FEB 2 8 2007

February 28, 2007

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

Subject: 2008 Integrated Report – List of Impaired Waters and Surface Water Quality Assessment [3039d)/305(b)]

Dear Ms. Feger:

This report is submitted to the Regional Board pursuant to the December 4, 2006 notice from the State Water Resources Control Board regarding update of the Impaired Waters List and surface water assessment.

The information presented in this report represents observations of gross pollutants including trash and debris in the Bay Area's storm drain channels, creeks, wetlands and San Francisco Bay over a 10-year period since January 1997. Forty-five (45) separate water bodies, and approximately 120 separate and distinct locations were visited, and over 820 pictures were taken documenting that gross pollutants and trash are severely impairing most surface waters in the San Francisco Bay Region.

We find it disturbing that there has 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 17 years, and 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.

This report documents that 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 303(d) listing, for urban streams, and for the Bay and Ocean where most trash ultimately ends up. The most severely impacted creeks should be included on the "List of Water Quality Limited Segments Being Addressed by Actions Other Than TMDLs" and other creeks included on a watch or monitoring list.

The Regional Board need not wait for preparation of a TMDL (which may be some years away) before acting on this issue. The Board has the responsibility, and all the legal authority it needs to take action on trash right now. The following strategy is feasible:

1. Identify grossly polluted creeks reaches, and adopt separate Cease and Desist Orders on the relevant agencies to require full capture trash removal devices under a time schedule. Based on our report, such a list would include, as a minimum, Colma and San

Mateo Creeks in San Mateo County; Vista Grande Canal in City and County of San Francisco; Coyote and Lower Silver Creeks and the Guadalupe River in Santa Clara County; Creeks tributary to the Eastbay Shore Line, and Alameda, San Leandro, Sausal, and 54th Street Creeks, and Damon Slough in Alameda County; and San Pablo, Grayson, and Walnut Creeks in Contra Costa County. The total time allowed for compliance should be ten years, as was done in Los Angeles, to allow gradual phase-in.

2. Require all municipal storm water programs to prepare technical reports pursuant to section 13267 of California Water Code for addressing storm water trash so as to protect their streams (other than the streams already addressed above). The Regional Board should reserve the right to make the final determinations as to which reaches of which streams require full capture devices. The time for such reports should be on the order of two years.

3. Make provision for electronic acceptance by the Regional Board of citizen photo monitoring of conditions immediately after storms. Such monitoring can be difficult for agencies to do in a timely way. As a minimum such submittals should have the name of the photographer, the date and time, and the location of the observation.

4. Continue work on the Stream Protection Policy, concurrent with action on the trash issue. We can expect stronger public support for protecting urban creeks if the Board acts now to achieve "trash free creeks".

We are available to answer any questions you may have regarding the contents of the report or our recommendations.

Sincerely,

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Orinda, CA 94563-4228
925-631-7950

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

GROSS POLLUTANTS, TRASH AND DEBRIS IN BAY AREA STORM DRAIN CHANNELS, CREEKS, WETLANDS AND SAN FRANCISCO BAY

INTRODUCTION

This report to the San Francisco Bay Regional Water Quality Control Board (RWQCB) has been prepared pursuant to guidance issued by the State Water Resources Control Board (SWRCB) for assessing water quality conditions in California. The report has been prepared by Roger B. James former Executive Officer and 28-year employee of the RWQCB with review and suggested amendments provided by Larry Kolb, former Assistant Executive Officer and 33-year employee of the board. The report specifically covers impairment of beneficial uses of creeks, wetlands and Francisco Bay caused by the discharge of gross pollutants including trash and debris during the period January 1997 through February 2007.

The overall conclusions of this report are that:

- Discharge of gross pollutants including trash in urban runoff to urban creeks and other waters of the United States is clearly illegal under the Clean Water Act and this RWQCB's current Basin Plan,
- The impacts of trash are bad and getting worse, because much of today's trash does not break down in water, and some components closely resemble and are "viewed" as food items by aquatic organisms,
- It is not reasonable to expect municipal storm water programs to address this issue without formal RWQCB enforcement action, especially given that some deny there is a problem,
- The pervasiveness of trash in urban runoff and urban creeks is in direct collision with the Board's desire to see our creeks protected and restored, and
- There are effective and affordable methods of keeping trash out of our waterways, provided the regulatory will is there.

Our recommendation to the Board is that it add trash and gross pollutants to its 303(d) listing of impaired water bodies, to include urban creeks, the Bay and the Ocean, and instruct its staff to take regulatory action as described herein to address this problem. We believe action should be taken now, without waiting for preparation of a TMDL.

Finally we urge this Board to bear in mind that every major achievement of the Board was accompanied by objections and controversy, and only resolute action by the Board and its staff made progress possible and this is another such occasion.

The SWRCB on December 4, 2006 issued a public notice soliciting water quality data and information for the 2008 Integrated Report on listing impaired waters and surface waters and surface water quality assessment pursuant to section 303(d)/305(b) of the Federal Clean Water Act. The notice included specific information regarding the format of data submittals; however, subsequent guidance issued on January 30, 2007 indicates greater flexibility in the submittals.

The section on Documentation of Water Quality Impairments provides information on those contributing to the report, procedures and equipment that was used in obtaining the photographic documentation and establishing areas where photographic information was collected.

REGULATORY BACKGROUND

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 (precursor of Basin Plans) and the June 1978 Environmental Management Plan (208 Plan). Control of gross including large sediments, trash and debris have been addressed in Basin Plans and included in municipal NPDES Permit as receiving water quality limitations. Common definitions of these materials include:

> **Gross Pollutants** – Litter, debris and sediments that would be retained on a five millimeter (0.20 inch) screen and transported as floating, submerged or neutrally buoyant materials
>
> **Litter** - Human derived material including paper, plastics, metals including lead wheel weights, cigarette butts, cloth, glass including hypodermic needles
>
> **Debris** – Any organic material transported by storm water including leaves, twigs, natural wood and grass clippings

Basin Plans

The RWQCB Basin Plan contains the following Water Quality Objectives:

> **3.3.6 FLOATING MATERIAL** - Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
>
> **3.3.12 SEDIMENT** - The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
>
> **3.3.13 SETTLEABLE MATERIAL** - Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses.

In addition the Basin Plan in Table 4-1 Discharge Prohibitions contains the following prohibition:

> 7. Rubbish, refuse, bark, sawdust or other solid wastes into surface waters or to any place where they could contact or where that would be eventually transported to surface waters, including flood plains.

Municipal Storm Water NPDES Permits

The storm water NPDES permits issued to the San Francisco Bay Area municipalities:

- Prohibit the discharge of storm water from a facility or activity that causes or contributes to a violation of Receiving Water Limitations

- Contain Receiving Water Limitations requiring that the storm water discharge not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the State:
    - Floating, suspended, or deposited macroscopic matter, or foam;
    - Bottom deposits or aquatic growths;
    - Alterations of temperature, sediment load, nutrient load, dissolved oxygen which cause significant adverse impacts to native aquatic biota;
    - Visible, floating, suspended, or deposited oil or products of petroleum origin, and/or
    - Substances present in concentrations or quantities which cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption.
- Require compliance with the prohibition and receiving water limitations through the implementation of successive control measures when exceedances of water quality standards.

