is based on a limited number of photographs from only three sites over a 3,000 feet reach of the creek (approximately 0.6 miles). The three sites listed above are all located in the tidally influenced, lower portion of the creek.

Comments on Current Conditions and the Programs in the Colma Creek Watershed
Trash conditions in Colma Creek have improved significantly since 2006 as a direct result of several programs implemented throughout the watershed.

Colma Creek Maintenance Monitoring Program
The Colma Creek Maintenance Monitoring Program, a proactive, collaborative program, began in 2006 and involves quarterly inspections, as well as unscheduled inspections following major storm events. These inspections or creek walks include visual assessments at eight strategic locations along the 5 mile stretch of Colma Creek and are conducted by District engineering staff, a County biologist, and environmental compliance staff from the City of South San Francisco (SSF). The purposes of the creek walks are to:

- Identify and document potential maintenance issues related to structural or hydrologic conditions,
- Identify and document potential maintenance issues related to trash and illegal dumping, and
- Perform follow-up maintenance or public outreach based on the findings.

Trash from illegal dumping has been observed along the Creek right-of-way behind apartment buildings and businesses such as motels, grocery stores, gas stations, and near pedestrian walkways. During the creek walks,

District staff note and photo-document areas of concern for trash and litter. Because many of the locations of concern are outside the District's jurisdiction, the District sends the photographs to staff from the SSF and the Town of Colma for enforcement and outreach following each inspection. The enforcement and outreach efforts have been effective in significantly reducing trash from many of the noted problem areas. Information from each inspection is also presented and discussed at quarterly Colma Creek Flood Control Zone Advisory Committee meetings attended by representatives from the District, the City of Daly City, the City of Pacifica, the Town of Colma, SSF, and the City of San Bruno.

Since late 2004, the District has also coordinated a trash cleanup program in Colma Creek in collaboration with the County Sheriff's Work Program. Trash is removed on a monthly basis, 10 months out of the year, at three primary sites in the tidally influenced lower watershed by non-violent offenders who choose to work for the program rather than serving prison time. Records of amount of trash picked-up at each cleanup event have been kept beginning in 2005. Since then, the program has removed approximately 250 cubic yards of trash and litter from the watershed.

On August 12, 2008, staff from the County, SSF, and EOA (consultant to SMCWPPP) conducted a routine creek walk inspection as part of the Colma Creek Maintenance Monitoring Program described above. Two of the locations for which photographs were submitted to the Regional Board (Mitchell Avenue and Utah Avenue) were visited. The two sites are approximately 1,000 feet apart and are located within a reach of Colma Creek that has been modified into an earthen channel with floodwalls on both sides. Trash conditions at the two locations along the creek were photo-documented during the creek walk and described below by EOA staff in a memo to SMCWPPP's Watershed Assessment and Monitoring (WAM) Subcommittee dated November 6, 2008:

> "Trash was observed at relatively low levels, primarily trapped within vegetation growing on the margins of the south side of the creek. The north bank was relatively clean, except for small pieces of Styrofoam at a few locations along the highest point of the bank adjacent to a floodwall. The channel bottom was not visible due to a high tide. The adjacent land uses are primarily industrial and commercial and it was noted that both Utah Avenue and Mitchell Avenue receive high vehicular traffic, including large trucks.
>
> Trash is removed at both of these sites on a monthly basis, except for June and July, by the County trash removal program described above. County and SSF staff indicated that there is a history of illegal dumping along the right-of-way adjacent to the creek (i.e. outside of the flood channel) and they are currently working with property owners to prevent access to areas behind their businesses from which the dumping occurs."

The sites listed above are monitored on a quarterly basis. Although there has been a history of illegal dumping along the right-of-way adjacent to the creek (i.e., outside of the flood control channel), there has been a noted reduction in this activity as a result of increased outreach and enforcement by SSF and the Town of Colma in collaboration with the District. For example, several property owners near Utah and Mitchell Avenues have installed barriers to prevent public vehicular access to areas behind their businesses from where the dumping was occurring.

The summary of the August 12, 2008 creek walk also noted that in general, small amounts of litter were observed trapped in vegetation in the earthen channel in the lower portions of the watershed. In the upper portions of the watershed, the channel bed and banks are armored with concrete. Trash is presumably flushed out of this reach during high flow events. However, very little trash was observed within the concrete channel during the summer months when flow is typically low.

Comments on Current Conditions and the Programs in the San Francisquito Creek Watershed
The San Francisquito Creek Joint Powers Authority (SFCJPA) coordinates the "Annual Maintenance and Winter-Preparedness Walk on San Francisquito Creek" with the District, the Santa Clara Valley Water District, the City of Palo Alto, the City of Menlo Park, and the City of East Palo Alto, which began in 1999 and occurs yearly in September. The walks cover the entire reach of San Francisquito Creek between Sand Hill Road in Menlo Park and US 101. As a result of these walks, debris, downed tree limbs and branches are assessed for public safety concerns each year by maintenance staff from the responsible agencies along the creek. In 2005, elimination of trash was added as an objective of the annual walk. Crews clean up dumping sites, and report areas of high incidence of trash to organizers of the annual creek clean-up on Coastal Cleanup Day, which follows the maintenance walk. Volunteers then target those areas of high trash incidence. Homeless encampments are noted and dealt with by the proper authorities and property owner outreach by the appropriate jurisdiction when appropriate.

Comments on Other Programs in San Mateo County
San Mateo Countywide Water Pollution Prevention Program
In response to all Bay Area urban creeks, lakes and shorelines being placed on the State Water Resources Control Board 2002 "Monitoring List" due to the potential for trash impairment, SMCWPPP initiated a multifaceted program to begin identifying and cleaning up trash in urban waterways in San Mateo County. The program includes trash collection and cleanup, enforcement of municipal ordinances that prohibit littering, dumping, and discharge of trash, and incentive, education, and pollution prevention programs. The future direction of this program includes implementation of the pending Municipal Regional Permit conditions, increased trash monitoring and assessment, and development of a more comprehensive public policy to address trash and litter. SMCWPP is currently developing a trash-related project proposal for the Proposition 84 Storm Water Grant Program, including installation of catch basin inserts throughout the County and pilot work in the Colma Creek watershed potentially including targeted outreach and an improved trash control structure at a major Colma Creek storm water pump station.

Municipal Regional Permit
In addition to the programs described above, the County and SMCWPP will soon be implementing new trash related provisions of the Municipal Regional Permit (MRP), which is scheduled for adoption in Spring 2009. Draft trash related provisions, such as increased street sweeping, catch basin cleanout, public outreach, installation of full capture treatment devices in urban areas, and trash management plans will also help to reduce trash levels and address and control sources of trash in the Colma Creek and San Francisquito Creek watersheds.

Recommendations
We acknowledge that trash is an issue of concern in the Colma Creek and San Francisquito Creek watersheds and are committed to continued improvement. However, we do not support the proposed listings and suggest that:

1. The Regional Board further evaluate and validate the methodology for the trash listing,

2. Collect and review more recent data for Colma Creek that reflects current conditions, and

3. Acknowledge the collaborative, proactive programs that are currently in place and allow sufficient time for these programs, the upcoming MRP requirements, and planned projects to be implemented and assessed for effectiveness before undertaking costly source analysis studies and regulatory mandates as part of the TMDL process, which ultimately may not be necessary.

As described above, photographs from 2002 to 2006 showing trash conditions at three locations along Colma Creek are the basis for the proposed listing. However, efforts by the District, SSF, and Town of Colma over the past several years to monitor and improve trash conditions in Colma Creek have led to much progress. The 303(d) listing photographs were taken at locations that have been and continue to be addressed by the program. Listing and subsequent implementation of a trash TMDL may not be necessary due to the current programs described above and the upcoming MRP and would be very costly at a time when many of the local municipalities and government agencies are facing difficult financial times. Photographs taken during the various creek walks in Colma Creek and San Francisquito Creek can be made available to Regional Board staff if requested.

We appreciate your consideration of our comments and look forward to discussing these issues further at the January 14, 2008 public hearing. Please contact Julie Casagrande at (650) 599-1457, Mark Chow at (650) 599-1489, or Ann Stillman at (650) 599-1417 if you have any questions or need additional information.

Very truly yours,

James C. Porter
Director of Public Works

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F-149 (9H)

Enclosure: Memo from EOA, Inc. to SMCWPPP's Watershed Assessment and Monitoring (WAM) Subcommittee dated November 6, 2008

cc: Mr. Matthew Fabry, P.E., Program Coordinator, San Mateo Countywide Water Pollution Prevention Program
Ms. Sue Ma, Water Resources Control Engineer, San Francisco Bay Regional Water Quality Control Board
Mr. Daniel Fulford, Environmental Compliance Inspector, City of South San Francisco Water Quality Control Plant
Mr. Terry White, Director of Public Works, City of South San Francisco
Mr. Brad Donohue, Deputy Public Works Director, Town of Colma
Mr. Patrick Sweetland, Acting Director of Public Works, City of Daly City
Mr. Len Materman, Executive Director, San Francisquito Creek Joint Powers Authority
Members, Colma Creek Advisory Committee
Mr. Gonzalo Torres, Mayor, City of Daly City
Ms. Helen Fisicaro, Mayor, Town of Colma
Mr. Barry Nagel, City Manager, City of South San Francisco
Mr. Jim Vreeland, Mayor, City of Pacifica
Mr. Michael Kaiser, Appointee, City of San Bruno
Ms. Gail DeFries, Member at Large
Mr. Richard Battaglia, Member at Large
Mr. Richard Bordi, Member at Large

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

To: SMCWPPP's Watershed Assessment and Monitoring (WAM) Subcommittee

From: Paul Randall and Jon Konnan, EOA, Inc.

Date: November 6, 2008

Subject: Colma Creek Trash Walk and Proposed 303(d) Listing

Introduction

Trash and litter accumulate in San Francisco Bay Area waterways, including creeks, wetlands, beaches, and the Bay itself, threatening aquatic habitat and recreational "Beneficial Uses" designated by the State of California. For example, wildlife may be harmed by becoming entangled in or ingesting trash, and discarded medical waste, broken glass, and animal and human wastes are human health concerns. At the recommendation of the San Francisco Bay Regional Water Quality Control Board (Region Water Board), all Bay Area urban creeks, lakes and shorelines were placed on the State Water Resources Control Board 2002 "Monitoring List" due to the potential for trash to impair water quality. In response, the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) initiated a multifaceted program to begin identifying and cleaning up trash in urban waterways in San Mateo County (SMCWPPP 2008).

Regional Water Board staff recently released a document (dated October 30, 2008) that proposes placing a number of Bay Area creeks on the Clean Water Act Section 303(d) list for impairment by trash. The creeks in San Mateo County proposed for the trash impairment listing were Colma Creek, San Mateo Creek, and San Francisquito Creek (the latter creek is partly located in Santa Clara County). Comments on the proposed trash listings are due December 4, 2008 and the Regional Water Board plans to hold a public hearing on January 14, 2009 to consider approval of each proposed listing. This memorandum discussed a recent creek walk conducted in Colma Creek in relation to the proposed listing of this creek for trash impairment.

Summary of the Colma Creek Walk

On August 12, 2008, EOA staff (Paul Randall) walked a section of Colma Creek with San Mateo County Department of Public Works staff (Mark Chow) and City of South San Francisco (SSF) staff (Frank Mandola). The creek walk is conducted four times a year to meet requirements of the Colma Creek Flood Control Habitat Mitigation Project.[1] During the creek walks, County Public Works and SSF staff photo-document trash conditions and monitor the integrity of channel structures (e.g., bridges, channel revetments) between the Utah Avenue creek crossing and the upstream end of the

[1]Construction between Spruce and San Mateo Avenues on Colma Creek resulted in the filling of half an acre of salt marsh wetlands within the original earthen channel of Colma Creek. Federal and State permits for the construction require that the San Mateo County Flood Control District mitigate for these lost wetlands. Therefore the District is constructing 1.5 acres of salt marsh wetlands and 2.0 acres of "native" upland habitat. This project, known as the Colma Creek Flood Control Habitat Mitigation Project, is located along the mouth of Colma Creek where it enters San Francisco Bay, below Utah Avenue. When complete, this habitat is expected to be used by the endangered California Clapper Rail, which has been observed in the area.

San Mateo County Flood Control District's jurisdiction in the City of Colma. The creek walk includes visual assessments at eight locations along the reach. The purposes of the creek walks include:

- Identifying and documenting potential maintenance issues related to structural or hydrologic conditions.
- Identifying/documenting potential maintenance issues related to trash and illegal dumping.
- Performing follow-up maintenance based on findings.

Since 2004 the County Public Works department has coordinated a trash cleanup program in Colma Creek that is conducted by the County Sheriff's Offenders Program. Trash is removed on a monthly basis (during 10 months out of the year), primarily along the north side of the creek between the Utah Avenue crossing and Highway 101. The amount of trash removed is documented and reported. Creek walks and trash cleanups are not conducted during the months of June and July in compliance with permit requirements that prohibit disturbing wildlife using saltwater marsh habitat during those months. The most recent trash cleanup occurred on August 10, just before the August 12 creek walk described in this memorandum.

