

East Fork San Gabriel River

Trash TMDL

Amended: May 25, 2000

**California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street
Los Angeles, California 90013**

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Executive Summary

This TMDL addresses impairment of the East Fork of the San Gabriel River due to trash deposition and litter. The East Fork is located about three miles north of the City of Azusa and is under the jurisdiction of the United States Forest Service. The following are the key elements of this TMDL.

Problem Statement: There are four main areas in the East Fork, which are desirable to day users. Almost 8000 people visit these four informal picnic areas, a total of 39 acres, each day during the summer. Most of these visitors have large picnics and barbecue parties that generate over 400 32-gallon bags of trash each day, according to Forest Service estimates. Half of this trash is left in the streambed and river terrace area as litter. The Forest Service conducts daily trash sweeps and collects and removes approximately 200 32-gallon bags of uncontained trash from the area each weekend day. Areas in the East Fork other than these four informal picnic areas do not experience the same type of use and therefore are not sources of impairment to the river. The large number of visitors, their style of picnics, the lack of developed campsites, and the limited staff of the Forest Service contribute to the impairment of the river by trash.

Numeric Target: This TMDL establishes a target of zero trash in the river. Most of the trash observed was found in the river terrace area, and not in the river itself.

Source Analysis: It is litter deposition by the large number of users during peak summer months that cause the impairment. Because the popular picnic areas are not formal picnic sites there are no convenient trash receptacles. Because of this fact and the difficult access to these areas, only half of the trash is disposed of properly. The remainder is left scattered throughout the river terrace.

Load Allocation: The sum of all load allocations equals the TMDL. In this TMDL, there is only one "discharger", the United States Forest Service (USFS). Therefore, the load allocation assigned to Forest Service is zero trash.

Linkage: The large volume of trash deposited in the river terrace areas presents a significant threat of impairment. This TMDL proposes to eliminate trash in the river, and through Best Management Practices, reduce the threat of impairment to the river from litter.

Margin of Safety: The numeric target of zero leaves a significant margin of safety. This is the most conservative approach, as the narrative objectives for trash in the river may allow for some amount as long as it does not cause nuisance or beneficial use impairment.

Seasonal Variation: The peak use of this area, and thus most of the trash deposition, occurs during the warm months of the year. This is generally June through September.

Implementation: Implementation of this TMDL includes management practices designed to prevent deposition of litter in the four informal picnic areas. These may include placing "no litter" signs throughout the area, adding more trash receptacles, conducting more frequent trash sweeps, and having full time staff patrol the area and advise users of litter laws and direct them to the nearest trash receptacles. A monitoring program conducted by the Forest Service will serve to evaluate the effectiveness of the TMDL. The Regional Board will closely monitor the progress of the TMDL implementation.

Introduction

The East Fork of the San Gabriel River (East Fork) is located in the Angeles National Forest, a forest under the jurisdiction of the United States Forest Service (USFS), in Los Angeles County, California. The East Fork is located about three miles north of the City of Azusa and provides a relatively pristine area for recreation. For many years the East Fork has been a popular destination for picnickers during the summer.

The Los Angeles Regional Water Quality Control Board (Regional Board) determined that the level of trash in the East Fork exceeded the existing Water Quality Standards (WQS) necessary to protect the beneficial uses of the river. This determination was based upon periodic field surveys conducted over the years by Regional Board staff. Due to these Regional Board staff findings, the East Fork was listed on California's 1996 Clean Water Act (CWA) Section 303(d) list as water quality impaired due to trash. It should be noted however, that trash is the sole pollutant listed on the Section 303(d) list for the East Fork. Based on existing data, the East Fork met all other water quality objectives identified in the Regional Board's Basin Plan. As a consequence of being listed as "impaired" for trash, a TMDL must be conducted to restore water quality. Restoration of water quality will be achieved when the water quality standards (WQS) adopted to protect the beneficial uses of the East Fork (see Table 2 below) are met. This TMDL identifies a target level, that when achieved, is expected to result in the attainment of the applicable water quality standards for trash. The terms "trash", "garbage" and "litter" are often used interchangeably. In this document both "trash" and "litter" are used. This is unavoidable since the East Fork was listed as impaired by trash, for which there is no precise definition. This TMDL focuses on eliminating litter, or uncontained trash. The definition of "litter" used in this document can be found in California Code Section 68055.1 (g):

"'Litter' means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling or manufacturing."

