Project Assessment and Evaluation Plan

Malibu Creek Watershed Monitoring Program

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for

The City of Calabasas
SWRCB Agreement # 03-128-554-0

January 28, 2005

Introduction and Background

The Malibu Creek Watershed is located about 35 miles west of Los Angeles and comprises of Los Angeles and Ventura counties, which consist of the cities of Agoura Hills, Calabasas, Malibu, Westlake Village and unincorporated county areas. The 109-square mile watershed extends from the Santa Monica Mountains and adjacent Simi Hills to the Pacific Coast at Santa Monica Bay. Several creeks and lakes are located in the upper portions of the watershed, and these ultimately drain into Malibu Creek at the downstream end of the watershed. Historically there is little flow in the summer months; much of the natural flow that does occur in the summer in the upper tributaries comes from springs and seepage areas. During rainstorms the runoff from the watershed may increase flows in the creeks dramatically. The natural hydrology of the watershed has been modified by the creation of several dams and man-made lakes, the importation of water to the system for human use which provides most of the base flow to the system, and the presence of the Tapia Wastewater Reclamation Facility (WRF), which provides significant dry-weather flow to the system in the winter months. Flows from the watershed drain into Malibu Lagoon and ultimately into Santa Monica Bay when the Lagoon is breached.

The Malibu Creek watershed is unique in the State of California for the diversity of its beneficial uses and wildlife habitat. Within a relatively modest area of just over 100 square miles, the watershed's riparian corridors support over 450 vertebrate species, including 50 species of mammals, 384 bird species, and 36 species of reptiles and amphibians. There are over 650 species of plants, including two endangered species and four species of special concern. It is home to one of the southern-most population of endangered steelhead trout, anadromous Oncorhynchus mykiss, the endangered tidewater goby, Eucyclogobius newberryii, and a thriving population of Arroyo Chub, Gila orcutti, a state fish of special concern. Its downstream terminus is one of the best-known and most popular surfing beaches in the world.

Due to urbanization, much of the watershed's water bodies are listed as impaired based on the waters' beneficial uses designated by the Regional Water Quality Control Board (Regional Board). Consequently, these have been added to the U.S. Environmental Protection Agency's 303(d) list.

US EPA 303(d) listings for water bodies in the watershed include coliform, nutrients, low DO/organic enrichment, scum/foam, trash, sedimentation/siltation, ammonia, lead, mercury, selenium, eutrophic, fish barriers, benthic community effects, swimming restrictions, shellfish harvesting advisory, chloride, beach closures, DDT's and PCB's (see table 1).

Table 1. Water Quality Impairments in the Malibu Creek Watershed

Malibu Creek Watershed 303(d) Listed Waters/Reaches	Coliform	Nutrients	Lo DO/Organic Enrichment	Scum/Foam	Trash	Sedimentation/Siltation	Ammonia	Lead	Mercury	Selenium	Eutrophic	Algae	Fish Barriers	Benthic Comm Effects	Swimming Restrictions	Shellfish Harvesting Advisory	Chloride	Beach Closures	DDTs	PCBs
Cold Creek												x					x			
Lake Lindero											x	x								
Lake Malibou			x																	
Lake Sherwood			x				x		x		x	x								
Las Virgenes Creek	x	x	x	x	x	x				x										
Lindero Creek	x				x	x				x		x								
Lindero Creek Reach 1	x			x	x					x		x								
Malibou Lake			x								x	x						x	x	
Malibu Beach													x							
Malibu Creek	x	x		x	x	x								x	x	x				
Malibu Lagoon																		x	x	x
Malibu Lagoon Beach (Summer)	x																			
Medea Creek Reach 1 (late to confluence with Lindero)	x				x	x				x		x								
Medea Creek Reach 2 (abv. confl. with Lindero)	x				x	x				x		x								
Palo Comado	x																			
Potrero Valley Creek																				
Stokes Creek	x																			
Triunfo Canyon Creek Reach 1						x		x	x											
Triunfo Canyon Creek Reach 2						x		x	x											
Westlake Lake			x				x	x			x	x								

Water bodies including Cold Creek, Potrero Valley Creek, and Palo Comado Creek in the upper watershed have the least amount of 303 (d) listed impairments, likely from their location in natural open space and recreational land use areas upstream from urban flow. Water bodies located in the middle to lower portions of the watershed including reaches of Las Virgenes Creek, Lindero Creek, Malibou Lake, Malibu Creek, Medea Creek (reach 1 and 2), Westlake Lake, and Triunfo Canyon Creek (reach 1 and 2) typically see the majority of 303(d) listed impairments due to their location downstream of residential, agricultural, and commercial land use activities.