The Los Angeles Example

The Los Angeles Regional Water Quality Control Board has adopted TMDLs to control trash in storm water runoff for selected rivers and creeks that have been appealed to the SWRCB and the courts with a decision by the Court of Appeal. The Fourth Appellate District Court of Appeal in a decision made a number of important findings http://www.courtinfo.ca.gov/opinioins/documents/DO43877.PDF:

- The target of zero trash is attainable and not inordinately expensive to achieve
- That an assimilative capacity study was not required
- That cost/benefit and consideration of economic factors were not required
- That cities actions were not limited to only meeting the Maximum Extent Practicable requirement
- That the Regional Board reliance on Basin Plan beneficial uses of the Los Angeles River was appropriate
- That the Regional Board was not required to undertake a CEQA analysis in adopting the TMDL

PREVIOUS 303 (d) LIST

The RWQCB in the August 27, 2001 staff report (RWQCB 2002) on the 2002 Section 303(d) listing of impaired water bodies made the following statements:

- Trash is a pollutant of concern to the Regional Board. The Basin Plan, in Table 4-1, explicitly prohibits discharges of "rubbish, refuse, bark, sawdust or other solid wastes into surface waters or to any place where they could contact or where that would be eventually transported to surface waters, including flood plains. ..... As such, trash is a pollutant whose discharge should be eliminated consistent with the Basin Plan and state and federal and regulations.

- 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.
- The current trashed condition of many urban waterways perpetuates a widespread public perception that such waters are a dumping ground and hold little ecological value..... As such, the Regional Board intends to elevate the management of trash in watersheds as part of this 303(d) list review process, and finds that trash threatens to impair water quality in all urban creeks, lakes, and shorelines in the San Francisco Bay Region.
- The SWRCB staff in its report on the 303(d) listing made a number of statements regarding listings for trash:
    - If trash is a nuisance and storm drains are the major source then existing storm water permits should be used to reduce the trash discharged from storm drains and if sources are non-storm drain related then there should be a 303(d) listing and TMDL developed.
    - For water quality improvement efforts that would, if implemented, allow attainment of water quality standards these efforts should be allowed to move forward in the absence of a TMDL. These efforts include enforcement of existing authorities to correct permit or WDR violations, ... The following actions present some of the options available for enforcement: (1) Notices to Comply, (2) Cleanup and Abatement Orders, (3) Time Schedule Orders, (4) Cease and Desist Orders, and (5) Administrative Civil Liabilities.
- The SWRCB staff also indicated that to be consistent with 40 CFR 130.7(b)(i), (ii), and (iii) water bodies are listed where enforcement of existing permits are stringent enough to attain water quality standards. The SWRCB submitted an Enforceable Program List to USEPA that is not part of the section 303(d) list.

The RWQCB did not recommend inclusion of any water bodies impaired by gross pollutants or trash for the 2004-06 Section 303(d) listing of impaired water bodies or propose listing water quality segments being addressed by actions other than TMDLs.

DOCUMENTATION OF WATER QUALITY IMPAIRMENTS

The storm drain channels, creeks, wetlands and areas within the Bay were selected based on past experience while working with the RWQCB, using the Creeks and Watershed maps published by the Oakland Museum of California and AAA area maps that identified shoreline parks and points of public access. The specific sites for the observations of the presence of gross pollutants including trash and debris were selected considering:

- Nuisance – Shoreline trails and parks, public trails along flood control channels, wetlands where the public is encouraged to view waterfowl and wildlife, pedestrian overpasses and bridges.

- Beneficial Use Impacts – Creeks, rivers, wetlands that provide habitat for fish, birds, aquatic life and wildlife where observations could be made from readily available points of access by the public.

The use of photographic documentation of gross pollutants including trash and debris was prepared considering the historic regulation of these pollutants and the Fourth Appellate District Court of Appeal decision.

Photographs were taken by Roger James, PE, 63 Ivy Drive, Orinda, CA94563-4228, 9925-6317950, e-mail roger.james@worldnet.att.net. Don Erba, 5521 Blossom Wood Drive, San Jose, CA 95124, 408-356-8408, e-mail donerba@comcast.net contributed photographs of Adobe Creek, Calabazas Creek, Guadalupe River, Coyote Creek, Lower Silver Creek. Stevens Creek, San Tomas Aquino Creek and Matadero Creek.

Pictures taken by Roger James used a Minolta XG-7 with an automatic setting and a Minolta f=50 mm Rokkar-X MD lens 1:1.7 and a Viitar VMC Skylight IA filter. Digital photographs were taken with a Sony DSC-75 Cyber-Shot 3.3 mega pixels camera using automatic settings. Digital photographs were stored on a PC and transferred to CDs without editing. Individual digital photographs record the time and date when the pictures were taken. Photographs taken by Don Erba were with a Minolta SLR Dynax 5 and digital photos taken using a Sony Cybe-Shot with automatic settings. Digital photographs were stored on a PC and transferred to CDs without editing. Photographs in Attachment C were scanned using an HP Scanjet 4470C.

A map of the Bay Area, Figure 1 – Location of Gross Pollutant Observations, Attachment A, indicates each of the water bodies that were inspected. Locations of individual sites were established by latitude and longitude determined using a Garmin eTrex Vista C or referencing to landmarks. The latitude and longitude at some sites was determined by using Google Earth to determine the location. These reference sites using Google Earth can be determined from the latitude or longitude measure in degrees, minutes and seconds while the Garmin measurements are in degrees and minutes. In some cases multiple photographs were taken in the general vicinity of a site where latitude and longitude were recorded.

Areas photographed were selected to obtain accurate representation of the spatial and temporal conditions of the gross pollutants, trash and debris at the selected site location. A field book was maintained of the time and date of each site visited to validate the site location where each photograph was taken.

Forty-five (45) separate water bodies including drainage channels, creeks, wetlands or Bay waters were visited. Over 120 separate and distinct locations or sites were visited at the 45 water bodies. Some waters such as Walnut Creek because of its length were visited at multiple locations or sites to document locations where gross pollutants accumulate. Some sites were visited over a several year period to determine whether there had been changes in the amount or location where gross pollutants accumulate. Several sites were visited at close time intervals before and after storm events to determine whether trash deposited above a flowing stream was subsequently flushed downstream. Over 820 pictures were taken and included in this report as Attachment C for photographs and Attachment D for the digital pictures in CD format.

This number of pictures precludes including each copy in this report. The report in Attachment B includes a page for each water body with a description of the site, dates of inspections reference to a picture number and several pictures documenting the gross pollutants. The reader can then refer to individual CDs or copies of photographs for all pictures taken at a site.

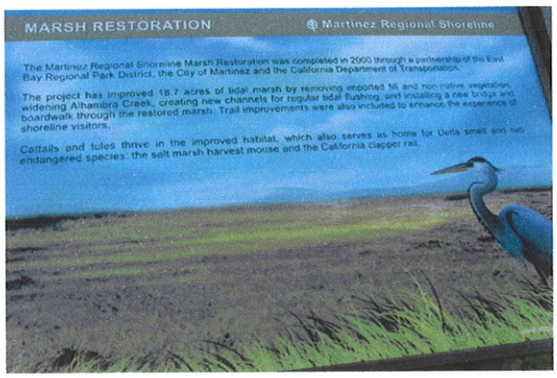
> **Example** – Alameda Creek at the Hesperian Boulevard site. Pictures were taken on January 11, 2006 and March 31, 2006. The individual pictures can be viewed on the CD in Attachment D by going to the dates that photographs were taken as shown in Attachment B.

DOCUMENTATION OF IMPAIRMENT

Public Nuisance

The visual impacts of gross pollutants – primarily trash – are well documented by the pictures that have been taken and constitute a nuisance as defined by Section 13050(m) of the California Water Code. The presence of trash in the massive quantities observed during the10-year period at locations that are readily accessible to the public and indeed where the public is encourage to seek recreation provides a basis for a finding of nuisance.

