



APPENDIX C

WATER QUALITY DATA

Adopt-A-Creek Program Summary Report September 2003

City of Calabasas
Environmental Services Division
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Calabasas, CA 91302
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Purpose of the Monitoring Program

- To create a baseline of the water quality of Calabasas' creeks and to determine potential pollution sources and trends.
- To determine if our creeks are indeed impaired and if so what are its problems.
- To understand the City's contribution of pollutants to the Los Angeles River and Malibu Creek and their adjoining Harbors and Lagoons.
- To obtain information needed to provide insight for watershed management.
- To educate the community about local pollution problems and how to prevent them.
- To enable the City to create policy to mitigate and deter pollution.
- To provide water chemistry data necessary for modeling to assess baseline conditions and restoration alternatives. This is a component of the Las Virgenes, McCoy, and Dry Canyon Creeks Master Plan for Restoration.

Who Conducted the Program

The Study was conducted by the Adopt-A-Creek Program which consisted of guidance of the Environmental Services Manager, Environmental Services Assistant, and several student interns and volunteers.

Site Locations and Descriptions

Where available the latitude and longitude are listed as well as the page and square number of the sampling site as located in the Thomas Guide (T.G.) for the Los Angeles County area. Selection criteria and land uses are also described in the table below.



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Site Name	Specific Location	Selection Criteria	Land Use
"Ahmanson Ranch"	Northern Calabasas and end of Las Virgenes Road. Located on the border of Los Angeles and Ventura County. (T.G. pg. 558, square 2H)	Provides a base line for pristine ambient conditions.	Undeveloped land currently under negotiations to be preserved as public open space.
"Fire Station" Lat N3408.98120 Long W11841.90352	North and adjacent to the 101 Ventura Freeway and west of Las Virgenes Road. (T.G. pg. 558, square 5H)	Necessary to assess residential, commercial, cattle and horse impacts located downstream of Ahmanson Ranch. Also to determine a base line for pollutants entering the creeks from the freeway. Popular place for taggers to spray paint (concrete channels).	Surrounded by cattle ranges and located under the 101 Ventura Freeway.
"A.E. Wright Middle School" Lat N3408.07483 Long W11842.39630	Behind a middle school and below the 101 Ventura Freeway. Also located above the Resource Conservation District of the Santa Monica Mountains' creek restoration site. (T.G. pg. 558, square 7H)	Site is located next to a major outfall that is a big contributor of pollutant. Freeway pollutants would also be determined at this site. Serves as an overlap monitoring site with RCD.	Public Facility and surrounding Open Space. Downstream of residential and commercial uses.
"A.E. Wright Middle School Outfall"	This outfall is approximately 5 meters upstream of the "A.E. Wright Middle School" site.	This site is the only outfall that is monitored as part of this program. This outfall appears to be a significant contributor to non-point sources of pollution. It is monitored to determine its contribution of pollutants that are found in stream at the "A.E. Wright Middle School site."	Drains residential and commercial land uses. It is also surrounded by Open Space.
"Flood Road" Lat N3407.83440 Long W11842.46389	South of A.E. Wright Middle School, near Meadow Creek Lane and Lost Hills Road intersection. (T.G. pg. 558, square 7H)	Site downstream of restored area to determine the affects of pollutants being absorbed or "cleaned up" by natural processes.	Adjacent to Public Facility and surrounding Open Space.
"Juan Bautista De Anza Park" Lat N3407.54375 Long W11842.45102	Located southwest of the Lost Hills Road and Las Virgenes Road intersection. (T.G. pg. 588, square 1G)	Last point before creek water leaves City limits. Catches overflow of reclaimed water from neighboring irrigation fields.	Park and Public Facility (community center)
"Malibu Creek State Park"	Near the Las Virgenes Road entrance of the state park. (T.G. pg. 588, square 5G)	Serves as an overlap monitoring site with Heal the Bay.	State Park