2.0 Problem Statement/Project Goals and Proposed Actions

To date, the Malibu Creek Watershed has seen little coordination between water monitoring groups/agencies in the watershed. Lack of coordination of these efforts has resulted in the overlapping of sampling efforts and the division of water monitoring resources.

The Malibu Creek Watershed Monitoring Program will coordinate with monitoring groups and agencies throughout the watershed. Through the coordination of monitoring groups in the watershed the project hopes to reach the following goals:

1. Further establish and characterize baseline conditions.
2. Locate EPA priority pollutants.
3. Fill in water quality data gaps.
4. Create TAC team with watershed stakeholders.

3.0 Baseline/Existing Conditions

A Water Quality Assessment report by the Regional Board updated in October 2004 gave a good indication of baseline/ existing conditions in the Malibu Creek Watershed. The report states the following:

The most recent Water Quality Assessment Report finds water quality in some streams within the Malibu Creek Watershed is impaired by nutrients and their effects, coliform and their effects, trash, and, in some instances, metals. While natural sources contribute, non-point source pollution from human activities is strongly implicated including ill-placed or malfunctioning septic systems and runoff from horse corrals. Nutrient inputs are also contributed by urban runoff and the Publicly Owned Treatment Works (POTW) which discharges tertiary-treated effluent into the Creek about five miles upstream of Malibu Lagoon.

Major Issues of Concern in Malibu Creek Watershed

- Excessive freshwater, nutrients, and coliform in lagoon; contributions from POTW
- Urban runoff from upper watershed
- Impacts to swimmers/surfers from lagoon water
- Septic tanks in lower watershed
- Appropriate restoration and management of lagoon
- Access to creek and lagoon by endangered fish (steelhead trout and tidewater goby)

A nutrient TMDL for the main stem of the Creek, the creek's tributaries, and the lagoon is being developed by the Regional Board although ecologically-relevant nutrient objectives are lacking. A study recently completed by UCLA provided recommendations which should lead to more effective management of the Lagoon and its resources as the restoration process continues.

Historically, the Lagoon was much larger than its current day size. Although the flow dynamics of the Creek as well as the ocean's influence on the Lagoon in the past can only be extrapolated, it is likely Creek flow was much less than today during the dry season, partially due to increased imported water demands upstream. Marine influence may have dominated, keeping the lagoon entrance open much of the year as occurs in the larger Mugu Lagoon to the north. An open Lagoon would have facilitated migration of the now endangered steelhead trout. And though continual Creek flow was likely less, more of the watershed was available for the trouts' use, at least prior to the construction of Rindge Dam in the 1920's. Most important, during the dry season there would be access to deep shaded pools in many parts of the watershed where the fish could mature until rain created the flows needed to reach the ocean.

Today, the flow regime is quite different and now a major issue of concern. Both increased urban runoff from the more developed upper watershed and discharges from the POTW have increased baseline flows. However, recently the POTW which discharges to Malibu Creek came under a discharge prohibition starting each April 15 through November 15 of each year, except during times of plant upset, storm events, or the existence of minimal streamflow conditions that require flow augmentation in Malibu Creek to sustain endangered species. In the long-run, this discharge prohibition may have many other implications on water quality and quantity in the Creek and Lagoon.

e lagoon size is much reduced from historic times and it currently remains closed much of the year except for during the winter when ocean influences breach the sandbar and Creek flows help maintain the opening. This had led to decreasing salinity or, at times, greatly fluctuating salinity which has disturbed efforts to restore the Lagoon. This also leads to elevated groundwater levels adjacent to the lagoon, assuring failure of septic systems in the area. Additionally, surfing and swimming is popular off the beaches in the immediate area and there is considerable concern over contaminated Lagoon water reaching these people.