Bay Trail at High Street Bridge – Oakland



Martinez Regional Shoreline

The Santa Clara Valley Water District as part of the Clean, Safe Creeks and Natural Flood Control Protection Program has 33 miles of public access trails of a program goal of 70 miles of trails and open space. Many of these miles will be associated with creeks and watersheds. (SCVWD 2005-2006).

Water Quality and Beneficial Use Impairment

The pictures in this report further document exceedances of the Basin Plans Water Quality Objectives for Floating Material, Sediment and Settleable Material and document that NPDES permit Prohibitions and Receiving Water Limitations are being violated.

The water quality impacts of trash have been generally described by the Surface Water Ambient Monitoring Program (January 2007). The RWQCB describes the impacts that trash poses to wildlife are entanglement and ingestion and contribution to sediment contamination. There are no known studies of the water quality impairment by gross pollutants and particularly trash in the San Francisco Bay area; however, studies done elsewhere have reported the following:

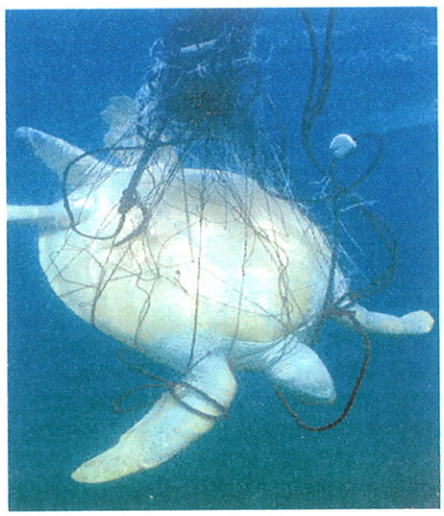
- Small plastic particles have been found in 63 of the world's 250 species of seabirds and sea turtles that mistake soda rings, baggies, styrofoam particles and plastic pellets ("nurdles") as authentic food. Plastic particles are found in the stomachs of 8 of 11 seabird species and every single surface-feeding bird and in 75% of the shearwaters. (Blight and Burger 1997)

Victim: Laysan albatross chick. Age: six months. Cause of death: starvation due to a full stomach. Contents of stomach (right): cigarette lighters, pump-top sprayer, nut shells, shotgun shell, broken clothespins, hundreds of plastic bits.

The food an albatross parent regurgitates into a chick's mouth should be squid, fish, and fish eggs. Adults fly thousands of miles to gather this food where it concentrates—in mid-ocean gyres created by currents. But trash trapped in gyres gets gulped down too, then fed to chicks. Before fledging, chicks naturally vomit the squid beaks and other organic undigestibles they've stored. It's rare now to see one of these masses that doesn't contain marine debris. Starvation associated with marine debris is a significant cause of death in chicks that don't fledge.

86 · NATIONAL GEOGRAPHIC · OCTOBER 2005

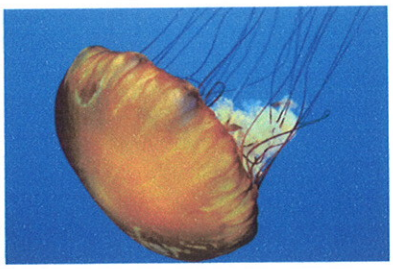
Trash from *Laysan* Albatross Chick – National Geographic October 2005



Entanglement of Sea Turtle
Ocean Conservancy – Winter 2007

The entanglement of aquatic life in the Bay by gill nets is unlikely because they are illegal; however, fishing lines and plastics such as "six pack" rings are a threat.

- Plastic pellets comprise 94% of al harbor debris collected and were found in 13 of 14 nation's harbors surveyed. Anthropogenic debris affects seabirds by diminishing foraging ability, intestinal blockage and absorption of toxic chemicals; and ingestion of debris impacts sea turtles through loss nutrition, reduced absorption of nutrients and adsorption of plasticizers (EPA842-B-92-010).



Sea Turtles and Jelly Fish

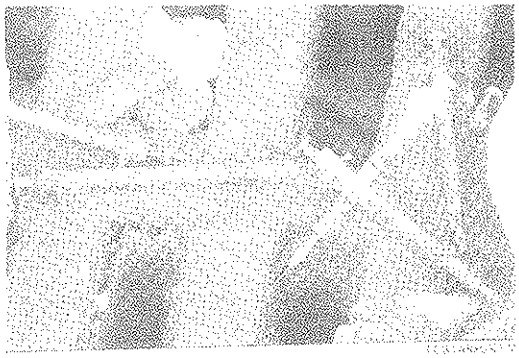
- Actual counts of litter found cigarette butts compose 25% and plastics almost 25% of all litter (Allison1998) and analysis of cigarettes found them to contain 85 mg/g BOD, 777 mg/g COD, 492 ug/g lead, 716 ug/g copper, 193 ug/g nickel and 560 ug/g zinc (USEPA 1973)
- A study of the Pacific Ocean Central Gyre found that plankton abundance was approximately five times higher than that of plastic, but the mass of plastic was approximately six times that of plankton. (Moore, etal 2001)
- Plastic resin pellets, a raw material for the plastics industry, have been found to concentrate pollutants such as PCBs, DDE and nonylphenols thought to be plastic additives and/or their degradation products. (Mato 2001). Studies found that the plastic pellets referred to as "nurdles" have adsorption coefficients of 1 - 10 million. Styrofoam pellets from the disintegration of styrofoam cups and food containers have been observed to concentration oil and greases and likely have similar adsorption characteristics. Nurdles and styrofoam pellets are viewed as fish eggs and ingested by aquatic life and birds.

While it is important to emphasize that there are no known similar studies that have been conducted in the Bay Area this effort found widespread distribution of the styrofoam pellets in wetlands, deposited as a "bath tub ring" along the bay shoreline and along creek high water lines and deposited in rip rap shoreline areas. Many of these pellets were coated with oil and are virtually impossible to remove during volunteer cleanup events.

Styrofoam Pellets at the Bay's Shoreline and In Wetlands

Contamination

The cleanout ofs solids capture storm water BMPs in the Bay Area have found accumulation of hypodermic needles that have entered from storm drain systems. This method of trapping these potential contaminants minimizes the risk of human exposure because these devices are frequently cleaned with large vacuum trucks and material placed at designated controlled locations; however, the presence of needles in storm water runoff raises the question of exposure of and risks to volunteers during cleanup events.



"THE STORM DRAIN is so full of used balloons and needles and garbage that it overflows when it rains," says Karla McMorris, 47, homeless in San Francisco since 1996.

Contra Costa Times

The information contained in this report should be considered along with the Conclusions and Recommendations of the January 20, 2007 draft Final Technical Report "A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region: Trash measurement in Streams". That report includes the following statements:

- Levels of trash in the waters of the San Francisco Bay Region are alarmingly high, despite the fact that the Basin Plan prohibits discharge of trash and that littering is illegal with potentially large fines.
- Based on 93 surveys conducted at 26 sites throughout the Bay Area, we found an average of 2.88 pieces of trash per linear foot of stream.
- All watersheds studied in the San Francisco Bay region have high levels of trash.
- There did not appear to be one county or region with higher trash levels, as high and low deposition rates were measured in each county surveyed.
- The San Francisco Bay Region has a problem with trash in streams and the Bay.

Municipalities Assessment of Trash Problem

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPP) conducted its own trash assessments as suggested by the RWQCB in the 2001 303(d) listing revisions. The SCVURPPP in the FY2005-2006 Annual Report (SCVURPP 2006) indicates that 27 trash assessment evaluations conducted during FY2005-2006 reported that "Most of the sites were scored as "optimal" or "suboptimal", whole only five percent were scored as "marginal"; no sites were scored as poor." The SCVURPP's report is dramatically inconsistent with photographs included in this report and those that have

been presented by Larry Johmann of the Guadalupe – Coyote Resource Conservation District. Regional Board enforcement action is required when a storm water program conducts assessments that are of limited scope and not representative.