Photographs showing trash conditions at three locations along Colma Creek were previously submitted to Regional Water Board staff as potential evidence of water quality impairment by trash and are the basis for the proposed listing. The photographs were taken on six dates between December 2002 and April 2006:

- Mitchell Ave. on 12/31/2002, 12/10/03, 1/6/2005, 2/3/2006, 4/1/2006
- Utah Avenue crossing on 1/29/2002, 12/31/2002, 2/3/2006, 4/1/2006
- Pedestrian bridge on 12/31/2002

The first two of these locations were visited during the August 12 creek walk (the third location, the pedestrian bridge, crosses a side channel between Colma Creek and San Francisco Bay, and was not visited during the creek walk). The two sites visited are approximately 1,000 feet apart and located within a reach of Colma Creek that has been modified into an earthen channel. It was noted that both sites are tidally influenced and potentially receive trash deposited from the Bay (Mark Chow indicated that tidal influence extends as far upstream as Spruce Ave). Trash conditions at the two locations along the creek were photo-documented during the creek walk and are described below:

- Trash was observed at relatively low levels, primarily trapped within vegetation growing on the margins of the south side of the creek. The north bank was relatively clean, except for small pieces of Styrofoam at a few locations along the highest point of the bank adjacent to a flood wall. The channel bottom was not visible due to a high tide. The adjacent land uses are primarily industrial and commercial and it was noted that both Utah Avenue and Mitchell Avenue receive high vehicular traffic, including large trucks.

- Trash is removed at both sites on a monthly basis, except for June and July, by the County trash removal program described above. County and SSF staff indicated that there is a history of illegal dumping along the right-of-way adjacent to the creek (i.e., outside of the flood channel) and they are currently working with property owners to prevent access to areas behind their businesses from which the dumping occurs.

In general, trash was not observed in the Colma Creek channel or along banks during the creek walk, with the exception of small amounts trapped in vegetation in the earthen channel downstream of Highway 101. High tide conditions prevented visual observation of the channel bed downstream of Spruce Ave. Upstream of Spruce Ave., the channel bed and banks were armored with concrete. Trash is presumably flushed out of this reach during high flow events. Very little trash was observed within the concrete channel.

Trash from illegal dumping was observed at various locations along the creek right-of-way, including:

- Behind motels located downstream and upstream of South Airport Blvd.
- At the Caltrain crossing behind the Champion Gas Station downstream of Linden Ave.
- Adjacent to the Trader Joe's parking lot at McClellan Dr.
- The pedestrian bridge near the Costco parking lot.

SSF staff indicated that the motel owners have been contacted and dumping of construction materials has been significantly reduced. Homeless encampments have been observed at the Champion Gas Station site and the gas station owners may not be aware of the trash at the site. SSF staff indicated they plan to contact the station owners and arrange for cleanup of the site.

Illegal dumping was historically documented at an apartment complex downstream of the pedestrian bridge near the Costco parking lot. Large trash items were removed by the County Department of Public Works about a year ago. SSF staff indicated that public outreach efforts (i.e., door hangers at the apartment building) have been effective in significantly reducing trash from the site (especially large items). Some trash, including a motor oil container, was evident near the dumpster located at bridge during creek walk.

Recommendation

Based on the information presented in this memorandum, the municipalities that discharge stormwater runoff to Colma Creek may wish to consider challenging the proposed 303(d) listing of Colma Creek for trash impairment. As described above, photographs showing trash conditions at three locations along Colma Creek were previously submitted to Regional Water Board staff as potential evidence of water quality impairment by trash and are the basis for the proposed listing. However, the County's and SSF's efforts over the past several years to monitor and improve trash conditions in Colma Creek have led to much progress. The 303(d) listing photographs were in reaches that have been and continue to be addressed by a mitigation program and the photographs were taken mostly before this program began. Trash levels were relatively low at the two 303(d) listing photograph locations that were visited during the August 12 creek walk. Comments on the proposed trash listings are due December 4, 2008 and the Regional Water Board plans to hold a public hearing on January 14, 2009 to consider approval of each proposed listing.

Reference

SMCWPPP 2008. *Tackling Trash in San Mateo County's Urban Waterways*. Fact sheet prepared by the San Mateo Countywide Water Pollution Prevention Program. August 2008 draft.

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December 4, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Ms. Baginska:

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) appreciates this opportunity to comment on the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) staff's proposed impaired water quality listings under Section 303(d) of the Clean Water Act. The proposed listings were announced in a document dated October 30, 2008. Three creeks in San Mateo County are proposed for listing due to impairment by trash and/or sediment toxicity:

1. Colma Creek - trash.
2. San Mateo Creek - trash and sediment toxicity.
3. San Francisquito Creek (partly located in Santa Clara County) - trash.

In addition, the shoreline of San Francisco Bay Lower is proposed for listing because of trash impairment.

Comments on the proposed listings are due December 4, 2008 and the Regional Water Board plans to hold a public hearing on January 14, 2009 to consider approval of each proposed listing. Our comments present important issues that we feel must be addressed before any proposed revisions to the 303(d) list are adopted by the Regional Water Board. They are organized into the following four sections:

1. General Comment;
2. General Comments on the Proposed Trash Listings in Creeks;[1] and
3. Comment on the Proposed Trash Listing in San Francisco Bay Lower (Shoreline);
4. Comment on the Proposed Sediment Toxicity Listing.

General Comment

Proposed 303(d) listings should be limited to portions of creeks where evidence of impairment exists rather than listing entire creeks. In both San Mateo Creek (proposed trash and sediment

[1]Trash conditions have improved significantly in Colma Creek due to a trash mitigation program initiated after most of the listing basis evidence was collected. We understand that the municipalities that discharge to Colma Creek plan to submit more up-to-date data to Regional Water Board staff that better represent current conditions, with the goal of preventing an impairment listing based on out-of-date evidence.

toxicity listing) and Colma Creek (proposed trash listing), the sites where the data used to support the proposed listings were collected are located near the downstream ends of these creeks. These data should not be extrapolated to upstream reaches of these creeks because pollutant levels may be site-specific. For example, trash and litter levels in creeks vary greatly depending on the locations of homeless encampments, road over-crossings, and nearby land uses. Further comments about using trash assessment protocols to list an entire creek for trash impairment are provided below.

General Comments on the Proposed Trash Listings in Creeks

Data developed by applying the Rapid Trash Assessment (RTA)[2] and Urban RTA (URTA)[3] methodologies at sites within creeks are the primary type of evidence used as a basis for the proposed trash listings. In some cases a "virtual" RTA was performed by examining photographs of a site rather than performing the assessment in the field.

These methodologies are being used to interpret narrative water quality objectives for floating and settleable materials. The Regional Water Board evaluated the results of these trash assessment methodologies to determine whether Beneficial Uses for non-contact water recreation and wildlife were being adversely affected by trash. Unfortunately, there are no scientific underpinnings for using the trash assessment methodologies to show detrimental impacts to these Beneficial Uses. The Regional Water Board staff needs to have a scientific basis for using the RTA/URTA methods to determine trash impairment and the associated thresholds that are proposed to define impairment. This would include determining whether these methodologies are scientifically defensible and reproducible for establishing impairment via Section 3.11 (Situation-Specific Weight of Evidence Factor) of California's policy for developing the 303(d) list (SWRCB 2004). The results of this type of technical evaluation should be validated through a transparent and public process before using these methodologies to propose listing water bodies for trash impairment. Major issues to evaluate through this method's development process would include the following:

- Data used in the impairment evaluation need to satisfy requirements described under Section 6.1.4 (Data Quality) and Section 6.1.5 (Data Quantity) of California's policy for developing the 303(d) list (SWRCB 2004). Standards for data quality and quantity should be developed. One data quality issue will be to evaluate the resolution required for photographic evidence to adequately represent field conditions and allow for a meaningful application of the RTA/URTA.

- The subjectivity in the RTA/URTA qualitative level of trash score (Parameter 1) should be evaluated. Interpretation of "high," "medium," and "low" levels of trash is subjective and varies among different field staff conducting the assessments.

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[2]In 2001, Regional Water Board staff developed the RTA protocol as a tool to monitor the amount and types of trash in creeks and inform efforts to identify sources and controls.

[3]During FY 2005/06, the Santa Clara Valley Urban Runoff Pollution Prevention Program revised the Regional Water Board's RTA protocol to increase its utility in evaluating trash conditions at highly impacted sites in urban watersheds. The revisions were intended to enhance the ability of municipal staff to use this tool to identify, prioritize and evaluate trash management activities in urban creeks. The revised protocol is referred to as the Urban Rapid Trash Assessment (URTA).

- The basis of establishing the impairment thresholds needs better support and definition. The number of total "transportable and persistent" trash items (Parameter 3) used to define impairment is arbitrarily set at ≥50 for the RTA and ≥76 for the URTA. These thresholds are inconsistent. Furthermore, it is essential that a scientifically defensible basis be provided for relating the total number of trash items to adversely affecting aquatic life Beneficial Uses.

- An evaluation should be performed of giving lower weight to or omitting RTA/URTA data collected above the creek high water line. The RTA and URTA methodologies identify and give equal weight to trash items found above and below the high water line. While the aesthetic value of recreational activities such as picnicking or hiking near water may be affected by the amount of trash and litter on the ground, the real issue that the Regional Water Board needs to consider is whether the aesthetic quality of trash and litter in the water is adversely affecting non-contact water recreation as a Beneficial Use and whether the types and quantities of trash present adversely affect aquatic life. Trash found on creek banks may not come into contact with the water and has much less potential to impact non-contact water recreation and aquatic life Beneficial Uses.

- Data used to assess impairment should meet conditions stated in Section 6.1.5.2 (Spatial Representation) of California's policy for developing the 303(d) list (SWRCB 2004), which states: "…samples should represent statistically or in a consistent targeted manner the segment of the water body." RTA/URTA protocols document trash conditions at a defined 100-foot section of creek. The protocols have not been evaluated to determine the appropriate number of sites and locations needed to assess trash impairment for an entire creek. Site selection is extremely important due to the high variability of trash conditions associated with factors such as different land uses and levels of public access. If the objective is to evaluate trash conditions for an entire creek, at a minimum several sites representing a range of trash impacts would need to be assessed.

Comment on the Proposed Trash Listing in San Francisco Bay Lower (Shoreline)

The proposed trash impairment listings include "San Francisco Bay Lower (shoreline)," based on photographic evidence from only two locations. It is unclear what geographic area is proposed for listing under shoreline and how this area compares to the wetland areas with defined Beneficial Uses described in Table 2-10 and Figure 2-11 of the Basin Plan (SFBRWQCB 1995). The geographic definition and areal extent of "San Francisco Bay Lower (shoreline)" should be clarified along with the basis for proposing to list this potentially large shoreline area using the very limited available photographic evidence. It should also be noted that establishing the origin of trash transported by the Bay to shoreline areas would be difficult if the listing is approved and a TMDL is performed in response.

Comment on the Proposed Sediment Toxicity Listing

The proposed basis for listing is sediment bioassay tests that found toxicity to amphipods. The sediment samples were collected from two locations near the mouth of San Mateo Creek. The project report documenting the results for most of these samples (Lowe and Phillips 2007) indicates that one of these sites is tidally influenced and the other site (Gateway Park), which is farther upstream, is not. However, based on SMCWPPP staff's field observations and

discussions with City of San Mateo staff, both of these sites are tidally influenced. Thus it is not known whether the sediments that were associated with the toxicity originated from the creek watershed or from San Francisco Bay. Since Bay sediments have been associated with toxicity, the origin of the San Mateo Creek sediment toxicity is also uncertain. Further study should be conducted to determine whether the toxicity originates from the creek's watershed or the Bay before deciding whether there is any value to listing the mouth of this creek for sediment toxicity.

We look forward to continuing to work with you during the development of the 2008 303(d) list. Please call me if you have any questions or comments.

Sincerely,

Matthew Fabry
SMCWPPP Coordinator

cc: Sue Ma, Regional Water Board staff

References:

Lowe S., B. Anderson, and B. Phillips 2007. *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. January 2007.

SFBRWQCB 1995. *Water Quality Control Plan, San Francisco Bay Basin (Region 2).* San Francisco Bay Regional Water Quality Control Board. June 21, 1995.

SWRCB 2004. *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List.* State Water Resources Control Board. September 30, 2004.

County of Santa Clara
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December 4, 2008 **Sent by Fax and U.S. Mail**

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Fax: (510) 622-2460

Subject: Comments on Draft Staff Report on *Evaluation of Water Quality Conditions for the San Francisco Bay Region; Proposed Revisions to Section 303(d) List,* October 2008

Dear Ms. Baginska:

The County of Santa Clara offers the following comments on the above referenced document, in addition to those offered by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), of which the County is a member/Co-permittee.

The County is particularly concerned about the inclusion of the entire for Coyote Creek, Silver Creek, San Tomas Creek, Saratoga Creek, Stevens Creek, Matadero Creek, San Francisquito Creek, Permanente Creek and Guadalupe River as impaired waters for trash, when the data clearly shows that limited portions of the waterways were sampled for trash, and those waters that were sampled were selected because of the visible trash. Significant portions of these waterways were not sampled, which leads the County to question whether the weight of the available evidence indeed supports listing the entire waterway. If anything, the listing should pertain to the particular water segment consistent with the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List Section 6.1.5.

If approved, classification of these waters as impaired could increase the competition for scarce public dollars as the County would be forced to consider diverting funds from various activities including healthcare, transportation, medical and correctional facilities, housing and recreation, to provide data and prove the negative and rather common sense proposition: only limited segments of these water bodies are adversely affected (primarily urbanized areas) and mechanisms are already in place to avoid/remove trash from the affected areas.

In addition, the County is concerned by the lack of concrete data showing how trash harms wildlife. While nobody likes to see trash in waterways, data indicating how trash, and especially particular kinds of trash, harms wildlife is sparse. Providing additional scientific data on this issue would allow parties to focus their limited public resources on the high-priority issues and

better analyze the problem. For example, an isolated candy wrapper may have a much less deleterious effect on a water body than, for example, the ubiquitous plastic grocery store bag. The sources and impacts of these two items are also very different, and efforts to control or address them will vary greatly.