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Site Name	Specific Location	Selection Criteria	Land Use
“Tennis and Swim Center” Lat N3409.07583 Long W11838.50012	Located between Park Granada and Lake Calabasas. (T.G. pg. 559, square 5F)	Catches overflow of Lake Calabasas. Runs along multifamily housing and a private lake.	Residential multifamily dwellings and park area
“Leonis Adobe” Lat N3409.51164 Long W11838.35046	Adjacent to 101 Ventura Freeway exit to Mulholland Road. (T.G. pg. 559, square 4F)	Last point before becoming channelized. Located in old commercial area in a privately owned park.	Commercial area with neighboring restaurant
“Creekside” Lat N3407.99276 Long W11838.13706	Located near the intersection of Old Topanga Canyon Road and Dry Canyon Cold Creek Road. (T.G. pg. 559, square 7F)	Background rural community. Septic tanks are located upstream from site.	Public Facility and surrounding Rural Residential and Mountainous areas
“O’Hare Bridge” Lat N3408.21484 Long W11837.85414	Located on Debra O’Hare’s property on Old Topanga Canyon Road across from Calabasas High School (T.G. pg. 559, square 7G)	Septic tanks and horse stables impacts in rural community.	Rural Residential and neighboring Public Facility

Laboratory Methods

Methods

Parameter	Pat-Chem Laboratories	MWH Laboratories
Nitrate	EPA 353.3	ML/EPA 300.0
Phosphate	EPA 365.2	ML/S4500P-E
Dissolved Oxygen	4500-O G / EPA 360.1	SM4500
Ammonia	EPA 350.2	ML/EPA 350.1
Hardness	EPA 130.2	ML/SM2340B
Zinc	EPA 200.8	EPA/ML 200.8
Selenium	EPA 200.8	EPA/ML 200.8
Copper	EPA 200.8	EPA/ML 200.8
Total Coliform	SM 9221E	ML/SM9221B
Fecal Coliform	SM 9221E	ML/SM9221C
BOD	N/A	SM5210B/E405.1
Enterococcus	SM 9230B	ML/SM9230B



Two meters were used for taking field measurements: pH (pH Tester2) and TDS (TDS Tester 20).

Pat-Chem Laboratories
11990 Discovery Court
Moorpark, CA 93021
(805) 532-0012

MWH Laboratories
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
(626) 386-1100

Quality Control Measures

Quarterly calibration sessions were conducted with other agencies and organizations such as Resource Conservation District of the Santa Monica Mountains, Westlake Village, and Heal the Bay. Calibration sessions were then increased in frequency to every month. Calibration sessions consisted of discussing successes and failures with monitoring techniques, comparing equipment and chemicals against a known sample and testing our skills in chemical testing. Simultaneous testing of our's and Pat-Chem's were conducted to compare results.

TDS (Total Dissolved Solids) and pH meters were calibrated before each sampling event/day. Calibration of meters is documented in the maintenance log located at Calabasas City Hall.

Trip Blanks

Sterile de-ionized water supplied by Microtech Scientific was used for all trip blanks.

Parameter	Date	Results (MWH Lab)	Results (Pat-Chem Lab)
Dissolved Copper	August 13, 2002	< 2.0 ug/l	N/A
Dissolved Zinc	August 13, 2002	< 5.0 ug/l	N/A
Dissolved Copper	March 13, 2002	< 2.0 ug/l	1.7 ug/l
Dissolved Zinc	March 13, 2002	< 5.0 ug/l	< 1.0 ug/l
Total Copper	March 13, 2002	< 2.0 ug/l	1.7 ug/l
Total Zinc	March 13, 2002	< 5.0 ug/l	< 1.0 ug/l
Total Selenium	March 13, 2002	< 5.0 ug/l	< 2.0 ug/l
Hardness	March 13, 2002	< 7.0 mg/l	< 1 mg/l
Hardness	August 13, 2002	< 7.0 mg/l	< 1 mg/l
BOD	March 13, 2002	< 3.0 mg/l	N/A
BOD	August 13, 2002	< 3.0 mg/l	N/A
Enterococcus	August 13, 2002	< 2.0 MPNM	N/A
Total Coliform	March 13, 2002	< 2.0 MPNM	< 2 mpn/100 ml