The information contained in this report should be considered with other public submittals of observations of gross pollutants and trash in the Bay Area's storm drain channels, creeks, wetlands and the Bay. These observations have been solicited and encouraged by the Save The Bay Association.

The Regional Board is urged to list the Bay Area's creeks, wetlands and the Bay itself as impaired from gross pollutants including trash and debris and include these streams on lists of Enforceable programs and/or the water quality limited segments being addressed by actions other than TMDLs.

REFERENCES

Allison, *From Roads to Rivers*, CRCCH 98/6

Burger, LK and Burger, AE, *Occurrence of Plastic Particles in Seabirds from the Eastern North Pacific*, Marine Protection Bulletin 34(5): 323-325

Mato, Yukie etal, 2001, *Plastic Resin Pellets as a Transport Medium for Toxic Chemicals in the Marine Environment*, Environmental Science Technology, 2001, 35, 318-324

Moore, CJ, 2001, *A Comparison of Plastic and Plankton in the North Pacific Central Gyre*, Environmental Science Technology, 2001, 42, 12, 1297-1300

RWQCB, 2002, *Draft Recommendations 303(d) List Revisions*, August 27, 2001, California Regional Water Quality Control Board, San Francisco Bay Region

SCVURPP 2006, *Executive Summary, FY 2005-2006 Annual Report,* Santa Clara Valley Urban Runoff Pollution Prevention Program

SCVWD, January 2007, *Clean, Safe Creeks and Natural Flood Protection Program, Independent Oversight Report, Fiscal Year 2005-2006, Year 5 of 15,* Santa Clara Valley Water District

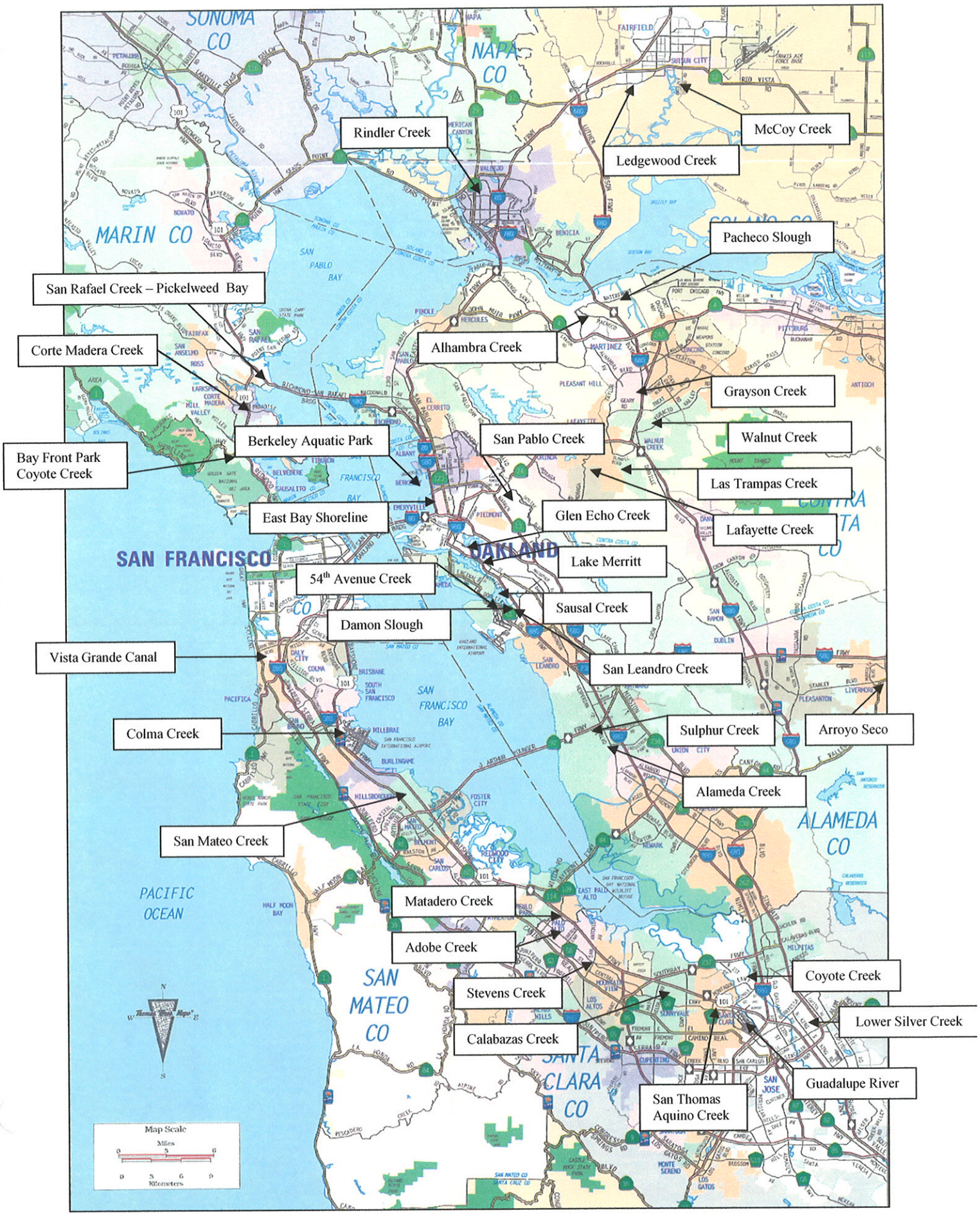
Surface Water Ambient Monitoring Program, *A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region: Trash Measurement in Streams*, Final Technical Report January 2007

USEPA, *Plastic Pellets in the Aquatic Environment Sources and Recommendations*, EPA824-B-92-010

USEPA, *Contribution of Urban Roadway Usage to Water Pollution*, EPA600/2-004

Attachment A

Figure 1 – Location of Gross Pollutant Observations


Rindler Creek
McCoy Creek
Ledgewood Creek
Pacheco Slough
San Rafael Creek – Pickelweed Bay
Corte Madera Creek
Alhambra Creek
Grayson Creek
Berkeley Aquatic Park
San Pablo Creek
Walnut Creek
Bay Front Park
Coyote Creek
Las Trampas Creek
East Bay Shoreline
Glen Echo Creek
Lafayette Creek
Lake Merritt
54th Avenue Creek
Sausal Creek
Damon Slough
Vista Grande Canal
San Leandro Creek
Sulphur Creek
Arroyo Seco
Colma Creek
Alameda Creek
San Mateo Creek
Matadero Creek
Adobe Creek
Coyote Creek
Stevens Creek
Lower Silver Creek
Calabazas Creek
Guadalupe River
San Thomas
Aquino Creek
SONOMA CO
NAPA CO
MARIN CO
SAN FRANCISCO
OAKLAND
SAN FRANCISCO BAY
ALAMEDA CO
SAN MATEO CO
SANTA CLARA CO
PACIFIC OCEAN
Map Scale
Miles
Kilometers

Attachment B

Observations of Water Bodies

ATTACHMENT B
OBSERVATIONS OF WATER BODIES

Alameda County

- Alameda Creek
- Alameda Creek
- Arroyo Seco
- Berkeley Aquatic Park Lagoon
- Damon Slough
- East Shore State Park
- Glen Echo Creek
- Lake Merritt
- San Leandro Creek
- Sausal Creek
- Sulphur Creek
- 54th Street Creek