The County has multiple departmental interests in the preservation of wildlife, enhancement of the County's natural resources, and enriching the recreational experience by offering pristine waterways. This multi-departmental interest is reflected in the different approaches taken to initiate clean up efforts:

Department of Roads and Airports

- Active in clearing trash from its roadways and storm drainage facilities
- Every day except Sunday inmate labor is utilized to clear county roadways of trash from each of the maintenance yards (west, east, and south)
- Sweepers are deployed on both a regular schedule and an as-needed basis
    - Over the last five years averaging annually nearly 12,000 miles of service and collected over 3000 cubic yards of debris
- Currently exploring options to increase sweeping frequency
    - Depending on funds available
- Two hydrodynamic trash separators are in place and maintained on Central Expressway
    - Reported in the NPDES Annual Report

Department of Parks and Recreation

- Provides educational programs and activities to teach families and children about the importance of watersheds and clean water. Specifically the Parks Department has provided creek environmental education programs targeting young children for the past 8 to 13 years, such as:
    - The Healthy Creek Program
        - Parks Staff takes a class of children to visit a creek habitat in a park
            - Health of the creek is determined using macro invertebrate collection and chemical testing
            - A variety of activities, props and the portable creek signs are used to: explore and discuss why a healthy habitat is important for wildlife, how students can help by picking up their trash and recycling, how we all live

close to creeks and how via our storm drains our actions and habits at home can have effects on the creek

- Jr. Ranger Program
    - The Jr. Ranger level 1 program- kids identify ways that humans influence wildlife habitats and natural resources
        - Focus is to integrate concepts and activities that teach kids how to protect creek habitats in a variety of ways, including all of the above for use with school groups
    - The Jr. Ranger level 2 program- focus is on **Healthy watersheds = Healthy us!**
        - Weekly meeting from October through June to work on park restoration and conservation projects that benefit the watershed and wildlife
        - Led by Parks staff, participants have conducted stream surveys, planted trees in creek restoration areas, removed invasive species from the creeks, built bat boxes to increase the bat habitat surrounding the creeks, participated in the annual River Clean Up events and removed trash from the Coyote Lake reservoir area
- Fishing in the City
    - Partnership with the California Dept. of Fish and Game, the Parks Department has for the past 13 years facilitated and sponsored this event which includes a ten- minute clinic station focusing on watershed education with a watershed diorama covering storm drainage, urban run-off, agriculture and man-made pollution
        - This past year, the program served approx. 1,200 children between the ages of 5 and 15
- The Watershed Project
    - Partnership with The Watershed Project to hold Kids in Creeks teacher trainings at Hellyer County Park
        - Teachers and Rangers are given a binder of background information and creek curriculum to use creek education in their classrooms and parks
- Access2nature Webpage and Creekside Habitat signage

- The website seeks to educate families, teachers and students about the creek environment using interactive, on-line activities and activity sheets that can be used outdoors
    - Future additions to the website will include videos of nature habitat walks and creek exploration walks so that families and classes can confidently explore creek habitats on their own
- Staff designed and created a series of 5 informative panels for our various multi-use creek trails
    - Signs highlight the resources and value of a creek environment and educate trail users about how to live in harmony with the creek, thereby protecting the habitat

- Coordinates, with a number of partner agencies, on clean-up events such as the annual National River Cleanup Day and the California Coastal Cleanup Day
    - Over the last three years, 1,800 to 3,700 volunteers have removed over 200,000 pounds of trash and 66,000 pounds of recyclables from our creek banks and shorelines
    - Performance over the last three years is shown in the chart below:

National River Cleanup Day	2006	2007	2008
# Participants	669	553	669
Pounds trash collected	11,181	29,603	17,500
Weight of recyclables	835	9,891	11,543

CA Coastal Cleanup Day	2006	2007	2008
# Participants	1,078	862	1,813
Pounds trash collected	22,464	31,692	95,656
Weight of recyclables	5,503	11,977	26,327

- Clean-up Efforts
    - The Department has a very active Volunteer Program, which facilitates creek clean-up, watershed education and trail maintenance programs
    - Working with the San Jose Conservation Corps and our own volunteers, the Department has coordinated major creek clean-up activities, including garbage removal from parklands and streams, to enhance the natural experience and promote cleaner waterways

Department of Agriculture and Environmental Management

- Participates in many litter/trash related activities throughout the County each year
- Staff has limited participation in the SCVURPPP Trash Ad Hoc Group but participates more in the Silicon Valley Litter Campaign
    - Serving on the Litter Control and Removal Subcommittee
    - The Subcommittees work jointly to produce the Great American Litter Pick Up held each spring
- Graffiti and Litter Abatement (GALA) Program
    - Youth who are on probation go throughout the unincorporated pockets of the County each weekend painting over graffiti and picking up litter along the roadways
    - Last fiscal year, these crews picked up 1829 bags of litter that equaled nearly one ton of garbage that otherwise could have made its way into creeks and waterways
- Holds annual neighborhood clean ups in the unincorporated areas of the County each year
    - Clean ups help to achieve the AB 939 goals of diverting a minimum of 50% of all waste from the landfills
        - Sponsored by the County Supervisors and organized through joint efforts by the garbage haulers and IWMD through franchise agreements
            - 30 yard debris boxes are dropped in neighborhoods on specific days, enabling residents to throw away trash that would have accumulated in their homes, been taken to the landfill or possibly been dumped illegally
            - The haulers take all of these materials back to the transfer stations and sort it so that the majority of it is recycled and diverted from the landfill
            - In fiscal year 2007, six collection events were held and 232 tons was collected from approximately 3,530 households

The County of Santa Clara shares the Regional Board's goal of having clean, safe waterways for all living things. As demonstrated above, the County has committed millions of dollars to date to keep trash out of the environment. The County will use its voice in SCVURPPP to encourage Co-permittees to dedicate resources and efforts at "hot spot" areas identified in the draft staff

report to assess over time, in light of current trash removal efforts, whether the conditions are indeed chronic, warranting listing as an impaired system. The County will continue these efforts, but respectfully requests that the Board refine its approach in making these 303(d) listings so that legal requirements are met, and good public policy and action will follow.

Sincerely,

Mrs. Jody Hall Esser
Director of Planning and Development

Cc: John Mueller, San Francisco Bay Regional Water Quality Control Board Member
Terry F. Young, San Francisco Bay Regional Water Quality Control Board Member
Shalom Eliahu, San Francisco Bay Regional Water Quality Control Board Member
James McGrath, San Francisco Bay Regional Water Quality Control Board Member
Steven M. Moore, San Francisco Bay Regional Water Quality Control Board Member
William E. Peacock, San Francisco Bay Regional Water Quality Control Board Member
Rameshwar Singh, San Francisco Bay Regional Water Quality Control Board Member
Bruce Wolfe, San Francisco Bay Regional Water Quality Control Board Executive Officer
Tom Mumley, San Francisco Bay Regional Water Quality Control Board Assistant Executive Officer
Blanca Alvarado, Chair Pro Tem, County of Santa Clara Board of Supervisors
Dave Cortese, County of Santa Clara Board of Supervisors (Supervisor-Elect)
Donald F. Gage, County of Santa Clara Board of Supervisors
Liz Kniss, County of Santa Clara Board of Supervisors
KenYeager, County of Santa Clara Board of Supervisors
Gary Graves, Acting County Executive
Sylvia Gallegos, Deputy County Executive
SCVURPPP Management Committee
SCVURPPP Program Management

Santa Clara Valley Water District

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AN EQUAL OPPORTUNITY EMPLOYER

December 4, 2008

Ms. Barbara Baginska
San Francisco Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Ms. Baginska:

This provides Santa Clara Valley Water District (District) staff comments regarding the 2008 Revision of the Clean Water Act Section 303 (d) List of Water Quality Limited Segments. The District is the primary water resources agency for Santa Clara County, California.

We appreciate the opportunity to comment on the proposed 2008 revisions to the 303(d) list for the State of California. In general, we agree with staff recommendations regarding mercury, and for trash impacts in certain reaches of Coyote Creek and Guadalupe River. We disagree on the remaining proposed listings based on insufficient information and/or other mechanisms available to the Water Board in addressing the issues. The following presents our specific comments.

Omission of SCVURPPP Monitoring Data

As the largest financial contributor of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), we are pleased with the results of SCVURPPP's monitoring efforts to date. We feel that the Water Board should further examine this monitoring information. Upon more thorough analysis of SCVURPPP's monitoring activities by Water Board staff, including those submitted to Ms. Sue Ma with this year's Annual Report of Pollution Prevention Activities, we believe many concerns of the Water Board are already being addressed by SCVURPPP's monitoring activities.

The District believes the SCVURPPP monitoring activities have been well received by Water Board staff since we have not received any significant comments or criticism on SCVURPPP's monitoring approach or results. We request that Water Board staff provide annual direction and comments as the primary mechanism to adjust the SCVURPPP monitoring program for more focused study. The NPDES program is more efficient in identifying and characterizing pollutants of concern rather than utilizing the 303(d) listing process for pollutant characterization. The goal of SCVURPPP is to provide a mechanism for all the co-permitees to provide the information the Water Board seeks in a fiscally responsible adaptive management approach. This approach has been embraced by the Water Board.

Trash

In addition, and independent of SCVURPPP, the District has applied significant resources, both financially and through our own labor force, to conduct a robust number of trash assessments within Santa Clara County, and to conduct monitoring for various other potential pollutants. These data were provided to the Water Board but may not have been fully evaluated by Water Board staff as part of this 303(d) listing process.

We agree that, according to available data, the urban sections of the Guadalupe River and Coyote Creek, and to some degree upstream and downstream for varying distances, are impacted by trash. Accordingly, we feel an approach focusing on the more impacted sections of the two rivers through downtown San Jose and vicinity would be most cost effective. The District maintains a significant level of effort in dealing with the trash challenge. As previously stated we conducted numerous Rapid Trash Assessments, and have a District/City of San Jose Trash Memorandum of Agreement, that describes how the two agencies work together to clean up significant trash issues. In addition, the District allocates significant resources through our Good Neighbor program to clean up trash and homeless encampments that impact the streams in the downtown area.

We would like to point out that not all portions of the Coyote Creek and Guadalupe River watersheds are impacted to the level of impairment. In the upper portions of the Guadalupe Watershed, several Urban Rapid Trash Assessments have been completed. They indicate limited impact due to trash, well below the threshold the Water Board has used as impairment justification. We feel that the scope of the trash listings likely exceeds the impacted areas of the watershed.

We believe it is in the best interest of all parties that the listing for trash in other creeks in Santa Clara County be postponed. San Tomas, Silver Creek, Matadero Creek, Permanente Creek, San Francisquito Creek, Saratoga and Stevens Creek, should not be listed and should continue to be monitored and re-evaluated during the 2010 listing cycle. The listing of all these creeks will dilute our very limited financial resources and will likely reduce our effectiveness to develop and implement strategies to contain and eliminate trash. This approach of further assessment and collaboration with Water Board and stakeholder staff could provide a more robust data set that could facilitate identification of reach-specific problem locations. The challenges we are able to overcome in the Guadalupe River and Coyote Creek, in conjunction with the lessons learned by focusing our efforts and strategy, would certainly benefit any prescribed management activities needed to combat trash challenges in other watersheds in Santa Clara County. Focusing our efforts on the Coyote Creek and the Guadalupe River could also reduce the potential for substantial inefficiencies should we lose the ability to conduct a coordinated effort due to too many listings.

Selenium in Permanente Creek

We do not believe Permanente Creek should be listed for selenium at this time when there is still an opportunity to identify and achieve controls of the currently permitted sources outside the constraints

of the 303(d) listing process. It is our understanding that prior to a 303(d) listing, the impairment must continue after all NPDES permitted discharges have been evaluated and properly controlled to the appropriate standard (MEP and/or BAT). The proposed listing for selenium in Permanente Creek should be re-evaluated as the Water Board has many other options to clearly identify the source of selenium. It is not clear that all permitted discharges have been adequately monitored or controlled. The Water Board has the authority to request that the Hansen Cement operation monitor their stormwater discharge to ensure that the water quality issue is not taking place on that property either due to natural process or due to industrial operations. Additionally, the Water Board could conduct its own focused water quality analysis in upper Permanente Creek, and/or ask SCVURPPP to provide for a focused monitoring approach within its jurisdiction to clarify the potential sources.

We feel the priority of selenium is low and it should not be listed at this time. Doing so could divert limited public resources to address this situation when they could be better utilized addressing the trash issues.

Toxicity in Permanente Creek

Similarly, we do not believe Permanente Creek should be listed for toxicity at this time. Toxicity in creeks is an issue SCVURPPP has been investigating. We believe a more appropriate approach to determine the source or cause of the toxicity should be through the use of a Toxicity Identification Evaluation. Based on findings identified in this year's Annual Report, members of SCVURPPP have already begun discussing limited use of a Toxicity Identification Evaluation to further understand the Toxicity issues in some of our urban creeks. The Water Board could certainly recommend the Toxicity Identification Evaluation approach through its Annual Report comments to SCVURPPP. It would be in the best interest of all parties to have the Toxicity Identification Evaluation conducted to provide a greater degree of understanding about the pollutant or pollutants causing this issue, and determining if the toxicity is from an anthropogenic derived source, prior to moving ahead with a 303(d) listing. This approach would also be appropriate to facilitate a prioritized strategy to address the various pollutants identified in this listing.

