

Malibu Creek Watershed Monitoring Program Baseline Report

Executive Summary

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Purpose and Scope

The Malibu Creek Watershed Monitoring Program (MCWMP) is a cooperative effort aimed at determining baseline water quality throughout the entire Malibu Creek Watershed. The Monitoring Program's lead agency is the City of Calabasas. The funding for the project is provided by a Californian Proposition 13 grant and administered through the Los Angeles Regional Water Quality Control Board, (region 4). In addition stakeholders throughout the watershed including the County of Los Angeles, cities of Calabasas, Westlake Village, and Agoura Hills each contributed \$30,000 dollars to the project.

The MCWMP is intended to provide information for the use of policy makers, regulatory agencies, and the public. Water quality in this watershed is integral in current and future public policies. The primary goal of the MCWMP is to collect data and information on pollutants and other problems that impair beneficial uses of Malibu Creek and its tributary streams. The monitored sites were chosen to represent a variety of land uses so that data collected would lead to a comprehensive picture of how pollutants are affecting basic health and beneficial uses of the watershed.

The monitoring program is coordinated by Jim Medlen and employs four interns: Chris Hardenbrook, John Hess, Sung Lee, and Greg Lyon. These interns monitor water quality in the field by taking samples from the field, analyzing data, and working on other portions of the MCWMP. The data that the project is collecting is being used to fill in data gaps missing for the Malibu Creek Watershed. This much needed data will create a more complete understanding of the watershed's present baseline condition.

The MCWMP consists of 13 sites on 10 streams spread among both Los Angeles and Ventura County. The program tests for a variety of parameters discussed in the main body of this report, and will expand monitoring of additional parameters at monitoring sites according to water quality conditions.

Methods

All baseline monitoring samples were taken by the project's coordinator and interns in the field. Methods used in the collection of baseline data for the project were approved by the state, and followed the State Water Resource Control Board's (SWRCB) Surface Water Ambient Water Monitoring Program (SWAMP) protocol. Methods can be found in the main body of the baseline report, or the project's Quality Assurance Project Plan (QAPP).

Findings

Below is a water quality summary of creeks monitored in the watershed:

Las Virgenes Creek- LV1 and LV2

The project monitors at two sites along the Las Virgenes Creek; the upper site (LV1) receives run-off primarily from open space, while the lower site (LV2) receives urban run-off from residential and commercial use areas located in the city of Calabasas.

Bacteria levels at the two different sites differed. Bacterial levels at the upper Las Virgenes site LV1 consistently had lower bacterial levels than the downstream site LV2. Enterococcus levels at both sites did not meet the California State Department of Health Services recommended levels. The creek's lower site also had high fecal coliform levels on 4 out of 6 sampling events.

Nutrient levels at both of the project's sites on Las Virgenes Creek did not meet EPA water quality criteria summer limits twice for Total Nitrogen and twice for Total Phosphorous.

Chlorophyll-a levels remained low in the creek during all sampling events. Algae at the the LV1 site grew thicker as warmer weather moved in towards the beginning of summer. Algal growth at LV2 was limited due to tree canopy coverage at the site.

Lindero Creek - Lin1 and Lin2

The project monitors two sites along Lindero Creek; the upper site receives run-off from residential, urban built-up, cropland, and recreational-use, while the lower site receives run-off from Lake Lindero, which contains all the run-off listed above.

Enterococcus levels for both sites did not meet California State Department of Health Services recommended levels for the majority of all sampling events. Fecal coliform for both sites exceeded EPA TMDL limits on two occasions, and e.coli on three occasions.

Nutrient levels at the upper Lindero Creek (Lin1) site did not meet EPA water quality criteria summer limits twice for Total nitrogen and twice for Total phosphorous. The lower site Lin 1 did not meet EPA's summer limits for Total Nitrogen once and Total Phosphorous twice.

Chlorophyll-a levels were fairly low at the Lin1 site in the upper watershed, while levels at the lower site Lin2 had some very high spikes. Lin2 consistently had a coating of algae on the sampling site substrate.

Trash was commonly found at this site in the water and on the banks.

Conductivity levels at the upper site Lin1 were consistently high.

Medea Creek- Med1 and Med2

The project monitors two sites located on Medea Creek. The upper site Med1 receives run-off from cropland, residential, commercial, and shrub and brush areas, while the lower site receives run-off primarily from open space parkland.

Bacterial levels at the Med 1 site consistently exceed EPA TMDLs and WQOs for both Fecal Coliform and E.coli. Enterococcus levels did not meet California Department of Health Services recommended levels 5 times out of 6.

The lower Med2 site consistently exceeded EPA TMDLs and WQOs for E.coli. Fecal Coliform levels exceeded TMDL/WQOs standards twice. Enterococcus levels did not meet the California State Department of Health Services limits on five separate occasions.