Contra Costa County

- Alhambra Creek
- Grayson Creek
- Lafayette Creek
- Las Trampas Creek
- Pacheco Slough
- San Pablo Creek
- San Ramon Creek
- Walnut Creek

Marin County

- Bay Front Park
- Corte Madera Creek
- San Rafael Bay - San Rafael Creek, Pickelweed Bay

City and County of San Francisco

- Vista Grande Canal

San Mateo County

- Colma Creek
- San Mateo Creek

Santa Clara County

- Adobe Creek
- Coyote Creek
- Guadalupe River
- Lower Silver Creek
- Matadero Creek
- San Tomas Aquino Creek
- Stevens Creek

Solano County

- Ledgewood Creek
- McCoy Creek
- Rindler Creek

Adobe Creek

- **Sites and Locations**
  - Downstream of Highway 101
- **Observations - Don Erba**
  - February 21, 2005 – See CD "Creeks Santa Clara County 2005" – Attachment D

Alameda Creek

- **Sites and Location**
  - **Hesperian Blvd – Union Pacific RR Bridge**
    N37° 36.4821' W122° 05.229'
- **Observations**
  - 01/11/06 – DSC03651 - 03658
  - 03/31/06 – DSC03885 - 03886

Alameda Creek

- **Sites and Location**
  - **Ahern Avenue – Extension Volpey Way**
    N 37° 36.510' W 122° 04.325'
- **Observations**
  - 03/31/06 – DSC03887 – 03889
  - 01/11/06 – DSC03647 - 03650

Alhambra Creek

- **Sites and Locations**
  - **Susana Street Bridge** (SS)
    N38° 00.861' W122° 07.972'
  - **Extension Mello St. @ Las Juntas St.** (MS)
    N38° 00.947' W122° 07.987'
  - **South Marina Vista Bridge** (MVB)
    N38° 01.082' W122° 08.289'
  - **Bridge at Shoreline Park** (SPB)
    N38° 01.082 W122° 08.453'
  - **Bayfront Shoreline** (BS)
    N38° 01.517' W122° 08.436'
- **Observations**
  - 02/13/07 – DSC 04673 – 04686 (BS)
    - DSC 04687 – 04692 (MVB)
    - DSC 04693 – 04695 (SPB)
    - DSC 04696 – 04698 (SS)
    - DSC 04699 (MS)

Arroyo Seco

- **North Livermore Avenue**
  N37°41'59.48" W121°46'25.27"
- **Observations**
  - ❑ 01/29/03 – DSC 00416

Bayfront Park – Mill Valley

- **Sites and Location**
  - **Coyote Creek @ Shoreline Highway** (CC)
    N37° 52' 47.20" W122° 31.446'
  - **Corte Madera del Presidio@ LaGoma St** (CM)
    N37° 53' 53.21" W122° 32'10.30"
  - **Bay Front Park** (BP)
    N37° 53.779' W122° 31.446'
  - **Enchanted Knolls Park @ Blithdale Ave** (EKP)
    N37° 54'01.99" W122° 31'35.68"

- **Observations**
  - 01/24/03 – DSC 00373 (CC)
    - DSC 00374 – 00377 (CM)
    - DSC 00378 – 00384 (BP)
    - DSC 00385 – 00388 (EKP)
  - 04/1/06 – DSC 03919 -03921 (BP)

Berkeley Aquatic Park Lagoon

- **Sites and Locations**
  - **Bolivar Dr. @ Extension of Addison St.** (BA)
    N 37°51.943' W 122°18.127'
  - **NE End of Lagoon** (NEL)
    N 37°51.951' W 122°18.156'
  - **Extension of Bancroft Way** (BW)
    N 37°51.745' W 122°18.099'

- **Observations**
  - 12/15/06 – DSC 04507 (BA)
    - DSC 04508 – 04511 (NEL)
    - DSC 04512 - 04513 (BW)

Calabazas Creek

- **Sites and Locations**
  - Upstream and Downstream of Tasman Drive
- **Observations - Don Erba**
  - February 21, 2005 – See CD 'Creeks Santa Clara County 2005" – Attachment D

Colma Creek

- **Sites and Locations**
  - **Mitchell Avenue** (MA)
    N 37°38.942' W 122°24.102'
  - **Utah Avenue Bridge** (UAB)
    N 37°38.780' W 122°24.070"
  - **Pedestrian Crossing Bridge** (PCB)
    N 37°38'53.36" W 122°23'56.09"

- **Observations**
  - 01/29/02 – six pictures Attachment C
  - 12/31/02 – DSC 002 85 – 00292 (PCB)
    - DSC 00293 – 00297 (MA)
    - DSC 00298 – 00306 (UAB)
  - 12/10/03 – DSC 01310 – 01319 (MA)
  - 01/06/05 – DSC 02592 – 02595 (MA)
  - 02/03/06 – DSC 03727 – 03732 (MA)
    - DSC 03733 – 03740 (UAB)
  - 04/01/06 – DSC 03903 - 03907 (MA)
    - DSC 03408 – 03911 (UAB)

Colma Creek

Corte Madera Creek

- **Sites and Locations**
  - **Bon Air Centre (BAC)**
    N37°56'35.45" W122°32'09.25"
  - **Ferry Terminal Wetland** (FTW)
    N37°56'36.37" W122°30'33.36"
  - **Highway 101 Bridge** (101)
    N37°56.576' W122°30.886'

- **Observations**
  - 01/24/03 – DSC 00389 – 00391 (BAC)
    - DSC 00392 – 00395 (101)
    - DSC 00396 (FTW)
  - 04/01/06 – DSC 03922 -03924 (101)

Coyote Creek

- **Sites and Locations**
  - **Multiple Locations from Lake Cunningham Downstream to Tasman Drive**
- **Observations - Don Erba**
  - February 2004 – Pictures of Coyote Creek between Upper Penitencia Creek and Mabury Road – Attachment C
  - February 21, 2005 – See CD 'Creeks Santa Clara County 2006" – Attachment D
  - February 2 and 3, 2006 – See CD 'Creeks Santa Clara County 2006" – Attachment D

Upstream of Penitencia Creek Confluence and South of Maybury Road

Upstream of Penitencia Creek Confluence and South of Maybury Road

Coyote Creek

Upstream of Penitencia Creek Confluence and
South of Maybury Road

Coyote Creek

Damon Slough

- **Sites and Locations**
  - **Damon Slough** (DS)
    N 37°45.168' W 122°12.472'
  - **Damon Slough @ Coliseum** (DSC)
    N 37°45.279' W 122°12.096'
  - **San Leandro Channel and Bay**
    N 37°44'55.91"' W 122°12'43.89"
- **Observations**
  - 01/97 – Three Pictures – See Attachment c
  - 03/10/99 – Twelve Pictures – See Attachment C
  - 11/08/99 – Four Pictures – See Attachment C
  - 12/20/02 – DSC 00205 - 00209 (DS)
  - 12/10/03 – DSC 01278 - 01291 (DS)
  - 12/16/04 – DSC 02410 - 02414 (DS)
  - 01/05/05 – DSC 02579 - 02584 (DS)
    – DSC 02585 - 02588 (SLB)
  - 12/19/05 – DSC 03567 - 03575 (DS)
    - DSC 03576 –03579 (DSC)
  - 01/11/06 – DSC 03670 - 03682 (SLB)
    – DSC 03683 - 03686 (DS)
    - DSC 03687– 03692 (DSC)
  - 03/29/06 - DSC 03872 - 03876 (DS)
    - DSC 03877 – 03882 (DSC)
  - 04/01/06 - DSC 03890 - 03892 (DS)
  - 04/11/06 - DSC 03973 – 03976 (DSC)
  - 02/23/07– DSC 04783 – 04797 (DS)
    – DSC 04827 - 04831 (DSC)