Temperature in Stevens Creek

Additionally, we do not believe that Stevens Creek should be listed for temperature when processes are already in place to manage water temperature, and all of the data from various sources have not been fully evaluated by Water Board staff. The District is very involved with the water temperature challenges associated with Stevens Creek and is currently addressing the issue through its Fisheries and Habitat Collaborative Effort (FAHCE) program. FAHCE has been working on issues related to reservoir operations and other practices that could help reduce the temperature in the waters of Stevens Creek above the dry back zone. Various regulatory agencies, including Water Board staff, and stakeholders have been involved in the development of the FAHCE program. Also, the use of Sullivan et al. 2000 may not be the best reference to evaluate steelhead limiting factors in a Mediterranean environment such as

Santa Clara County. There is a debate among experts as to the degree that temperature is a limiting factor for steelhead within our county.

The District would welcome an opportunity to meet with Water Board staff to discuss our monitoring data and findings from FAHCE and SCVURPPP to provide the Water Board with a more robust data set when it is considering the limiting factors that are associated with Stevens Creek. Adding a temperature listing to Stevens Creek via the 303 (d) listing process would further dilute limited public resources that are already focused on this issue, and could further complicate our actions by prescribing new requirements outside, and potentially inconsistent, with the existing collaborative process. Focusing on the existing implementation plan and evaluation of the results should take place prior to listing Stevens Creek for temperature.

The Santa Clara Valley Water District would like to thank you for this opportunity to comment on the proposed listing and we look forward to working with the Water Board in the near future.

Sincerely,

Frank Maitski

Frank Maitski
Deputy Administrative Officer
Office of Emergency/Security Services & Regulatory Compliance

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

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

Submitted via email and hard copy on December 4, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Proposed Revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Ms. Baginska:

This letter is submitted on behalf of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP or Program) regarding the *2008 Revision of the Clean Water Act Section 303(d) List of Water Quality Limited Segments*. The SCVURPPP is an association of 13 cities and towns[1] in the Santa Clara Valley, the Santa Clara County and the Santa Clara Valley Water District. Program participants are regulated under a common NPDES permit to discharge municipal stormwater to South San Francisco Bay. Since its inception, SCVURPPP has been a recognized leader in stormwater management and monitoring in the San Francisco Bay region, and continues to be dedicated to improving the quality of our water bodies.

The Program appreciates the opportunity to submit comments regarding the proposed 2008 revisions to the 303(d) list for the State of California. Our comments are focused on the proposed listing of nine water bodies located in the Santa Clara Valley. As a municipal stormwater program that may be impacted by the State's proposed actions, we take the listing proposals very seriously. Based on experience stemming from previously adopted 303(d) lists, it is highly likely that additional local resources will be required to implement municipal stormwater management and monitoring programs if the new proposed 303(d) listings go forward. Therefore, as public agencies, we must ensure that the listings make sense so that future resources are focused on real and high priority water quality problems.

Our comments address important issues we feel must be reconciled before any proposed revisions to the 303(d) list are adopted by the Regional Water Board. They are organized into the following four categories:

1. General Comments for all Pollutant Listings;
2. General Comments on the Proposed Trash Listings (includes brief summary on the development and implementation of trash assessments by SCVURPPP Co-permittees);

[1] Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga and Sunnyvale

3. Watershed Specific Comments on Proposed Trash Listings;
4. Comments on Proposed Listings for Other Pollutants

GENERAL COMMENTS FOR ALL POLLUTANTS

1. **The Proposed Listings Are Overbroad to the Extent They are Derived from an Extrapolation of Site-Specific Data to Entire Water Bodies**. A large majority of the data points used as lines of evidence for proposing 303(d) listings were taken from one spot in a creek that is part of a much larger and heterogeneous system of channels, which flow miles through changing habitats and watershed land uses. Most riverine scientists, water quality engineers/specialists and statisticians acknowledge that site specific data based on a targeted sampling design can not reliably be extrapolated to entire water bodies. Spatial heterogeneity in the physical, chemical and biological characteristics of creeks is the primary reason for this. Therefore, the proposed listing of entire water bodies based on data collected from a very limited number of sites is highly questionable and should be reconsidered.

   At a minimum, we request that the proposed listings be limited specifically to the particular sites or reaches of the water body where water quality data were collected. This will allow more focused and site specific monitoring, studies and management actions to occur, rather than assuming without an adequate factual basis that all reaches within creeks are impacted and not supporting beneficial uses.

2. **The Proposed Listings Neglect to Address Temporal Considerations.** Similar to the issue described above, temporal considerations must also be taken into account when evaluating creek monitoring and assessment information. It is well established from previous data submissions that water quality in Santa Clara Valley creeks can have a high degree of temporal variability, which confounds accurate understanding of whether a water body is truly impacted or impaired. Additionally, management actions taken following the date of collection of monitoring and assessment data have likely improved the condition of some water bodies proposed for listing, potentially to the point of rendering such proposed listings unnecessary. For example, during trash assessments litter is removed from the assessed reach following the tallying of trash items. As illustrated by subsequent improvements in trash assessment scores, at many sites the number of trash items has decreased significantly since litter was removed during the initial assessment. In other cases municipalities have initiated enhanced trash management programs after the listing data were collected, and improvements in assessment scores have been documented. In either circumstance, only data representing "current," post-management action, conditions should be used in determining whether there is a degree of impairment necessitating a new 303(d) listing. This will prevent unnecessary and inaccurate impairment listings from going forward based on out-of-date lines of evidence.

   Due to the apparent lack of consideration of temporal variability and the effect of implementation of management actions following initial data collection, we request that Water Board staff fully consider the temporal representativeness of data used and revise the proposed listings accordingly. We also request that the trash assessment data collected during initial evaluations be removed from the dataset used to assess the conditions of creek reaches, and the proposed listings be revised accordingly.

3. **The Proposed Listings are Flawed due to the Omission of SCVURPPP Water Quality Data**. As requested through the Water Board's Public Solicitation for Water Quality Information, the SCVURPPP submitted water quality data collected from 2002 to 2007 during the implementation of SCVURPPP's Multi-Year Receiving Waters Monitoring Plan (See Attachment A). However, these water quality data were not included in the review (see Appendix B of the Proposed Listing Recommendations) and therefore have not been adequately considered and taken into account in terms of the proposed listings. This dataset represents total and dissolved metal concentrations and aquatic toxicity results from

hundreds of water samples taken at roughly 70 creek/river sites in the Santa Clara Valley over a 5-year timeframe.

Due to this oversight and the potential ramification of not considering these data when developing the listing recommendations, we request that: 1) SCVURPPP's data be added to the dataset for which the proposed listings are based (and replace older, outdated data where applicable); 2) the listing recommendations be revised (as needed) based on the inclusion SCVURPPP data; and 3) the new listing recommendations be re-released for public comment.

4. **The Proposed Listings are Overbroad to the Extent that they Fail to Evaluate the Effect of Anticipated Control Measures**. The proposed listings appear to erroneously assume that the (sometimes already outdated) measured conditions on which they are based are static and not subject to change based on the application of technology-based control measures to the water segments in question, such as those being contemplated for inclusion in the new Municipal Regional Permit (MRP) governing stormwater discharges throughout most of the Bay Area. Not only does this ignore real world data reflecting improved conditions where such control measures have been applied (see subsection 3 above), it appears to be contrary to the Clean Water Act's prescription for 303(d) listings, which expressly provides: "Each State shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters." Accordingly, where the proposed listings have not accounted for full implementation of economically reasonable and technically feasible control measures, including those that are under current consideration for the MRP, they should be deferred for a future triennial review, i.e., until the effect and sufficiency of such measures in addressing water quality conditions can be evaluated based on real world data obtained post-implementation of technology-based controls.

5. **The Water Board Needs to Analyze the Potential Environmental Impacts of the Proposed Listings and Assess the Technical Feasibility and Economic Reasonableness of Applying their Associated Water Quality Standards to Stormwater Before Proceeding**. The Water Board's staff report accompanying the proposed listings does not appear to contain any analysis of the potential environmental impacts of this proposed action or otherwise to have addressed the requirements of the California Environmental Quality Act. It also does not address the technical feasibility or economic reasonableness of applying the water quality standards at issue to stormwater (and particularly municipal stormwater) discharges and the water quality standards in question have not previously been revised to consider such issues as the recent *Cities of Arcadia, et al*. decision makes clear is required by the Water Code.

PROPOSED LISTING OF CREEKS AND SHORELINES FOR TRASH

Background and General Comments

The following background information is provided to summarize our understanding of the process used by Water Board staff to evaluate trash assessment data and photographic evidence submitted. This contextual information is followed by specific comments regarding the proposed listing of Santa Clara creeks and shorelines for trash impairment.

The Regional Water Board is proposing to place nine creeks within SCVURPPP's program area on the 303(d) list for impairment by trash. These include Coyote Creek, Guadalupe River, Lower Silver Creek, Matadero Creek, Permanente Creek, Saratoga Creek, San Tomas Aquino Creek, Stevens Creek, and San Francisquito Creek. Water Board staff used two lines of evidence to assess trash impairment. The first line of evidence consisted of trash assessment data using either the Rapid Trash Assessment methodology, developed by Water Board staff for the Surface Water Ambient Monitoring Program (SWAMP), or the Urban Rapid Trash Assessment (URTA)

methodology, developed by the SCVURPPP[2]. The second line of evidence consisted of inspection of photographic evidence by Water Board staff and applying the RTA methodology to develop scores for Parameters 1 (Level of Trash) and 3 (Threat to Aquatic Life) for each site.

Water Board staff developed thresholds for RTA/URTA Parameters 1 and 3 to evaluate potential impairment of trash to REC-2 and WILD Beneficial Uses, respectively. The REC-2 Use was deemed not supported when RTA/URTA Parameter 1 was in the "poor condition category" (scores 0-5)[3]. The WILD Use was deemed not supported when RTA Parameter 3 was in the "poor condition category" (scores 0-5), which corresponds to greater than 50 pieces of "transportable, persistent and buoyant" litter identified at assessment site. Additionally, the WILD Use was deemed not supported when URTA Parameter 3 (Transportable, Persistent, Buoyant Litter) was in the "marginal" or "poor condition category" (scores 0-10), which corresponds to greater than 75 pieces of "transportable, persistent and buoyant" litter identified at assessment site. Water Board staff also used the thresholds established for the RTA methodology to evaluate photographic evidence.

6. **RTA Data Does Not Provide an Accurate Basis for Assessing Impairment and Overemphasizes Worst Case/High Problem Area Conditions**. Storm Water Programs initiated a review of the Water Board RTA Protocol in September 2002 when SCVURPPP and San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) funded a pilot study to implement and test the RTA (Version 6.0) at selected stream locations in Santa Clara and San Mateo County. Conclusions from the pilot study indicate that there is no clear linkage between the type and number of trash items in a creek site to the impact on aquatic life use, and therefore the number of specific types of trash items is not a good basis for an assessment of relative impacts. The memorandum recommended modifications to the RTA protocols and described how these revisions could be incorporated as an "urban management version" of the protocols.

   In 2003, the Water Board developed a revised RTA Protocol (Version 7.0). In addition, the Water Board developed a memorandum entitled *Evaluation of the Rapid Trash Assessment Methodology* (dated October 20, 2003) that stated that the Water Board RTA Protocol (Version 7.0) is "less sensitive at the low end of the scoring range, corresponding to conditions commonly observed in the lower watersheds of urbanized areas." Furthermore, the memorandum went on to say that "it is difficult (for the RTA) to distinguish conditions at trash hotspots." Since these trash problem areas are of most interest to cleanup programs sponsored by local organizations and agencies, the Water Board indicated that "a separate hotspot evaluation methodology may need to be developed."

   In 2004, SCVURPPP Co-permittees initiated trash assessments using the RTA (Version 7.0) at previously documented trash problem areas. Four main objectives were identified by the Trash Ad Hoc Task Group (TAHTG) for implementation of the RTA Version 7.0 in technical memorandum titled *Implementing Existing Trash Assessment Tools* (July 20, 2004). These included:

   - Establishing baseline levels of trash at specific site during selected index periods;
   - Identifying and prioritizing trash problem areas;
   - Identifying potential sources of trash and appropriate management activities; and
   - Evaluating the effectiveness of existing trash management practices.

   The TAHTG agreed that conducting rapid trash assessments only at trash problem areas may result in low scores since they are presumed to be the worst sites. The assessment approach was intended to use the RTA to identify, prioritize and evaluate trash management activities over time at selected trash problem areas. The SCVURPPP Co-permittees did not

[2] The URTA is a revised version of the RTA that is more applicable to "urban" creeks.
[3] There is no difference in scoring of Parameter 1 for the RTA or URTA.

intend nor develop a sampling design with the goal of determining overall trash condition or potential impairment for urban creeks.

Given the above, we question the propriety and accuracy of concluding impairment exists in, and particularly throughout, the nine Santa Clara creeks proposed for listing based on RTA scores reflecting pre-selected, worst case, particularly problematic conditions (i.e., a so-called biased sample in scientific terms). Given the original intent of conducting trash assessments in Santa Clara Valley urban creeks, at a minimum, we request that the proposed listings be limited specifically to the particular sites or reaches of the water body where trash assessments were conducted. In addition to being more supportable, this will allow more focused and site specific monitoring, studies and management actions to occur, rather than erroneously assuming based on biased evidence that all reaches within creeks are impacted and not supporting beneficial uses.