Parameter	Date	Results (MWH Lab)	Results (Pat-Chem Lab)
Total Coliform	August 13, 2002	< 2.0 MPNM	N/A
Fecal Coliform	March 13, 2002	< 2.0 MPNM	< 2 mpn/100 ml
Nitrate	March 13, 2002	< 0.10 mg/l	0.02 mg/l
Nitrate	August 13, 2002	< 0.10 mg/l	N/A
Phosphate	March 13, 2002	< 0.010 mg/l	0.04 mg/l
Phosphate	August 13, 2002	< 0.010 mg/l	N/A
Ammonia	March 13, 2002	< 0.050 mg/l	<0.01 mg/l

Split and Duplicate Samples

Due to the positive detections we received on our trip blanks shown above, it was decided to further document the quality of the lab testing results. Periodic split samples and duplicate samples were taken for the following parameters: Hardness, Total and Fecal Coliform, Nutrients and Total Metals. For a split sample, one field sample was divided into two containers and one half sent to MWH and the other to Pat-Chem. For a duplicate sample, two field samples were collected in succession at the same date/time/location and one sample was sent to MWH and the other to Pat-Chem. The results of the split and duplicate samples are indicated on the data spreadsheets for each constituent tested in this manner. Split samples are denoted with an asterisk (*) and all other parameters where there are results from both MWH and Pat-Chem are from duplicate samples.

Interpretation of the results

Holding times for all tests have been respected. The Dissolved Oxygen tests must be carefully considered because Dissolved Oxygen changes in the bottle the longer it is contained. Delivery of Dissolved Oxygen from the collection site to the laboratory may have taken up to 4 ½ hours.

Minimum Reporting Limits

Parameter	Pat-Chem	Montgomery Watson
Nitrate	.1 mg/L	4.4 mg/L
Phosphate	.05 mg/L	.01 mg/L
Dissolved Oxygen	.1 mg/L	.5 mg/L
Ammonia	.05 mg/L	.05 mg/L
Hardness	.5 mg/L	7 mg/L



Parameter	Pat-Chem	Montgomery Watson
Zinc	1 ug/L	5 ug/L
Selenium	2 ug/L	varies: 5, 45, 50, 75, 125 ug/L
Copper	1 ug/L	2 ug/L
Total Coliform	2 mpn/100mls	2 mpn
Fecal Coliform	2 mpn/100mls	2 mpn
BOD	N/A	3 mg/L
Enterococcus	2 mpn/100mls	2 mpnm

- Total and Fecal Coliform**

McCoy Creek, Las Virgenes Creek, and Dry Canyon Creek are designated for Contact Recreational Use. Contact Recreational Use’s maximum contaminant limit for Fecal Coliform is 200 mpn. For this reason, Pat-Chem testing of Total and Fecal Coliform from October 1, 1999 to July 5, 2000 used a maximum detection limit of 1600 mpn. Many samples exceeded the 1600 mpn limit (data reports indicated “>1600 mpn”) so the limit was increased to 160,000 mpn to get a clearer picture of Coliform levels. The 160,000 mpn detection limit was not initially used due to extra costs. Samples taken before July 6, 2000 may appear to be at levels of 1600 mpn but they may have exceeded that mpn. Two graphs were created for each of the six sites. Fecal levels exceeding 1600 mpn are indicated with an asterisk (*). Results from October 1, 1999 to July 5, 2000 are limited in range to 1600 mpn so to compare those results to those with a detection limit of 160,000 mpn would be misleading.

- Pesticides**

Pat-Chem determined non-detectible limits for all of its constituents of the pesticide EPA 508 test at all sites for all sampling events, as shown below. Tests were also conducted for Diazinon in which all were non-detect except the following four spikes:

- 2 ug/L on 3-28-00 at Tennis and Swim Center Test Site;
- 2.7 ug/L on 4-6-00 at Leonis Adobe;
- .8 ug/L on 9-23-00 at Leonis Adobe;
- .8 ug/L on 9-23-00 at Tennis and Swim Center.

Due to the spike at the Tennis and Swim Center on 3-28-00, the City retested for Diazinon upstream and downstream of this location on 4-6-00. The Diazinon appeared to have traveled downstream to Leonis Adobe. The two Diazinon tests conducted in June returned non-detect, indicating it was a one-time dumping and not continuous input of pesticide to McCoy Creek.