Damon Slough

- **Sites and Locations**
  - **Damon Slough** (DS)
    N 37°45.168' W 122°12.472'
  - **Damon Slough @ Coliseum** (DSC)
    N 37°45.279' W 122°12.096'
  - **San Leandro Channel and Bay**
    N 37°44'55.91"' W 122°12'43.89"
- **Observations**
  - 01/97 – Three Pictures – See Attachment c
  - 03/10/99 – Twelve Pictures – See Attachment C
  - 11/08/99 – Four Pictures – See Attachment C
  - 12/20/02 – DSC 00205 - 00209 (DS)
  - 12/10/03 – DSC 01278 - 01291 (DS)
  - 12/16/04 – DSC 02410 - 02414 (DS)
  - 01/05/05 – DSC 02579 - 02584 (DS)
    – DSC 02585 - 02588 (SLB)
  - 12/19/05 – DSC 03567 - 03575 (DS)
    - DSC 03576 –03579 (DSC)
  - 01/11/06 – DSC 03670 - 03682 (SLB)
    – DSC 03683 - 03686 (DS)
    - DSC 03687– 03692 (DSC)
  - 03/29/06 - DSC 03872 - 03876 (DS)
    - DSC 03877 – 03882 (DSC)
  - 03/31/06 - DSC 03890 - 03892 (DS)
  - 04/11/06 - DSC 03973 – 03976 (DSC)
  - 02/23/07– DSC 04783 – 04797 (DS)
  - 02/23/07 – DSC 04827 - 04831 (DSC)

Damon Slough

Eastshore State Park

- **Berkeley, Emeryville, Port of Oakland – Middle Harbor Park**
- **Sites and Locations**
  - **Virginia Street** (VS)
    N37° 52.240' W122° 18.435'
  - **Strawberry Creek @ University Ave** (SC)
    N38° 51.951' W122° 18.412'
  - **Powell Street** (PS)
    N37° 50.208' W122° 18.015'
  - **Beach @ Ashby Avenue** (AA)
    N37° 51.046' W122° 18.015'
  - **Temescal Creek** (TC)
    N37° 51.046' W122° 18.015'
  - **Middle Harbor Park** (MHP)
    N37°48.431' W122° 19.774'

- **Observations**
  - 12/15/06 – DSC 04485 – 04493 (PS)
    - DSC 04494 – 04500 (TC)
    - DSC 04501 – 04506 (MHP)
    - DSC 04514 – 04523 (VS)
    - DSC 04524 - 04540 (SC)
    -DSC 04541 – 04506 (AA)

Eastshore State Park

Eastshore State Park

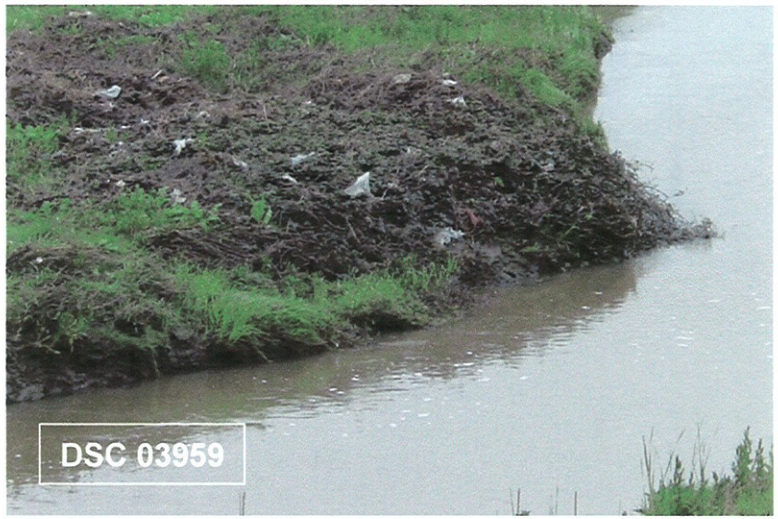
Glen Echo Creek

- **Sites and Locations**
  - **Glen Echo Creek Near Oak Glen Park**
    N 37°49'06.24" W122°15'37.46"

- **Observations**
  - 03/97 – Three Pictures

Grayson Creek

- **Sites and Locations**
  - **Elinora Drive Bridge** (EB)
    N37° 57.241' W122° 03.756'
  - **Trail between Center Avenue and 2nd Avenue S** (T)
    N37° 58.781' W122° 04.096'
  - **Center Avenue Bridge** (CB)
    N37° 58.994' W122° 04.097'
  - **Pacheco Blvd** (PB)
    N37° 59.158' W122° 044.162'
  - **Imhoff Drive Bridge** (IB)
    N38° 00.108' W122° 03.756'
- **Observations**
  - 04/03/06 – DSC 03953 – 03959 (ID)
    - DSC 03968 – 03970 (T)
  - 12/08/06 – DSC 04445 – 04460 (T)
  - 01/04/07 – DSC 04650 – 04654 (ID)
  - 02/13/07 – DSC 04721 – 04722 (ID)
    - DSC 04723 – 04726 (T)
    - DSC 04727 – 04731 (CB)
    - DSC 04732 – 04734 (T)



Grayson Creek

Coyote Creek

Upstream of Penitencia Creek Confluence and
South of Maybury Road

Guadalupe River

- **Sites and Locations**
  - **Multiple Locations Between Almaden Expressway Downstream to Airport Parkway – Approximately 8 Stream Miles**
- **Observations - Don Erba**
  - March 1, 2001 – Twelve Pictures between Almaden Expressway and Taylor Street – Attachment C
  - March 22, 2001 – Seven Pictures between Alma Street and Santa Clara Street - Attachment C
  - February 18, 2005 – Forty-one Pictures – See CD" Creeks - Santa Clara County 2005" – Attachment D
  - February 2, 2006 – Forty-one Pictures from Woz Way to Airport Parkway - See CD "Creeks Santa Clara County 2006" – Attachment D

Gauging Weir at W St John Street

Downstream of Taylor Street Bridge

Guadalupe River

Downstream of Taylor Street Bridge

Downstream of Woz Way

Guadalupe River

Lafayette Creek

- **Sites and Locations**
  - Village Center (VC)
    N 37°53.275' W 122°08.058'
  - Mountain View Drive (MV)
    N 37°53.275' W 122°07.646'
  - Dewing Avenue (DA)
    N 37°53.311' W 122°07.374'
  - Hough Street (HA)
    N 37°53.294' W 122°07.294'
  - First Street (FS)
    N 37°53.462' W 122°06.988'
  - Second Street (SS)
    N 37°53.483' W 122°06.816'
  - Third Street (TS)
    N 37°53.503' W 122°06.747'

- **Observations**
  - 01/24/03 – DSC 00367 (HS)
  - 12/08/06 – DSC 004434, 04435 (SS)
  - 02/23/07 – DSC 04832 (VC)
    - DSC 04833 – 04835 (MV)
    - DSC 04836 (DA)
    - DSC 04837 – 04941(HA)
    - DSC 04942 (FS)
    - DSC 04943 (SS)
    - DSC 04844 (TS)

Lake Merritt

- **Sites and Locations**
  - **Glen Echo Creek @ Grand Avenue** (GEG)
    N37°48'38.08" W122° 15'41.75"
  - **Lakeshore – Grand - Highway 580** (LS)
    N37° 48'50.34" W122° 14'59.56"
  - **Trash Cleanup – Lake Merritt Institute** (CE)