7. **The Methods for Underlying the Proposed Listings Have Neither Been Scientifically Validated or Subject to Peer and Public Review**. Our understanding is that the RTA/URTA methodologies (field and photographs) were used to interpret narrative water quality objectives (WQOs) related to trash impairment. However, this highly subjective methodology is necessarily flawed (see above) and somewhat arbitrary; moreover, no public process was conducted to evaluate the scientific basis for using the RTA/URTA methods to determine trash impairment. This process would include subjecting to both peer review and public scrutiny whether these methodologies are scientifically defensible and reproducible for establishing impairment as described in Section 3.11 Situation-Specific Weight of Evidence Factor of Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (Water Board 2004). Specifically:

    a. Methods and data used in the impairment evaluation need to satisfy requirements described under Section 6.1.4 (Data Quality) and Section 6.1.5 (Data Quantity) of Water Board (2004). Standards for data quality and quantity should also be developed before using these methods and data to evaluate impairment.

    b. Data quality issues are apparent when using photographic evidence to represent field conditions, which compromises the meaningful application of this information. These methods used by Water Board staff to develop RTA scores from photographic evidence should be fully evaluated by an objective third party to assess how defensible and reproducible they are. This evaluation should be conducted prior to using information rendered from these methods to determine exceedances of water quality standards.

    c. The subjectivity in RTA/URTA Parameter #1, (Qualitative level of trash) should be fully evaluated prior to using as a line of evidence for 303(d) listings. Interpretation of "high", "medium" and "low" levels of trash is inherently highly subjective and varies among different field staff conducting the assessments.

    d. The (vertical) extent of the creek area used to evaluate impairment by trash should be reconsidered prior to adopting the 303(d) list. The RTA and URTA methodologies identify and give equal weight to trash items found above and below the creek high water line. It is highly likely that trash items above the high water line were not impacting the water body at the time of the assessment and therefore should not be included in evaluation of impairment. Accordingly, at a minimum, we specifically request that trash items counted above the high water line be removed from the data used to establish listings and revisions to the proposed listings be revised.

8. **The Thresholds Used to Define When Impairment is Present Are Arbitrary and Fail to Account for Site Specific Conditions**. The number of total "transportable and persistent" trash items (Parameter 3) used to define impairment is arbitrarily set at ≥50 for the RTA and ≥76 for the URTA. These thresholds are inconsistent and have no linkage to actual impacts to the water body. It is essential that a scientifically defensible basis be provided for relating the total number and types of trash items to impairment of aquatic life Beneficial Uses. We request that listings based on Parameter #3 be removed until the RTA/URTA methodologies and associated criteria defining impairment conditions can be better evaluated and results can be linked to documented impacts to uses.

9. **The Shoreline Listings for Trash are Vague, Overbroad and Require More Specific Definition**. The geographical extent of the proposed listing for San Francisco Bay Lower and Central shorelines is currently unclear. The proposed trash impairment listings were based on photographic evidence from only a few shoreline locations and cannot be properly extrapolated more broadly due to local hydro-geologic conditions. Additionally, how these "shoreline" areas (whatever they are) and their uses are distinguished from marshes and mudflat areas (which have their own defined Beneficial Uses) has not been defined in the Basin Plan. The geographic definition and extent of "shorelines" should therefore be clarified through a Basin Plan amendment before these listings proceed, assuming there is a basis for listing such large areas using the very limited available photographic evidence.

Watershed-Specific Comments

10. **The Proposed Listing of Coyote Creek is Over Broad and Premature Given the Limitations of Existing Data; At a Minimum, the Listing Should be Geographically Restricted Given the Limits of Existing Evidence.** Existing URTA data and photographic evidence was primarily collected in highly urban areas associated with roadways and homeless camps. Although these sites had high levels of trash, uncertainty still remains as to the extent and magnitude of trash problems for the entire mainstem, especially non-urban areas (e.g., Coyote Valley). Additionally, existing trash assessment data, including photographic evidence, is based on a single assessment conducted at each site. Repeated assessments over time are needed to evaluate the chronic nature of trash at these sites and whether technology-based controls will be sufficient to address the potential issue at them.

11. **The Proposed Listing of the Guadalupe River is also Overbroad and Should at least be Geographically Restricted.** Similar to Coyote Creek, existing URTA data and photographic evidence was primarily collected in highly urban areas associated with roadways and homeless camps. Although these sites had high levels of trash, uncertainty still remains as to the extent and magnitude of trash problems for the entire mainstem, especially in the upper reaches below Almaden Reservoir, as well as the potential efficacy of technology-based control measures.

12. **The Proposed Listing of Lower Silver Creek is Contrary to the Weight of Evidence and Not Otherwise Adequately Supported or Geographically Restricted**. Existing URTA data were collected at three sites located within an approximate 5-mile reach between the confluence with Coyote Creek and Lake Cunningham. Water Board impairment threshold for Parameter 3 was not met at two of the sites. Existing data is based on a single trash assessment at each site. As a result, there is uncertainty whether trash is persistent at each site and whether technology-based controls may be sufficient in preventing impairment. Assessment sites were widely distributed in the subwatershed to represent range of land uses and channel characteristics.

13. **The Proposed Listing of Matadero Creek is Overbroad and Based on Marginal Data that is Too Limited and Unrepresentative.** Existing URTA data were collected at two sites that were located approximately 500 feet apart, located in the low gradient reach adjacent to Highway 101. The Water Board impairment threshold for Parameter 3 was exceeded during

two assessments conducted at one of the two sites. Trash assessment data are not available between Highway 101 and the headwaters, a distance of approximately 6 miles in length. As a result, existing URTA data are not representative of the range of trash conditions found in Matadero Creek.

14. **The Proposed Listing of Permanente Creek is Far Too Overbroad.** Existing RTA data were collected at one location in the low gradient reach just above tidally influenced area. Water Board impairment threshold for Parameter 3 was exceeded during four assessments conducted at one site. Data are not available for reaches between Highway 101 and headwaters, a distance of approximately 10 miles. A majority of this area drains single-family residential areas in the middle reaches, and open space in the upper reaches, which are likely not sources areas for trash. As a result, existing URTA data are not representative for the range of conditions found in Permanente Creek.

15. **The Proposed Listing of San Francisquito Creek Lacks Sufficient Specificity and Supporting Evidence for the Majority of its Reaches**. Existing URTA data were collected at five locations within an approximately 4-mile reach between El Camino Real and Highway 101. Water Board impairment thresholds were not met for Parameter 1 during 7 assessments and for Parameter 3 during 5 assessments. The upper two sites did not meet Water Board guidelines during the initial assessment and subsequent assessments received scores that were below impairment thresholds, indicating potential low rates of trash accumulation at these sites. The remaining "exceedences" of the thresholds occurred at the lower two sites, approximately 1 mile upstream of Highway 101. Trash assessment data are not available between El Camino Real and the headwaters, a distance of approximately 10 miles in length. As a result, existing URTA data is not representative for the range of trash conditions found in San Francisquito Creek, especially in the upper non-urban reaches of the creek.

16. **The Proposed Listing of Saratoga Creek Requires Geographical Restriction Based on All Available Evidence.** Existing URTA data consist of two assessments conducted at one location in Saratoga Creek (i.e., El Camino Real), approximately 1 mile upstream of its confluence with San Tomas Aquino Creek. Existing information indicate that trash conditions at this location are strongly influenced by litter and dumping activity that occurs at one road crossing. Data are not available to reflect full implementation of technology based controls for this area or for reaches between El Camino Real and headwaters, a distance of approximately 12 miles. The majority of the latter area drains single family residential areas in the middle reaches, and open space in the upper reaches. Based on experience in identifying trash source areas, these types of land uses are not prone to trash. Additional information collected by SCVURPPP during a continuous creek walk of the 7-mile section of creek (between Bollinger Av and Highway 9 upstream of the City of Saratoga) confirms that these creek reaches are not impacted by trash.

17. **The Proposed Listing of Stevens Creek is Not Supported by the Weight of Evidence**. Existing URTA data were collected at six locations within approximately 12-mile reach between La Avenida and Moss Rock Park, located about 2 miles upstream of the Stevens Creek Reservoir. Water Board impairment thresholds were not exceeded for Parameter 3 during 4 assessments at three of the locations. The upper two non-urban sites received Parameter 3 scores that were just below the thresholds (8-9). The assessments sites represented a wide range of land uses and channel conditions that occur in Stevens Creek.

18. **The Proposed Listing of San Tomas Aquino Creek is Far Too Overbroad.** Existing URTA data were collected at three hotspot locations within approximately 9-mile reach between Highway 101and Westmont Avenue. Water Board impairment thresholds were not met for Parameter 3 during all five assessments conducted across the three sites. URTA scores increased at 2 sites with subsequent assessments, so a high degree of uncertainty remains as to whether there is a persistent level of trash at these sites.

COMMENTS ON LISTINGS FOR OTHER POLLUTANTS

19. **The Proposed Total Selenium Listing for Permanente Creek Should be Geographically Restricted.** The Regional Water Board is proposing to place Permanente Creek on the Clean Water Act 303(d) list for impairment for total selenium. Two lines of evidence were used to assess listing under Section 3.1 Numeric Water Quality Objectives and Criteria for Toxicants in Water of the Water Quality Control Policy (Water Board 2004). The National Toxics Rule (NTR) continuous concentration criterion (CCC) for total selenium in water is 5.0 ug/L and is applicable to streams that support cold freshwater habitat (COLD).

    Twelve water samples were collected by Water Board and SCVURPP at two locations within Permanente Creek between 2002 and 2007. Six of twelve samples exceeded the NTR criterion, with total selenium concentrations ranging from 5.8 to 18.7ug/L. All of the exceedences occurred in water samples collected from the highest elevation site (PER070). This site is located within the San Antonio Open Space District land and is approximately 1 mile downstream of the Hansen's Cement Plant. Other than cement plant and a cemetery, the area is forested open space land protected by Mid-Peninsula Open Space District.

    Listing of Permanente Creek for Total Selenium should apply only to the upper reaches of the creek. There is minimal amount of urban land uses in the area that drains into site PER070. Existing information also indicates that cold freshwater habitat occurs in the upper reaches of Permanente Creek, upstream of Interstate 280. During the summer dry season for most years, the creek has intermittent flow regime downstream of the freeway.

20. **The Proposed Toxicity Listing for Permanente Creek is Not Supported by the Weight of Evidence and Should be Dropped.** The Water Board is proposing to place Permanente Creek on the Clean Water Act 303(d) list for impairment for toxicity. Two lines of evidence were used to assess listing under Section 3.6 Water/Sediment Toxicity of the Water Quality Control Policy (Water Board 2004). The narrative water quality objective listed in the 1995 Basin Plan states "There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate……" Significant toxicity of water and sediment was defined as less than 80% survival or growth compared to control of test organisms. Three freshwater organisms were used for testing aquatic toxicity and one test organism (*Hyalella azteca*) was used for testing sediment toxicity.

    Water Board collected six water samples at two locations within Permanente Creek in 2002 and 2003, and one sediment sample was collected at lower elevation site in Permanente Creek in 2002. Only one of the seven samples exhibited acute toxicity. Similar to other data collected throughout the region, State and U.S., chronic toxicity was documented in all six water samples and the one sediment sample.

    Due to the ubiquitous nature of chronic toxicity in receiving waters throughout the U.S., and the issues surrounding the validity of the text with regard to impairment, we request that chronic toxicity data be removed from consideration by Water Board staff.

21. **Given the Evidence, the Proposed Listing for Water Temperature in Stevens Creek Should be Seasonally and Geographically Limited.** The Water Board is proposing to place Stevens Creek on the Clean Water Act 303(d) list for impairment for temperature. One line of evidence was used to assess listing under Section 3.2 Numeric Water Quality Objectives for

Conventional or Other Pollutants of the Water Quality Control Policy (Water Board 2004). Water Board staff used benchmark guidelines (Sullivan et al. 2000) for steelhead, not narrative water quality objectives, to evaluate existing data. The guidelines represent threshold temperatures for steelhead rearing and potential impacts to growth. These are not numeric water quality objectives listed in the Basin Plan. The guideline benchmark was 17 ºC for 7-day mean temperature.

Water Board staff conducted continuous monitoring of temperature (15 minute intervals) at four sites for periods of 1-2 weeks. Temperatures ranged from 9.3 to 25.5°C across eleven sampling events. Six of the events had mean 7-day temperature values that exceeded the 17 ºC guideline. Five of these exceedences occurred during the dry season and at the two lowest elevation sites (STE020 and STE060).

Existing information indicates that steelhead rearing habitat in Stevens Creek is limited to a 4-mile reach below Stevens Creek Reservoir. Stillwater (2004) conducted a limiting factors analysis and identified a lack of over wintering habitat for juvenile steelhead as key limiting factor for steelhead population. Temperature was determined to not be a key factor limiting steelhead due to sufficiently cold water in reaches that supported steelhead spawning and rearing. However, temperature in lower reaches may be important during outmigration periods, especially during low water years. There was insufficient data to evaluate water temperatures during migration periods. The Water Board conducted 10 of the 11 monitoring events during late summer and fall and only one during spring migration period.

Based on this information, we request that the listing for Stevens Creek be limited to the lower reaches during the summer months.

We hope you find these comments and suggested improvements a useful basis for proposed revisions to the 303(d) List. Due to the number of significant comments being submitted and need for thorough consideration (and potential consultation) on the changes requested, we request that the Water Board's Public Workshop to hear oral testimony scheduled for January 14, 2009 be continued to a later date. During this time we would like to work together with you and your colleagues to facilitate incorporation of all or some of the suggested changes into a revised staff report. Please contact me at (510) 832-2852 if you have questions regarding the comments or suggested changes. We look forward to continuing to work with you further.

Sincerely,

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

cc: Bruce Wolfe, SFB Water Board
Tom Mumley, SFB Water Board
Alexis Strauss, US EPA Region 9
SCVURPPP Management Committee

References:

Stillwater Sciences. 2004. Stevens Creek Limiting Factors Analysis Technical Report. Prepared for the Santa Clara Valley Urban Runoff Pollution Prevention Program. September 10. 2004.