Listed are the specific pesticides, their detection limits as well as the results for each sample taken (note that the Analysis column describes results from all sites tested):



Parameter	EPA Method	Detection Limit	Analysis
Aldrin	508	.01 ug/L	< .01 ug/L
Chlordane-alpha	508	.01 ug/L	< .01 ug/L
Chordane-gamma	508	.01 ug/L	< .01 ug/L
Chlorneb	508	.5 ug/L	< .5 ug/L
Chlorthalonil	508	.01 ug/L	< .01 ug/L
DCPA	508	.03 ug/L	< .03 ug/L
4,4'-DDD	508	.01 ug/L	< .01 ug/L
4,4'-DDE	508	.01 ug/L	< .01 ug/L
4,4'-DDT	508	.01 ug/L	< .01 ug/L
Dieldrin	508	.01 ug/L	< .01 ug/L
Endosulfan I	508	.1 ug/L	< .1 ug/L
Endosulfan Sulfate	508	.5 ug/L	< .5 ug/L
Endrin	508	.05 ug/L	< .05 ug/L
Endosulfan II	508	.01 ug/L	< .01 ug/L
Etridiazole	508	.03 ug/L	< .03 ug/L
HCH-alpha	508	.01 ug/L	< .01 ug/L
HCH-beta	508	.01 ug/L	< .01 ug/L
HCH-delta	508	.01 ug/L	< .01 ug/L
HCH-gamma	508	.01 ug/L	< .01 ug/L
Heptachlor	508	.01 ug/L	< .01 ug/L
Heptachlor epoxide	508	.01 ug/L	< .01 ug/L
Hexachlorobenzene	508	.01 ug/L	< .01 ug/L
Methoxychlor	508	.5 ug/L	< .5 ug/L
cis-Permethrin	508	.5 ug/L	< .5 ug/L
trans-Permethrin	508	.5 ug/L	< .5 ug/L
Propachlor	508	.5 ug/L	< .5 ug/L
Trifluralin	508	.5 ug/L	< .5 ug/L
Diazinon	507	.3 ug/L	* detected * (See above)

Samples for pesticide analysis for the above parameters were taken at the following locations on the dates indicated:

- Leonis Adobe - August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 27, 2000; March 28, 2000; April 27, 2000; June 2, 2000; June 22, 2000; September 23, 2000 (Diazinon only)
- Tennis and - August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 27, 2000; March 7, 2000; March 28, 2000; April 27, 2000; June 2, 2000; June 23, 2000; September 23, 2000 (Diazinon only)
- Swim Center
- Fire Station - August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 3, 2000; January 27, 2000; March 7, 2000; March 28, 2000; April 27, 2000; June 1, 2000; June 23, 2000; September 23, 2000 (Diazinon only)



Juan Bautista - De Anza Park	August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 3, 2000; January 27, 2000; March 7, 2000; March 28, 2000; April 27, 2000; June 1, 2000
O'Hare Bridge -	August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 27, 2000; March 7, 2000; March 28, 2000; April 27, 2000; June 2, 2000; June 23, 2000; September 23, 2000 (Diazinon only)
Creekside-	August 26, 1999; October 1, 1999; November 29, 1999; December 28, 1999; January 27, 2000; March 7, 2000; March 28, 2000; April 27, 2000; June 2, 2000; June 22, 2000; September 23, 2000 (Diazinon only)
A.E. Wright -	September 23, 2000 (Diazinon only)

Maximum Contaminant Levels

Ammonia:

Warm waters (15-20 degrees Celsius at a pH of 6.5-8.5) should not exceed .026-.26 mg/L. [Basin Plan]

Nitrate:

Waters shall not exceed 10mg/L of Nitrate-Nitrogen. [Basin Plan]

TDS:

Waters shall not exceed 2000mg/L. [Basin Plan]

Dissolved Oxygen:

D.O. should be greater than 7mg/L on average. D.O. should never be lower than 5mg/L at any one time. [Basin Plan]

pH:

pH should be between 6.5 and 8.5. [Basin Plan]

Bacteria:

In waters designated for water contact recreation, the Fecal Coliform concentrations shall not exceed a log mean of 200/100ml (based on a minimum of not less than 4 samples for any 30-day period), nor shall more than 10% of total samples during any 30-day period exceed 400/100ml. [Basin Plan]

Metals:

Copper, Selenium, and Zinc are on the Priority Toxic Pollutants List in the Clean Water Act section 307 (a).