- **Observations**
  - 01/97 – 01/01 Over fifty photographs have been taken during this period documenting gross pollutants in Lake Merritt and are available for review. This and the next slide are examples of this documentation.
  - 11/08/02 – DSC 011 – 015 (LS)
  - 12/10/03 – DSC 01260 – 01263 (GA)
    - DSC 01264, 01265 (GEG)
  - Lake Merritt Cleanup – DSC 140216, 140218,140210 (CE)

Trash Boom at Glen Echo Creek

Trash Boom at Glen Echo Creek

Lake Merritt

Trash Boom at Glen Echo Creek

Trash Boom at Glen Echo Creek

Trash Boom at Lakeshore - Grand

Las Trampas Creek

- **Sites and Locations**
  - **Fourth Street Drop Structure** (FDS)
    N37° 53.559' W122° 06.656'
  - **Main Street** (MS)
    N37° 53.676'' W122° 03.548'
- **Observations**
  - 01/24/03 – DSC 00368 – 00372 (FDS)
  - 11/17/06 – DSC 04401 – 04403 (MS)
  - 12/08/06 – DSC 04436 – 04440 (FDS)
    - DSC 04442 – 04436 (MS)
  - 12/18/06 – DSC 04556 – 04557 (MS)
  - 01/04/07 – DSC 04645 – 04648 (MS)
  - 02/06/07 – DSC 04660 – 04662 (MS)
  - 02/13/07 – DSC 04736 – 04737 (MS)
  - 02/15/07 – DSC 04746 – 04747 (FDS)

Ledgewood Creek

- **Sites and Locations**
  - **Cordelia Road ¼ Mile West of Pennsylvania**

    N 38°14' 35.87" W 122°00' 38.89"

- **Observations**
  - 01/15/03 – DSC 00334, 00335
  - 12/09/03 – DSC 01254 - 01256
  - 01/07/05 – DSC 02620 - 02622

Lower Silver Creek

- **Sites and Locations**
  - **Downstream of Mckee Road and North King Road**
- **Observations - Don Erba**
  - February 2004 – Five Pictures– Attachment C

Lower Silver Creek – Downstream of North King Road

Lower Silver Creek – Downstream of McKee Road

Matadero Creek

- **Sites and Locations**
  - Downstream of 101 Freeway
- **Observations - Don Erba**
  - 02/08/06 – 2-8-06 020 and 021 - See CD "Creeks Santa Clara County 2006" – Attachment D
  - 02/24/05 – One Picture - See CD "Creeks Santa Clara County 2006" – Attachment D

McCoy Creek

- **Sites and Locations**
  - **Highway 12 Bridge**
    N 38°14' 09.19" W 122°00' 30.04"

- **Observations**
  - 01/15/03 – DSC 00336 - 00339
  - 12/09/03 – DSC 01257
  - 01/07/05 – DSC 02623 - 02624

Pacheco Slough

- **Sites and Locations**
  - **Waterfront Road Bridge**
    N 38°01.897' W 122°04.848'

- **Observations**
  - 04/03/06 – DSC 03946 - 03952
  - 02/13/07 – DSC 04700 - 04713

Rindler Creek

- **Sites and Locations**
  - **Rindler Creek Headwaters – Benicia Road & Columbus Parkway** (RCH)
    N38°08.237' W122°12.981'
  - **Rindler Creek @ Marine World Parkway** (RCM)
    N38°08.023' W122°13.769'
  - **Lemon Street Ditch** (LSD)
    N38°05'23.02" W122°14'24.12"
  - **Austin Creek Pump Station** (ACPS)
    N38°07'35.35" W122°16'20.85"
  - **White Slough – Sonoma Blvd** (WS)
    N38°07'32.21" W122°15'27.77"
  - **Lake Dalwigk** (LD)
    N38°05'27.59" W122°14'30.93"

- **Observations**
  - 05/14/03 – DSC 00672 – 00673 (LSD)
    - DSC 00674 (LD)
    - DSC 00675 - 00683 (RCH)
    - DSC 00684 – 00690 (RCM)
    - DSC 00691 – 00696 (ACPS)
    - DSC 00697 – 00699 (WS)
  - 04/01/06 – DSC 03934 – 03936 (RCM)
    - DSC 03937 – 03945 (RCH)

Rindler Creek

San Leandro Creek

- **Sites and Locations**
  - **San Leandro Creek @ 98th Avenue (98)**
    N 37°43.802' W 122°11.569'
  - **San Leandro Creek at Hegenberger Road (HR)**
    N 37°43.981' W 122°11'.959'
  - **San Leandro Creek at Leet Drive (LD)**
    N37°44.928" W122°12.721'

- **Observations**
  - 04/11/01 – Nine Pictures (98) – See Attachment C
    – Three Pictures (HR) –See Attachment C
  - 12/20/02 – DSC 00223, 00224 (HR)
    - DSC 00225 – 00231 (98)
  - 12/10/03 – DSC 01292 - 01297 (LD)
    - DSC 01298 – 01300 (98)
  - 10/26/04 - DSC 02324, 02325 (98)
  - 12/16/04 – DSC 02415 (98)
  - 01/05/05 – DSC 02589 - 02595 (98)
  - 01/11/06 – DSC 03662 - 03664 (98)
    – DSC 03665 - 03669 (LD)
  - 02/23/07 – DSC 04798 - 04807(HR)
    - DSC 04808 – 04820 (98)

Fluorescent Tube & Trash 98th Avenue – 04/11/01

Trash 98th Avenue – 04/11/01

San Leandro Creek

San Leandro Creek

San Mateo Creek

- **Sites and Locations**
  - **San Mateo Creek @ Ryder Court Park – J Hart Clinton Drive**
    N37°34.490' W122°18.367'

- **Observations**
  - 12/10/03 – DSC 01300 - 01309
  - 04/01/06 – DSC 03897 - 03902

San Rafael Bay

- **Sites and Locations**
  - **San Rafael Bay – Pickelweed Park, John & Joan Starkweather Shoreleine Park**
    N38°08.023' W122°13.769'

- **Observations**
  - 01/24/03 – DSC 00397 - 00405
  - 04/01/06 – DSC 03925 - 03933

San Pablo Creek

- **Sites and Locations**
  - **Orinda Village Shopping Center** (SC)
    N 37°52.885' W 122°11.268'
  - **Brookwood Apartments Access Bridge** (BA)
    N 37°52.572' W 122°10.924'
  - **Storm Drain Channel @ Brookwood Road and Moraga Way** (SDC)
    N37°52.634' W122°10.908'

- **Observations**
  - 01/29/03 – DSC 00435 - 00436 (SC)
  - 02/12/03 – DSC 00447 (SC)
  - 12/12/06 - DSC 04472 – 04473 (SC)
    – DSC 04474 - 04475 (BA)
  - 02/09/07 – DSC 04663 - 04667 (SC)
    - DSC 04668 - 04671 (SDC)

San Ramon Creek

- **Sites and Locations**
  - **South Main @ Creekside Drive** (SMC)
    N 37°53.238' W 122°03.321'
  - **Newell Avenue** (NA)
    N 37°53'35.16" W 122°03'25.26"

- **Observations**
  - 11/17/06 – DSC 04404, 04405 (SMC)
  - 12/16/06 – DSC 04558, 04559 (SMC)
  - 02/13/07 - DSC 04738, 04740 (SMC)
    – DSC 04741 - 04743 (NA)