4.0 Implementation of Proposed Actions

Implementation of the proposed action will consist of several tasks as listed above in goals for the project:

1. Further establish and characterize baseline conditions.
2. Fill in water quality data gaps.
3. Locate EPA priority pollutants.
4. Create TAC team with watershed stakeholders.

4.1 Further establish baseline conditions

Data from several monitoring groups and organizations throughout the watershed has been located and or collected by the monitoring coordinator, Jim Medlen. This data will be entered into a central database with data collected by the Malibu Creek Watershed Monitoring Program. Baseline conditions can more easily be established with this approach.

4.2 Fill in water quality data gaps

The program seeks to sample areas in the watershed where current monitoring groups have collected little or no water quality data to date in order to fill in data gaps. The study of current monitoring efforts, including a GIS analysis, and many hours of field reconnaissance have aided in the selection of priority sites.

4.3 Isolate EPA priority pollutants

Intensify monitoring (also referred to as "Hot Spot" testing) will be conducted at sites of poor water quality, which will be determined by review of the first six months of baseline data. Hot Spot testing will be used to isolate EPA priority pollutants.

4.4 Creation and utilization of Technical Advisory Committee team

Use the expertise and experience of monitoring groups/stakeholders in the watershed as a technical support group for the program. Stakeholders in the watershed have formed a Technical Advisory Committee for the Program and meet approximately every other month through the Malibu Creek Watershed Advisory Council's Monitoring and Modeling Subcommittee.

5.0 Determination of the Effectiveness of the Proposed Actions at Improving Water Quality

The results of this project will contribute to improved water quality in several tangible ways. Several products will be produced that will allow managers and stakeholders to more effectively focus their efforts for future water quality management.

The water quality characterization will assist with water quality improvement in several areas. First, it will update and re-evaluate the existing water quality information in the watershed and estuary. This will help identify areas that require water quality mitigation, and will help identify the most effective locations for implementing those management actions. In addition, it will provide a benchmark for comparison when evaluating the success of the water quality improvement measures. The additional data collection will use both professional scientists and the monitoring services of volunteers, interns, and the coordinator. Therefore, this project will provide an avenue for public outreach and education within the watershed. Finally, the water quality characterization will provide the necessary information for a comprehensive problem statement for TMDL development and refinement.

This program will provide publicly accessible data set for use by managers in evaluating the results of their actions and aids in setting priorities for future actions. Citizen monitoring also builds stewardship by watershed residents and stakeholders by increasing their understanding of the water quality issues associated with the river and providing a forum for stakeholder participation in the management decision-making process.

Baseline water monitoring will identify problematic water bodies and will lead to further "Hot Spot" testing. With the identification of polluted water bodies, potential sources of water quality degradation can be narrowed down. This will enable managers to assess the largest sources of specific pollutants in order to most effectively allocate their resources for pollutant reductions. This will also assist in providing necessary data to aid in TMDL development and refinement.

The development of a watershed data set will achieve water quality improvements by providing a tool to help determine the most effective water quality implementation strategies for the Malibu Creek Watershed and Lagoon. This data can be used when selecting appropriate management actions and best management practices (BMPs) to address impairments. This data is particularly important to evaluate local or regional BMPs for effectiveness.

Identification of the most appropriate management actions will promote water quality by developing a list of potential management measures identified by a group of watershed stakeholders. For example, alterations of in-river water quality can be predicted if implementation of structural BMPs, the effect of different treatment options at POTWs, or changes in runoff retention strategies were to occur. This provides an efficient way to screen alternatives and distill potential management strategies that warrant more detailed investigation.

Finally this project will facilitate ongoing dialogue and cooperation among the major stakeholders in the Malibu Creek Watershed. These stakeholders include the City of Calabasas, Los Angeles County Department of Public Works, Heal the Bay, Ventura County Watershed

Protection District, City of Thousand Oaks, City of Malibu, City of Agoura Hills, Resource Conservation District of the Santa Monica Mountains, Los Angeles Regional Water Quality Control Board, the Las Virgenes Municipal Water District, among other stakeholders. Finally, the project will work in concert with the other management activities currently planned in this watershed. For example, this project will integrate its water quality data collection component with the development of the Malibu Creek Watershed Bacteria TMDL Implementation Plan.