Nutrient levels at the upper Medea Creek site (Med1) did not meet EPA water quality criteria summer limits twice for total phosphorous. The lower site Med2 did not meet EPA's summer limits for Total Nitrogen once and Total Phosphorous twice.

Chlorophyll-a levels at both sites remained low during all sampling events. The upper Medea Creek site was noted too have high levels of nuisance algae coating the substrate of the site and floating in the waterbody.

Conductivity levels at the upper site Med 1 were high on several sampling events.

Liberty Canyon Creek LC

Liberty Canyon Creek receives run-off primarily from evergreen forest, residential, and rangeland land uses.

This site had some of the highest Fecal Coliform and E.coli levels of all the sites. Both indicators had extremely high spikes within the sampling period (e.g., 5000/100 ml (twice) and 3609/100 ml respectively). Total Coliform levels were also very high twice. Enterococcus levels had extremely high spikes of 4884/100 ml, 2359/100 ml, and 1376/100 ml. There are no legal bacterial limits for this site because no beneficial uses have been designated.

Nutrient levels at the Liberty canyon site exceeded EPA's water quality criteria summer limits for Total Nitrogen twice.

Chlorophyll-a levels were some of the highest levels found out of all of the sites. Algae mats and a thin coat of algae on the substrate of this site's concrete channel were commonly found.

Liberty Canyon was observed to have high concentrations of trash in the channel during all sampling events.

Conductivity levels at the site are higher than average in comparison to other sites in the watershed.

Russell Creek- RUS

Russell Creek receives run-off from shrub and brush, residential, and commercial areas in Westlake Village. The creek drains into the southeastern section of Westlake Lake.

Both E.coli and Enterococcus levels were high two and three times. There are no bacterial limits for this site because no beneficial uses have been designated.

Nutrient levels at the site did not meet EPA water quality criteria summer limits twice for Total Nitrogen and twice for Total Phosphorous.

Chlorophyll-a levels remained low in the creek during all sampling events.

Trash in the channel has been found commonly on all sample events.

Triunfo Creek- Tri

Triunfo Creek receives run-off from 95% shrub and 5% residential land use. The creek also receives run-off from Lake Sherwood located upstream.

Bacterial levels at Triunfo Creek exceeded EPA TMDLs and Basin Plan Water Quality Objectives (WQOs) for both Fecal Coliform and E.coli on the majority of sampling dates.

Ammonia-N levels at the sites were higher on average than other sites throughout the watershed. The site did not meet EPA quality criteria summer limits for Total Nitrogen and Total Phosphorous once each.

In comparison to other sites tested, Chlorophyll-a levels were average. Algae was commonly found throughout the site's downstream and upstream substrate.

Hidden Valley Creek-HV

Hidden Valley Creek receives the majority of its run-off from cropland and pasture land uses.

Hidden Valley's bacterial levels exceeded EPA TMDLs WQOs for both Fecal Coliform and E.coli. Total Coliform exceeded limits once. Enterococcus levels exceeded the California State Department of Health Services recommended levels five times.

Nutrient levels at this site did not meet EPA water quality criteria summer limits twice for Total Nitrogen and twice for Total Phosphorous. Total Nitrogen levels at the site were higher on average than other sites sampled by the project.

Chlorophyll-a levels remained low in the creek during all sampling events. Nuisance algal blooms could be located at the culvert at the end of the creek before it heads into Lake Sherwood, but could not be found on the loose sandy substrate.

Malibu Creek- Mal

The Malibu Creek site is the lowest site in the Malibu Creek Watershed. This site receives run-off from a majority of rangeland and some commercial services land use.

Malibu Creek met bacterial standards and recommended levels on all sampling events.

Nutrient levels at the Malibu Creek site did not meet the EPA's water quality criteria summertime limits for Total Phosphorous twice.

Chlorophyll-a levels at the site were higher on average than other sites in the watershed. Algae at this site had completely taken over most of the stream's substrate by May.

Cold Creek Reference Site- CC

The project used Cold Creek as a natural background level site due to the creek's pristine location in the Santa Monica Mountains.

The creek consistently had lower levels of pollutants than any other creek in the watershed, and met all recommended levels and standards on almost all sampling events. On one event, Total Phosphorous levels did not meet the EPA's water quality criteria summer limits.

Conclusion

The purpose of this report is to provide watershed stakeholders and the public information on problematic areas that threaten the watershed's current beneficial uses due to poor water quality. Many sites throughout the watershed shared similar impairments such as high bacterial and nutrient levels, nuisance algal blooms (eutrophication), and trash along the creek's banks.

The only site monitored that could be considered free of water quality impairments was the project's reference background site Cold Creek, which is located high up in the Santa Monica Mountains, far removed from anthropogenic sources of run-off.

Further data collected in the following months will give a better representation of water quality at these sites. The program has only collected data in the late winter and spring months from February 2005 to June 2005. When more data is collected over a longer time period (encompassing all seasons) additional "Hot Spot" monitoring will test for EPA priority pollutants.