Water Board 1995. *Water Quality Control Plan, San Francisco Bay Basin (Region 2).* San Francisco Bay Regional Water Quality Control Board. June 21, 1995.

Water Board. 2004. *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List*. State Water Resources Control Board. September 30, 2004.

SCVURPPP SUBMITTAL (LETTER) OF WATER QUALITY INFORMATION TO THE SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

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

Submitted via email and *hard copy (with attachments)* ***on*** *February 28, 2007*

Ms. Naomi Feger
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Submittal of Water Quality Data and Information for 2008 Integrated Report – List of Impaired Waters and Surface Water Quality Assessment [303(d)/305(b)]

Dear Ms. Feger:

This letter and enclosed data/information are submitted on behalf of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) regarding the *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)*, dated December 4, 2006. Physical, chemical and biological data collected from 2004 to 2006 have been previously submitted by SCVURPPP in annual NPDES reports[1] and are again provided in the enclosed CD-ROM (see attachment A) for your convenience. In summary, these **data suggest that water quality standards are attained in Santa Clara Basin creeks that have designated beneficial uses.** However, with an increased focus on trash in San Francisco Bay area urban creeks, the SCVURPPP felt a need to bring your attention to trash-related data and information collected to-date by SCVURPPP and provide recommendations on whether to include these water bodies in the *2008 Integrated Water Quality Assessment Report*.

Background on Trash in Santa Clara Basin Urban Creeks

On November 14, 2001, the Water Board released the document entitled *Proposed Revisions to Section 303(d) List of Priorities for Development of Total Maximum Daily Loads for the San Francisco Bay Region* Report (SFB Water Board, 2001). This report states that:

> *"Between now and the next 303(d) listing cycle, municipalities will be expected to assess trash impairments in their jurisdiction, as documented in annual reports to the Regional Board. The approach should mirror the standard TMDL approach of defining the problem, identifying sources (trash hot spots) through*

[1] Submitted in compliance with NPDES Permit Order No. 01-024. Data are presented in W*atershed Monitoring and Assessment Summary Reports* located in Appendix C of the Annual Reports.

> *monitoring or existing information, and developing a program of action to address the principle sources, which will likely be associated with schools, convenience stores and restaurants, and places where citizens chronically dump excess garbage in violation with existing litter laws. Regional Board staff will review this specific information in the next listing cycle and determine whether specific water bodies warrant 303(d) listing, and note the existence of relatively clean urban streams"* (emphasis added).

In a proactive response to the 303(d) Staff Report, the SCVURPPP formed a Trash Ad Hoc Task Group in February 2002 and developed a Work Plan (see Attachment B) to identify a strategy for addressing trash problem areas that occur in or near urban streams and waterways of the Santa Clara Basin. As requested in the Staff Report, the Work Plan follows a standard TMDL approach of identifying problem areas and assessing/developing appropriate Best Management Practices (BMPs) to address high priority sources. The following paragraphs briefly describe SCVURPPP's progress to-date.

Assessing Trash Impacts

In 2004, SCVURPPP Co-permittees documented the location, trash source and property owner for 195 potential trash problem areas within the Program's jurisdiction. Sixty-four sites were located in creeks or in close proximity to a creek (i.e., banks), and 131 sites were located in areas that were not in the creek (e.g., areas near dumpsters, freeway exit ramps, road sides, etc.). Co-permittees then conducted trash evaluations in Fiscal Years 2004-05, 2005-2006 and FY 2006-07at potential trash problem areas using two types of protocols: 1) rapid creek trash assessments[2] and, 2) Keep America Beautiful (KAB) Litter Index. Because the focus of the *2008 Integrated Report* is on the condition of water bodies, only the results of the assessments conducted in creeks (i.e., Urban RTA results) are discussed in this section. The results of evaluations using the KAB protocol can be found in Attachment C.

Status and Condition of Creek Sites

Forty-eight baseline[4] assessments were conducted by SCVURPPP at potentially problematic urban creek sites in FYs 2004-05 and 2005-06 using the Urban RTA protocol. Baseline site scores are shown in Figure 1. Only 6% of the sites evaluated had Urban RTA scores that ranked as "poor". Ranges and median Urban RTA scores for each of the major watersheds of the Santa Clara Basin are shown in Figure 2.

[2] Rapid Trash Assessment (RTA) Protocol (RTA) developed by the San Francisco Bay Regional Water Quality Control Board (Water Board) was used in FY 2004-05 to qualitatively assess trash conditions in wadeable creeks. In FY 2005-06, the RTA was refined to better evaluate conditions of trash-impacted sites in urban creeks, as opposed to the Water Board's RTA which addressed both rural and urban creeks (see attachment B on CD-ROM). The refined protocol is named the "Urban RTA".

[4] Baseline scores were calculated using data from the original assessment conducted at each creek site to eliminate the chance of trash cleanup activities conducted as part of previous Urban RTAs to skew scores.

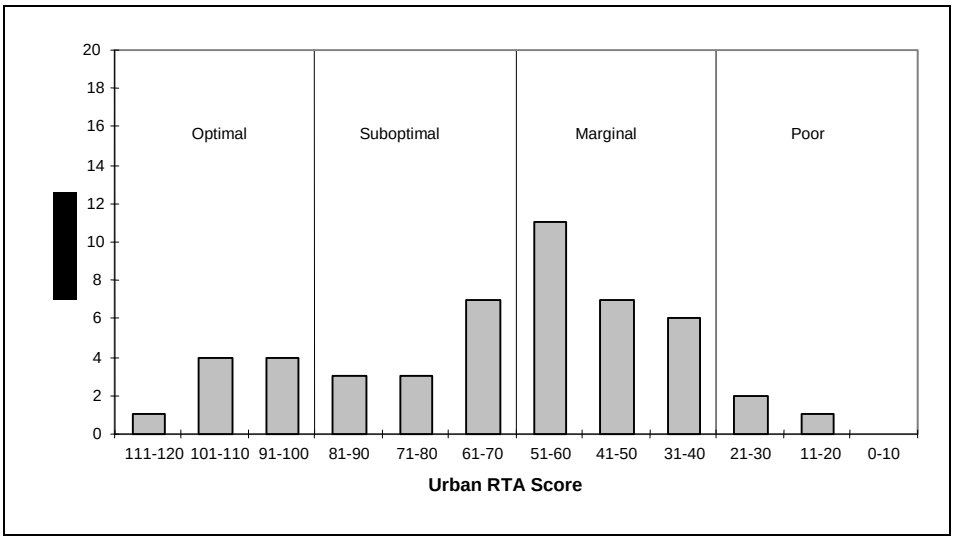


Figure 1. Frequency histogram of baseline Urban RTA scores calculated for 49 sites in Santa Clara Basin creeks.

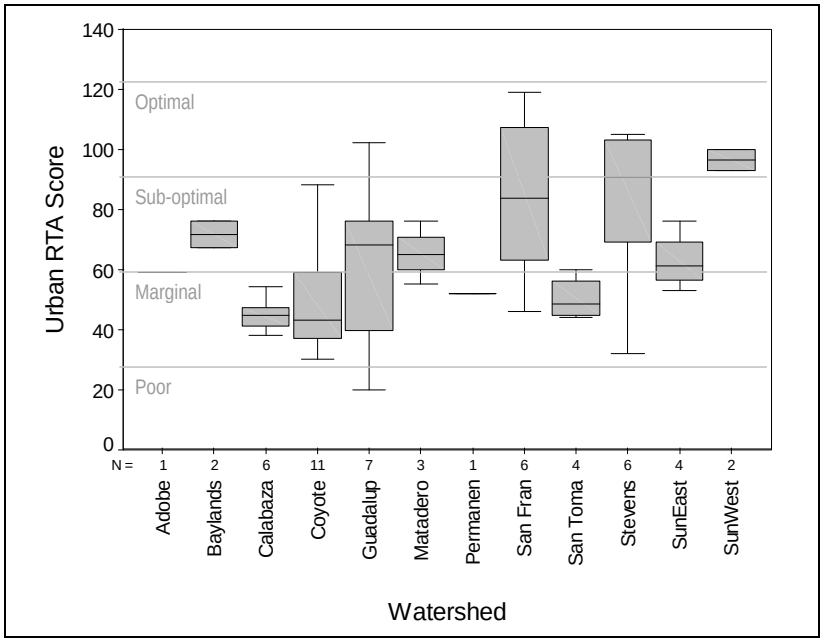


Figure 2. Minimum (lower whisker), maximum (upper whisker), 25th percentile (upper box), median (box midline) and 75th percentile (lower box) of Urban RTA scores for each major watershed in the Santa Clara Basin.

Changes in Status and Condition

Changes in Urban RTA scores at 24 creek sites assessed during multiple years are illustrated in Figure 3. The Urban RTA scores over two years showed changes in trash condition at specific creek sites. Urban RTA scores indicate improvement in 67% (n=16), reduction in 29% (n=7), and no change in 4% (n=1) of sites assessed in multiple years. Seven sites had higher Urban RTA scores during the second assessment that resulted in changes in ranking from marginal to suboptimal or optimal, while only one site changed from marginal to poor.

Trash removal during assessments conducted in Year 1 and management actions put into place between assessments may have influenced the increase in Urban RTA scores (i.e., better condition) during Year 2. It is difficult to evaluate trends in site condition however, without more data since seasonal and interannual variability of trash levels for these sites is unknown.

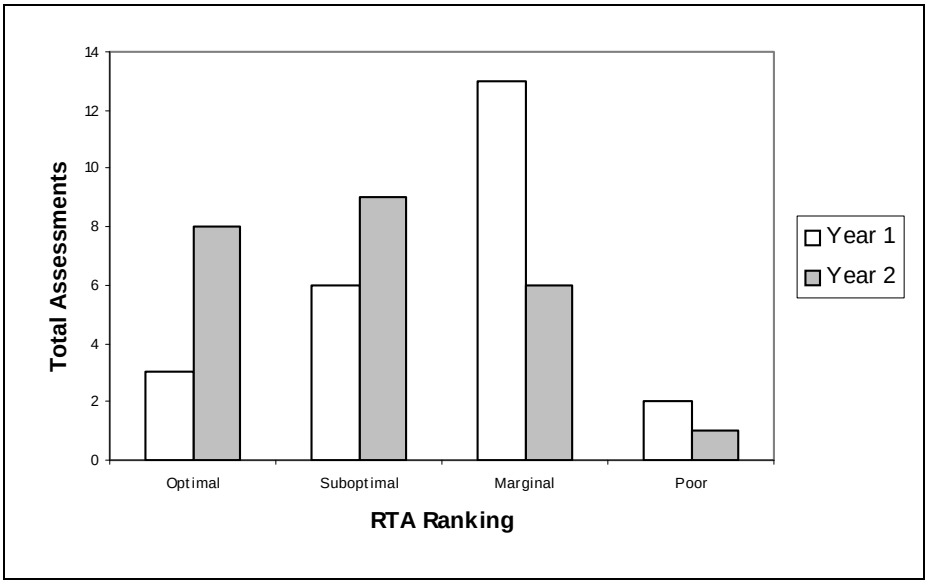


Figure 3. Comparison of Urban RTA scores at 24 sites assessed in two consecutive years (FY 04-05 and FY 05-06).

Identification of Sources

Littering by pedestrian and vehicles were the two most common trash sources reported during both KAB (and Urban RTA assessments conducted in FY 2005-06 (Figure 4). Other commonly reported trash sources include littering in commercial areas and illegal dumping during KAB assessments, and storm drain outfalls and homeless encampments during Urban RTA assessments.

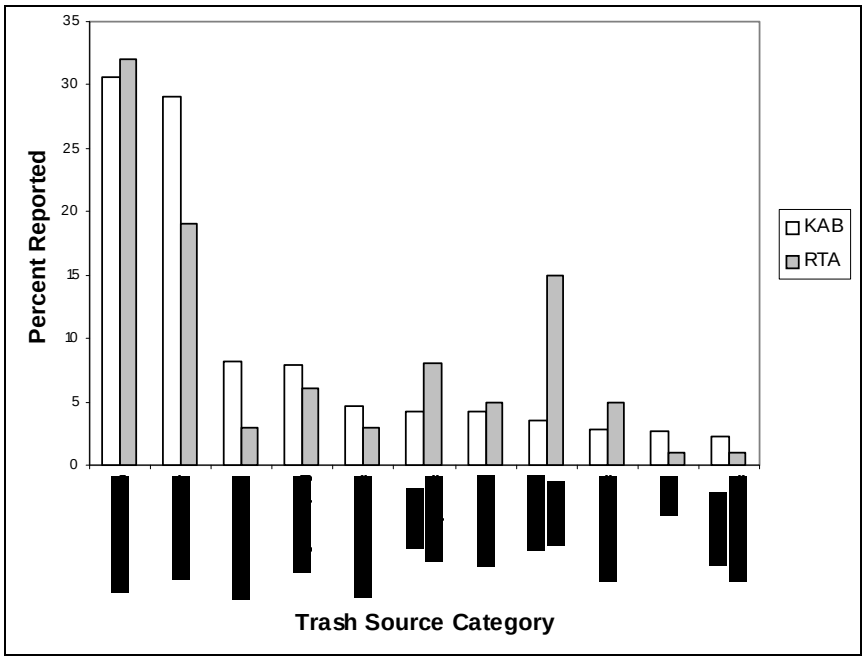


Figure 4. Most prevalent trash sources at potential trash problem areas reported by Co-permittee staff during KAB and RTA assessments conducted in FY 05-06.