San Tomas Aquino Creek

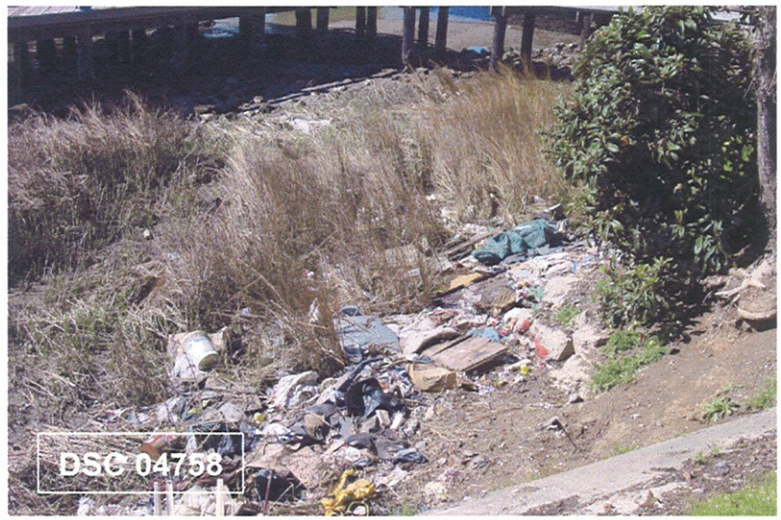
- **Sites and Locations**
  - **Highway 101 Downstream to Highway 237**
- **Observations - Don Erba**
  - 02/24/05 – Eight Pictures- See CD "Creeks Santa Clara County 2006" – Attachment D
  - 02/06/06 – 2-8-06 009-012 - See CD "Creeks Santa Clara County 2006" – Attachment D

Sausal Creek

- **Sites and Locations**
  - **Fruitvale Bridge Park**
    N 37°46'09.16" W 122°13'45.30"

- **Observations**
  - 11/08/02 – 001 - 003
  - 12/10/03 – DSC 01266 - 01268
  - 12/16/04 – DSC 02407
  - 12/19/05 - DSC 03559 – 03564
  - 02/23/07 – DSC 04758 - 04766

Sausal Creek



Stevens Creek

- **Sites and Locations**
  - **Central Expressway Downstream to Crittenden Avenue**
- **Observations - Don Erba**
  - 02-24-05 – Seven Pictures- See CD "Creeks Santa Clara County 2005" – Attachment D
  - 02-08-06 – 005, 011,013-019 - See CD "Creeks Santa Clara County 2006" – Attachment D

Sulphur Creek

- **Sites and Locations**
  - **Skywest Airport**
    N 37°39.747' W 122°07.172'

- **Observations**
  - 06/08/00 – Four Pictures – Attachment C
  - 01/11/06 – DSC 03659 - 03661

Trash at Discharge from Culverts – 6/8/00

Vista Grande Canal

- **Sites and Locations**
  - **John Muir Drive & Lake Merced Boulevard** (JMD)
    N 37°42.486' W 122°29.179'
  - **Outlet Bar Rack to Ocean Outfall** (BR)
    N 37°42.926' W 122°29.626'
  - **Vista Grande Canal between John Muir Drive and Outlet Bar Rack** (C)
- **Observations**
  - 01/16/03 – DSC 00347 – 00350 (C)
    - DSC 00351 – 00357 (JMD)
  - 12/10/03 – DSC 01330 (BR)
  - 01/06/05 – DSC 02597 (BR)
    - DSC 02598 -02601, 02609 (C)
    - DSC 02606 -02608 (JMD)
  - 04/01/06 – DSC 03912 - 03914 (BR)
    - DSC 03915 – 03916 (JMD)

Vista Grande Canal

Walnut Creek

- **Sites and Locations**
  - **Lincoln Avenue** (LA)
    N37° 54.036' W122° 03.561'
  - **Flood Control Channel @ All State** (FCC)
    N37° 54' W122° 04.096"
  - **Flood Control Channels @ Pedestrian Bridge – Walnut Creek** (PB)
    N37° 54.332' W122° 03.939'
  - **Drop Structure – Hwy 580 & 242** (DS)
    N37° 57.701' W122° 03.136'
  - **Concord Avenue (CA)**
    N37° 58.825' W122° 03.162'
  - **Imhoff Drive Bridge** (ID)
    N38° 00.103' W122° 03.136'
- **Observations**
  - 04/03/06 – DSC 03960 – 03967 (ID)
  - 11/17/06 – DSC 04406 – 04416 (DS)
  - 02/13/07 – DSC 04714 – 04720 (ID)
    - DSC 04735 (CA)
    - DSC 04745 (LA)
  - 02/17/07 – DSC 04748 – 04752 (FCC)
    - DSC 04753 - 04757 (PB)

Walnut Creek

54th Avenue Creek

- **Sites and Locations**
  - **54th Avenue Creek @ Oakport Street and Martin Luther King Jr Regional Shoreline**
    N 37°45.668' W 122°12.892'
- **Observations**
  - 12/10/03 – DSC 01269 - 01274
  - 12/16/04 – DSC 02408 – 02409
  - 01/05/05 – DSC 02576 - 02578
  - 12/19/05 – DSC 03565 - 03566
  - 03/29/06 - DSC 03867 – 03871
  - 02/23/07 – DSC 04777 - 04776

54th Avenue Creek

Attachment C

Photographs of Observations

Colma Creek – Utah Avenue Bridge – January 29, 2002

Coyote Creek – February 2004

COYOTE CREEK
immediately upstream of Upper
Penitencia Creek confluence
South of Mabury Road
Looking downstream

COYOTE CREEK
immediately upstream of Upper
Penitencia Creek confluence
South of Mabury Road
Looking downstream

Coyote Creek – February 2004

COYOTE CREEK
immediately upstream of Upper
Penitencia Creek confluence
South of Mabury Road
Looking downstream

COYOTE CREEK
immediately upstream of Upper
Penitencia Creek confluence
South of Mabury Road
Looking downstream

Damon Slough – January 1997

Damon Slough – January 1997

Damon Slough – March 10, 1999

Damon Slough – March 10, 1999

Guadalupe River – February 2004

GUADALUPE RIVER
Looking downstream from
Balbach Street. Guadalupe River
Improvement Phase II

GUADALUPE RIVER
Looking downstream from
Balbach Street. Guadalupe River
Improvement Phase II

Guadalupe River – February 2004

GUADALUPE RIVER
Looking downstream from
Balbach Street. Guadalupe River
Improvement Phase II

GUADALUPE RIVER
Looking downstream from
Balbach Street. Guadalupe River
Improvement Phase II

Guadalupe River – February 2004

GUADALUPE RIVER
Reach between Curtner Ave. and Malone Ave.
Looking downstream

GUADALUPE RIVER
Reach between Curtner Ave. and Malone Ave.
Looking downstream

Guadalupe River – February 2004

GUADALUPE RIVER
Looking downstream from
Curtner Avenue

GUADALUPE RIVER
Reach between Curtner Ave. and
Malone Ave.
Looking downstream

Guadalupe River – February 2004

GUADALUPE RIVER
Reach between Curtner Ave. and Malone Ave.
Looking downstream

Lower Silver Creek – February 2004

LOWER SILVER CREEK
Looking downstream from
Mc Kee Road

LOWER SILVER CREEK
Looking downstream from
North King Road

Lower Silver Creek – February 2004

LOWER SILVER CREEK
Looking downstream from
North King Road

LOWER SILVER CREEK
Looking downstream from
North King Road

San Leandro Creek @ 98th Avenue – April 11, 2001

San Leandro Creek @ 98th Avenue – April 11, 2001

San Leandro Creek @ Hegenberger Road – April 11, 2001

Sulphur Creek – June 2000

Attachment D

Digital Pictures of Observations