Roadways, parks/trails, and residential areas accounted for about 75 percent of the land uses associated with trash problem areas in creek areas reported by Co-permittee staff during Urban RTA assessments in FY 05-06.

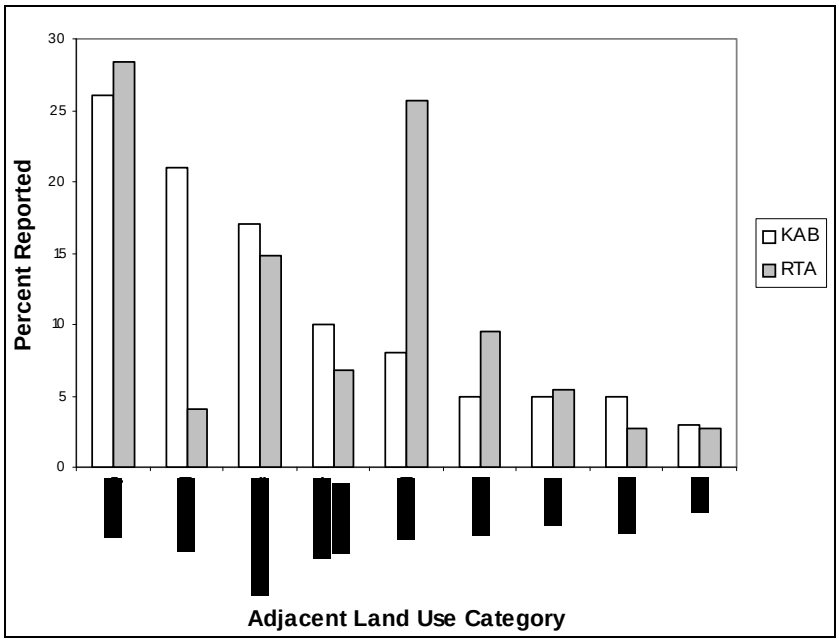


Figure 5. Most prevalent adjacent land use types at trash problem areas reported by Co-permittee staff during KAB and RTA assessments conducted in FY 05-06.

Management Strategy

Since FY 2003-04, the Program has continued to implement the following Work Plan tasks associated with trash management: 1) Document and evaluate existing trash management practices implemented by municipalities and agencies within the Program's jurisdiction; 2) Identify and begin to implement or refine existing trash control measures, where feasible, to address trash problem areas; and 3) Develop a standardized reporting format for documenting and evaluating trash management and monitoring activities. A variety of documents have been developed as a result of these tasks, including an *Existing Trash Management Practices Survey* (see Attachment D) that demonstrates the incredible number of management actions conducted by Co-permittees to reduce littering and illegal dumping in the Santa Clara Basin.

In October 2006, SCVURPPP revised the Work Plan to include a *Trash Management and Effectiveness Assessment Strategy* (see Attachment E). One of the four main areas of focus included in the strategy is the selection and implementation of appropriate control measures at high priority problem areas. This includes the implementation of structural treatment controls as part of a trash pilot demonstration project in FY 2006-07, and the development and implementation of long-term trash management strategies for high-priority watersheds beginning in FY 2007-08.

Conclusions and Recommendations

Trash accumulation in urban areas and local water bodies has been well documented in California. However, deciding as to what constitutes a water quality limited segment of a water body for trash is not a straightforward process based on existing water quality criteria (i.e., water quality objectives). As you know, numeric water quality criteria for trash have not been developed for the State of California, nor the San Francisco Bay area. Alternatively, the *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* provides for situation-specific weight-of-evidence listing factors to be evaluated to determine whether a water quality standard is attainted (Water Board 2004). Based on tasks completed to-date by SCVURPPP, the following conclusions can be made:

- The SCVURPPP has and will continue to address the expectations placed on South Bay municipalities in the Water Board's 2001 Staff Report regarding the 2002 303(d) list;
- Baseline creek assessment data indicate that very limited number of urban creek sites assessed to-date are currently ranked as "poor" with regard to trash;
- Improvements in assessment scores have been documented at sites that originally ranked as "poor", "marginal" or "sub-optimal";
- Sources of trash in urban creeks and South Bay watersheds have been identified and trash problem areas have been designated; and,
- Proactive trash management strategies developed by SCVURPPP and Co-permittees will have begun and will continue to address trash-related issues, with the goal of substantially reducing trash in Santa Clara Basin urban creeks.

Based on these findings, the SCVURPPP recommends that **creeks located in the Santa Clara Basin should not be listed as water quality limited segments on the 2008 303(d) list as a result of trash or any other pollutant**. Additionally, we encourage Water Board staff to use the most robust quantitative assessment data (i.e., Urban RTA scores) presented in this letter to assess the condition of water body sites with regard to trash, as opposed to snapshots (i.e., photographs) that are not likely a true representation of water body condition.

Please contact me at (510) 832-2852 if you have any questions regarding the data/information[4] presented in this letter or corresponding recommendations.

Sincerely,

Originally Signed by

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

CC: Bruce Wolfe, SFB Water Board
Tom Mumley, SFB Water Board
Karen Taberski, SFB Water Board
Alexis Strauss, US EPA Region 9
SCVURPPP Management Committee

References

San Francisco Bay Regional Water Quality Control Board (2001). *Staff Report – Proposed Revisions to Section 303(d) List and Priorities for Development of Total Maximum Daily Loads (TMDLs) for the San Francisco Bay Region*. November 14, 2001.

Attachments (on enclosed CDRom)

A - Watershed Monitoring and Assessment Summary Reports (FYs 03-04, 04-05 and 05-06)
B - SCVURPPP Trash Work Plan (March 1, 2003)
C - Trash Problem Area Evaluation Results (FY 04-05 and FY 05-06)
D - Summary of Existing Co-permittee Trash Management Practices Survey Results (June 4, 2004)
E - Trash Management and Effectiveness Assessment Strategy (October 31, 2006)

[4] All data and information presented in this submittal can also be found at www.scvurppp.org.

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Environmental Services Department
DIRECTOR'S OFFICE

December 4, 2008

Ms. Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: City of San José Comments on the Draft Staff Report for the Evaluation of Water Quality Conditions of the San Francisco Bay Region - Proposed Revisions to Section 303(d) List

Dear Ms. Baginska,

The City appreciates the opportunity to comment on the Draft Staff Report for the Evaluation of Water Quality Conditions for the San Francisco Bay Region Proposed Revisions to Section 303(d) List dated October 2008.

San José is the tenth largest city in the United States with a land area of 175 square miles and an estimated population of 945,000. The City has approximately 28,500 storm drain inlets, 1,250 miles of storm drain lines, and more than 1,250 outfalls throughout its urban service area. The core purpose of the City's Urban Runoff Program is to prevent pollution from entering the storm sewer system and waterways to protect the health of the South San Francisco Bay watershed. San José is also a co-permittee of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) and has had a proactive stormwater pollution prevention and control program since the first countywide municipal stormwater permit was adopted in 1990.

Many of the proposed additions to the 303(d) list of impaired water bodies center on possible impairment due to trash. San José has already begun addressing trash impacts to creeks through a wide array of activities including site assessments, sponsorship of creek clean-up events, community outreach, and piloting the use of trash capture devices in storm inlets. San José is also fortunate to have over 136 miles of naturally-vegetated riparian corridor within 35 distinct streams, rivers, and their tributaries. Because the City has protected these valuable natural environments from channelization and hardening (paving), the natural riparian trees and shrubs along San Jose's creeks and rivers provide critical riparian habitat, reduce erosion, and protect against flooding. However, these natural features also have a tendency to trap trash. The City recognizes the importance of trash prevention and removal and spends significant resources annually to clean up trash in its creeks, much of which accumulates behind fallen branches or is held on the stream bank by vegetation.

As a municipal program that may be impacted by the proposed regulatory actions, and with limited future State and local resources available to address perceived water quality impacts, the City takes the listing process very seriously and is focusing its comments on important issues we feel must be reconciled before adopting the proposed 303(d) revisions.

San José echoes the comments expressed by SCVURPPP and wishes to emphasize the following:

- The City feels that existing methods and data are of insufficient quality and quantity, per the Guidance Policy for placing waters on the 303(d) list, to list entire watersheds in Santa Clara Valley as impaired due to trash.
- The City feels that listings based on Parameter #3 should be removed until a scientifically-based link between the RTA/URTA assessment scores and impairment of aquatic life beneficial uses can be established.
- Due to spatial and temporal heterogeneity in the physical, chemical, and biological characteristics of creeks, the City requests that the proposed listings be specific to the sites or reaches of the water body where water quality data were collected, rather than assuming that all reaches within creeks are impacted and not supporting beneficial uses.

In addition, San José feels that data used as lines of evidence for proposing several 303(d) listings for entire watersheds were taken on too few occasions and from too few locations within several of the large watersheds, including the Coyote Creek and Guadalupe River watersheds, which flow miles through changing habitats and land uses. Also, assessments and photographs used to list Coyote Creek, Guadalupe River, Lower Silver Creek, and Saratoga Creek were targeted at trash hot spots or specific land use types in urbanized areas; therefore, they do not represent an unbiased assessment of all reaches or even all urbanized reaches within those water bodies. We request that listings be made only when sufficiently comprehensive and unbiased data are available, and that listings be limited to those sites or reaches documented to be chronically impacted by trash.

The proposed 303(d) listings penalize municipalities for preserving natural stream conditions. Trash tends to be retained by natural vegetation in creeks and so is disproportionately visible, while trash reaching concrete channels is efficiently transported directly to the Bay. It is therefore an expected outcome that RTA/URTA scores and photographic evidence would be lower in natural creeks, even though the rates of trash loading might be no different or even less than in concrete channels. While we acknowledge that the beneficial uses of concrete-lined channels are usually not the same as those in more natural creeks, municipalities should not be disadvantaged for preserving the riparian habitat of rivers and streams within their jurisdictions.

Sources and pathways of trash in creeks are diverse and difficult to quantify. Our experience with assessments and cleanups shows that windblown trash from roads and surrounding land uses, illegal direct dumping to the creek, and creekside homeless encampments can be of equal

or greater importance to overall trash loading than the municipal separate storm sewer system. Each creek site where trash accumulates has its own unique set of sources and pathways which should be recognized during this listing process to ensure successful strategies to reduce trash in creeks are identified. We believe the 303(d) listing needs to appropriately acknowledge the varied and complex contributions to trash in creeks.

The City considers trash an important priority. The problem of trash in waterways is much broader than the municipal separate storm sewer system, and includes diverse issues such as homelessness, highway maintenance, illegal dumping, and ultimately societal behavior change. The City is actively working with stakeholders, for example through the Santa Clara Basin Watershed Management Initiative, to identify strategies and secure the funding needed for programming to reach across jurisdictional boundaries to address the structural, social, and economic issues so important to reducing trash in our State's waterways. We believe that efforts to control trash should move forward logically, cost-effectively, and with adequate funding and resources to ensure their success.

We hope you find our comments and suggested improvements to the proposed revision to the 303(d) list helpful. San José is a proud and active steward of the environment, including our local creeks and the San Francisco Bay. San Jose's City Council has adopted a Green Vision, which encompasses a bold set of specific goals for advancements in environmental protection in our community. In keeping with that Green Vision, the City of San José looks forward to working with its citizens, local and regional stakeholders, and the Regional Water Board to find meaningful and feasible solutions to water quality impairments. We appreciate your consideration of our comments and look forward to working cooperatively to address water quality issues within our jurisdiction and throughout the San Francisco Bay. San José also supports and incorporates by reference the comments submitted by the Santa Clara Valley Urban Runoff Pollution Prevention Program. If you have any questions, please contact Melody Tovar, Deputy Director, at 408-277-3892.

Sincerely,

Melody Tovar for

John Stufflebean
Director

350 Frank H. Ogawa Plaza, Suite 900
Oakland, CA 94612-2016

t. 510.452.9261
f. 510.452.9266

saveSFbay.org

December 1, 2008

Chair John Muller and Regional Board Members
San Francisco Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

RE: Proposed revisions to the 303(d) List of Impaired Water Bodies in the San Francisco Bay Region

Dear Chair Muller and Board Members:

On behalf of Save The Bay's over 10,000 members, I am writing to express our support for the 2008 revisions to the 303(d) list proposed in the draft staff report. It is especially critical this year that the revised 303(d) list include the 24 tributaries and two regions of the Bay identified in the report as significantly degraded by trash.

The Basin plan prohibits the discharge of trash into surface waters. The Water Board has acknowledged for several years that trash represents a serious threat to creek, shoreline and Bay water quality. Yet, to date our region has only one waterway listed for trash impairment (Lake Merrit,1998) despite the widespread nature of this problem.

The spatial scope of trash pollution in the Bay Area and the challenge of crafting resource-efficient assessment protocols make it difficult to collect data on all possible water bodies. The Rapid Trash Assessment methods and a rigorous review of photographic documentation provide a reasonable baseline for assessment on a relatively broad scale. We agree with the staff report that the 26 water bodies recommended for listing due to trash impairment clearly fail existing water quality standards. In addition, it is highly likely that these 26 represent only a portion of the impacted water bodies.

The quantity of marine debris in our waterways is growing exponentially. It is both a global and a local threat. Trash from our cities flows into the Bay through creeks and storm drains, and from there, to the Pacific Ocean. The California Coastal Commission reports that 60-80% of beach debris comes from land-based sources. Plastics comprise the majority of trash in our waters. The North Pacific Central Gyre concentrates this material in an area twice the size of Texas, aptly named the Great Pacific Garbage Patch, where plastic particles outnumber plankton.[1] Plastic persists for hundreds to thousands of years. It leaches toxicants and is easily ingested by marine life. Plastic pollution in the marine environment impacts an estimated 267 species around the world. [2]

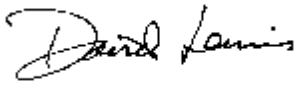
In the Bay Area, trash pollutes our creeks and Bay, chokes wetlands, discourages recreation and endangers wildlife. Save The Bay staff and volunteers remove trash weekly from wetland restoration sites. Yet, the impact of these efforts is negligible for a problem this large. A 2005

study found an average of three pieces of trash along every foot of streams that lead to the Bay.[3] Given an expanding regional population, it is critical to address trash impairments now.

As fast as marine debris is accumulating, public concern over trash pollution in our creeks, bays and oceans is growing nearly as quickly. Bay Area citizens submitted thousands of photographs to the RWQCB documenting trash problems in their local waterways. Over five thousand people have signed Save The Bay petitions. Legislators throughout California have written letters in support of stronger trash regulations. Trash and plastic pollution is also receiving more and more local and national media attention.

For all of these reasons, Save The Bay encourages the Board to approve the staff's proposed 2008 additions to section 303(d) of the Clean Water Act. This action will ensure that these trash-degraded waterways receive increased attention towards achieving water quality standards.

Sincerely,



David Lewis
Executive Director
Save The Bay

[1] Moore, C. J., S. L. Moore, M. K. Leecaster, and S. B. Weisberg, 2001. A comparison of plastic and plankton in the North Pacific Central Gyre. In: Marine Pollution Bulletin 42, 1297-1300.

[2] Laist, D. W., 1997. Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records. In: Coe, J. M. and D. B. Rogers (Eds.), Marine Debris -- Sources, Impacts and Solutions. Springer-Verlag, New York, pp. 99-139

[3] Moore, S.M., A. Senter, M. Cover, Surface Water Ambient Monitoring Program, San Francisco RWQCB: A Rapid Trash Assessment Method Applied To Waters Of The San Francisco Bay Region: Region-Wide Results Of Systematic Measurement Of Trash In Streams.

VALLEJO SANITATION &
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Protecting public health and the San Francisco Bay since 1952.

December 1, 2008

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

PROPOSED REVISIONS TO SAN FRANCISCO BAY REGION LIST OF IMPAIRED WATER BODIES UNDER SECTION 303(D) OF THE FEDERAL CLEAN WATER ACT (CWA)

ATTN: MS. BARBARA BAGINSKA

The Vallejo Sanitation and Flood Control District (District) hereby submits comments regarding proposed revisions to the San Francisco Bay Region list of impaired water bodies under section 303(d) of the Federal Clean Water Act (CWA). The District understands the importance of the 303(d) listing process and applauds your efforts in this area; we appreciate the opportunity to participate in this process to address our mutual goal of protecting the San Francisco Bay.

Responsible for providing flood control, wastewater and stormwater pollution prevention, industrial pretreatment, and wastewater treatment services to the City of Vallejo and unincorporated areas of Solano County, the District must address a variety of water pollution issues. We strive to protect the public and local environment and are dedicated to demonstrating full compliance with applicable laws and regulations while, at the same time, providing the most cost-effective wastewater and flood control services possible. Regulatory actions such as the 303(d) listing process are likely to result in costly monitoring studies and other requirements that force agencies like the District to reallocate already limited fiscal resources to ensure compliance. Given the current economical environment and limited availability of funding sources, especially in the area of stormwater services, addressing additional regulatory requirements will be most challenging. Therefore, it is imperative that future resources are focused on measurable solutions that will decrease pollution, improve water quality, and increase enjoyment of our waterways.

After reviewing the proposed revisions and associated data we have identified several issues that should be addressed before adopting the proposed revisions. Thank you for your consideration of the District's comments.

COMMENTS REGARDING THE LISTING PROCESS

1. Use of Existing Programs or Requirements to Address Water Quality Problems

EPA regulations at 40 CFR 130.7(b) (1) provide that States do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by Federal, State or local authority, and (3) other pollution control requirements required by State, local, or Federal authority. The District encourages the Water Board to consider the use of existing programs such as storm and wastewater pollution prevention programs and/or requirements such as 13267 letters to address water quality problems identified through the listing process. In most cases, addressing these problems in conjunction with other programs would result in more efficient use of fiscal resources and would reduce the amount of administrative management (Water Board oversight) necessary for ensuring compliance.

2. Proper Application of Site-Specific Data

In many cases data employed as evidence of impairment were taken from a single location and used as a basis to presume that the same conditions apply to an entire water body. Since a single location or sampling point is a small part of a larger body of water in which conditions such as habitat and land usage may change significantly from one location to the next, the listing of an entire water body using limited and site-specific data is presumptive. We are requesting that the proposed listings focus on segments where data has been collected to allow for more efficient and responsible use of fiscal resources.

COMMENTS REGARDING PROPOSED LISTINGS FOR TRASH IMPAIRMENT

3. Focused Management of Trash Impaired Water Body Segments

Trash management remains a challenge for local communities, including the City of Vallejo as it originates from various sources that are equally difficult to control. As an agency responsible for flood and stormwater pollution control, trash represents a significant problem to the District; trash not only pollutes local creeks and harms aquatic life, but it can also clog storm drains resulting in flooding during intense rain events. Accordingly, the District is supportive of efforts to address trash control and reduction provided that said efforts are based on sound evidence and promote efficient and responsible use of fiscal resources.

With this in mind the District requests that proposed listings be limited to the particular segments where trash assessments and other data provide clear evidence of impairment, rather than presuming that the same evidence applies to an entire water body. This approach will allow agencies to focus efforts in a manner that is fiscally responsible, practicable, and efficient.

4. Use of the Water Board's Rapid Trash Assessment Protocol

Rapid Trash Assessment Protocol calls for field work requiring two people or more to perform multi-dimensional measurements of a creek and the trash to allow for a technically based assessment of the level of impairment at any given creek; the protocol neither mentions nor allows for photography as the sole means of data collection. The use of photographs as the sole means for determining trash impairment is also contrary to the Water Board's Policy for Developing California's Clean Water Act Section 303(d) List, which establishes that "Visual assessments or other semi-quantitative assessments shall also be considered as ancillary lines of evidence to support a section 303(d) listing." We request that the Water Board reconsider the listing of water bodies which were designated as impaired using photographs as the sole source of evidence.

5. Validity of the Rapid Trash Assessment Protocol

The District is concerned that the Rapid Trash Assessment Protocol was never subjected to a peer review process to determine whether this approach produces scientifically valid and reproducible results. We believe that the interpretation of data such as the qualitative level of trash (high, medium, low) and the source of the trash (illegal dumping and illegal littering) is highly subjective and variable from observer to observer; consequently, using the Rapid Trash Assessment Protocol for determining trash impairment would not produce scientifically defensible or reproducible results. We are requesting that the Water Board consider reevaluating the use of the Rapid Trash Assessment Protocol as the sole means of determining trash impairment.

COMMENTS REGARDING PROPOSED LISTING OF RINDLER CREEK VALLEJO

Background Information

Rindler Creek flows through Vallejo from the western slopes of the Cordelia Hills to Lake Chabot. Rindler Creek is easily visible at the entrance to St. John's Mine Road off Columbus Parkway. It then travels though a concrete channel behind Home Depot, goes under I-80, then curves around the Solano County Fairgrounds on the eastern and southern side of the racetrack, moving along Coach Lane before turning north along Fairgrounds Drive. Finally it travels under Fairgrounds Drive and enters Lake Chabot.

Trash at Rindler Creek, especially along Fairgrounds Drive, has been a long-standing problem as it tends to become trapped by vegetation and the drainage conduits that flow under the road; this has resulted in an eyesore and a concern for localized flooding, not to mention the possible impairment of water quality. Managing trash in this area has proved to be difficult as it originates from a variety of sources including: wind, water, pedestrians and cars, visitors to Six Flags Discovery Kingdom, runoff from storm drains in nearby shopping areas, and more.

6. Activities to Reduce Trash at Rindler Creek

Cleanup efforts by the District, City of Vallejo Landscape Maintenance District, and community volunteers over the last two years have greatly reduced the amount of trash that can be seen along the creek. During the last few years the District has sponsored twice-a-year creek cleanups along Fairgrounds Drive and Coach Lane, where most of the trash accumulates. One of the cleanups is hosted by the Vallejo Watershed Alliance[1], and the other is done during Coastal Cleanup Day. Both are District sponsored and supported projects. A Lake Chabot fisherman's group removes trash between community cleanups when possible. District field crews also perform preventive maintenance along the creek where possible; this includes bank and slope mowing, and removal of large debris.

More recently, the District has surveyed the Rindler Creek Watershed several times to identify sources of trash and develop a strategy for controlling trash in this Watershed. We have determined that the primary source of trash is a storm drainage system that directs runoff from nearby shopping centers. The District intends to address this source by performing assessments to identify areas where trash accumulates; this information will be used to identify management practices to remove trash at the source. The District requests that the Water Board consider the current state of Rindler Creek as evidence of improved conditions, allowing the District to continue with activities to address trash removal through the District's Stormwater Pollution Prevention Program.

[1] *The Vallejo Watershed Alliance is a District sponsored and facilitated partnership of public agencies and interested individuals working together to improve the greater Vallejo Watershed.*

7. Review of Rindler Creek Impairment Assessment

The District has reviewed the Water Board's data specific to Rindler Creek and we have identified the following areas of concern:

(a) LOE ID: 5504 lists the location of the Rindler Creek Headwaters as Benicia Road; the headwaters are actually located in the Cordelia Hills several miles east of Benicia Road. Considering that the photographic evidence identified as Benicia Road is not connected with the Rindler Creek Watershed, the District requests that the Water Board eliminate this data source and repeat the impairment assessment process.

(b) LOE ID: 5504 also lists several other areas as associated with or located within the Rindler Creek Watershed; these areas include Lemon Street Ditch, Austin Creek Pump Station, White Slough, and Lake Dalwigk. None of these areas are associated with, tributary to, or located adjacent to and/or within the Rindler Creek Watershed. The District requests that the Water Board eliminate this non-representative data source and repeat the impairment assessment process.

(c) The Water Board has established that 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. The Board further established that photographs 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 water body) and two close-up photographs (of representative trash deposits) were required. Data Point 91 in the Water Board's assessment of trash photos is listed as having enough evidence even though there is only one close-up photograph listed for this site. We are requesting the Water Board to consider Data Point 91 invalid by removing this data from the assessment process.

(d) The District is unsure of how the protocol for assessing photographic evidence has been applied because there appears to be a contradiction on page one of the Rindler Creek Trash decision. The trash decision worksheet (Excel spreadsheet ref 2461) lists the Rindler Creek headwaters as having two data points 5/14/03 and 4/1/06; the Water Board's assessment of these photographs established that Data Point 99 did not have enough evidence to list, even though five photographs were available for use. Contrary to this, Data Point 91 described above lists a single close-up that was found to be enough evidence. We are requesting that the Water Board review the trash decision to ensure that the protocol for assessing photographic evidence has been applied equally in all instances.

(e) The report submitted by Mr. Roger James and Mr. Larry Kolb as supplementary evidence list six sites and locations under the heading of Rindler Creek; only one location (RCM) is located within the Rindler Creek Watershed, the remaining five locations are not located within the Rindler Creek Watershed. In addition, one of the pictures in the report found under the heading of Rindler Creek clearly is not located in the Rindler Creek Watershed. The District requests that the Water Board review this report for accuracy before using it as supplementary evidence.

(f) The District is concerned that the data used to assess Rindler Creek is outdated; with the exception of one point, the remaining data points were acquired in 2001. Given this fact, it is doubtful that the data submitted to the Water Board for trash impairment is representative of current conditions. The District is requesting that the Water Board review submitted data to ensure that it is representative of current conditions.

In closing, the District would like to thank the Water Board for considering the comments and suggested improvements to the proposed revisions to the Section 303(d) list; we look forward to continuing to work with you during the development of the 2008 303(d) list. At this time we would also like to encourage the Water Board to limit the proposed revisions to tangible water quality impairments for which measurable solutions can be found, rather than addressing perceived or potential impairments that would impact limited fiscal resources. Please contact me at 707-644-8949 ext. 261 if you have questions regarding the District comments and suggested changes.

Sincerely,

DANIEL T. TAFOLLA
VSFCD Environmental Services Director

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December 4, 2008

Barbara Baginska
San Francisco Bay Regional Water Quality Control Board
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Oakland, CA 94612

RE: "Proposed Revisions to the Section 303(d) List"; San Francisco Bay Regional Water Quality Control Board; October 2008

RE: Kevin Buchan letter to Naomi Feger; "Section 303(3) Delisting of San Francisco Bay for Selenium"; Feb 28, 2007

Dear Ms Baginska:

The Western States Petroleum Association (WSPA) is a trade association that represents the majority of petroleum related interests in the western United States. These interests include production, transportation, refining, and marketing of petroleum and petroleum-based products. We appreciate the opportunity to provide comment on the referenced proposed revisions to the Section 303(d) list.

In response to your board's request in 2007, WSPA provided expert comment as to why the San Francisco Bay should be delisted for selenium. We continue to assert that the Bay should not be listed as impaired for selenium. While studies continue to evaluate the level of impairment that might exist, there remains a lack of evidence to maintain the listing.

While WSPA remains opposed to the listing of selenium on the Section 303(d) list, we remain wholeheartedly committed to working with the Board to develop a TMDL (Total Maximum Daily Load) for selenium that is based on the best science and modeling available. Please don't hesitate to contact me for additional information.

Sincerely,

WESTERN STATES PETROLEUM ASSOCIATION

Transmitted electronically by:

Dennis Bolt
Manager Bay Area Region