Problem Statement

The East Fork of the San Gabriel River has experienced significant levels of litter deposition both in and adjacent to the watercourse. Factors contributing to this impact are active littering and failure to deposit trash in designated receptacles. Other factors are wind transport of lightweight items ("fly away") from picnic/camping areas and incidental deposition (fall-out) or "fly away" during disposal activities.

In addition to Regional Board staff, the USFS and the Los Angeles County Department of Public Works (DPW) have studied the usage of the area. Their observations indicate that large numbers of people use the East Fork for water contact (e.g., swimming, wading) and non-water contact (mostly picnicking) recreation. DPW's observations indicate that on a typical weekend day as many as 1,000 vehicles are parked along East Fork Road, primarily outside the Follows Camp and Camp Williams facilities (which can accommodate an additional 200 and 75 vehicles, respectively). More than half of these vehicles are multi-passenger vehicles such as vans, mini-vans, sport utility vehicles and station wagons. USFS reports (Simcox, 1989; Chavez, 1997) indicate that the average number of persons in each group of visitors is about eight.

The USFS's observations and those conducted in the field by the Los Angeles County Department of Public Works (Wood, 1998) in July 1998 indicate that litter deposition in the river terrace areas (between the summer low flow channel and the steep banks of the historic flood channel) of the East Fork is focused on the four flat (heavily used) areas that are adjacent to the East Fork Road. Regional Board staff has confirmed these findings. The following areas are the main source of trash in the East Fork San Gabriel River (see Figure 1):

1. The flats downstream of Follows Camp: Approximately 16 acres located about 2.6 miles east of Highway 39.
2. Oak Park vicinity: Approximately 9 acres located about 4.8 miles east of Highway 39.
3. Eldoradoville vicinity: Approximately 5 acres located around the confluence of East Fork with Cattle Canyon Creek, about 6 miles east of Highway 39.
4. Coyote Flats: Approximately 9 acres located near the East Fork Ranger Station, about 6.5 miles east of Highway 39.

The instream areas (i.e., watercourse) consists primarily of rock, sand and boulders. Downstream of Coyote Flats, the stream contains deep pools that seem to be formed by recreational dredging activities. DPW's observations indicate that these pools, when vacated by the dredgers, are spots where swimmers like to congregate (Wood, 1998). Visitors also build small dams with rocks to create swimming holes throughout the area.

Instream areas have flows throughout the year, although the flow rates vary. Flows are highest during the winter and early spring and lowest during the summer and early autumn (the primary recreation season). Although the DPW no longer measures flows in the East Fork, records at a stream flow gauging station the County formerly operated near Follows Camp indicate summer flow ranges from 2 cubic feet per second to over 100 cubic feet per second (DPW, 1987 and 1988). Instream areas contain riparian vegetation, including trees and dense mulefat. Areas where this vegetation provides shade appear to be the preferred locations for campers and picnickers.

The watershed of the East Fork is mostly undeveloped. Developed areas consist of the USFS's East Fork Fire Station and Oak Camp, privately owned camping grounds (Camp Williams and Follows Camp), and a few private residences. The East Fork Road is a paved thoroughfare that leads to the East Fork Station (about 6.5 miles from Highway 39). This road provides large numbers of recreational users relatively easy access to the East Fork area. Access from the roadside to the instream area consists mostly of very rough, steep dirt footpaths. However, an unpaved fire road provides access from the East Fork Station parking lot to Coyote Flats. At the flats located downstream of Follows Camp (about 2.6 miles east of Highway 39) access from the roadside consists of steep dirt footpaths, an unpaved fire road, and the Follows Camp access road.

Observations of USFS, DPW, and the Regional Board indicate that the majority of the recreational visitors are concentrated in the four main areas identified above. The four areas range in size from 5 acres to 16 acres. These areas are selected by users because of the large flat areas they provide in close proximity to the water. None of the four areas are improved. Because of forest density, access, and other factors, other areas of the East Fork are less desirable for picnics. As these are not formal picnic areas, there is an insufficient number of trash receptacles provided by the USFS. However, because these visitors leave such a large amount of

litter behind at the end of the day, the USFS must go in and remove it on a daily basis during the peak picnic season. On a typical weekend day during the summer, about 7,500 people can be found in the four informal picnic areas, which encompasses a total of about 39 acres.

DPW's observations did not encounter deposition of litter in the Camp Williams and Follows Camp facilities, which are privately owned and operated. DPW's observations indicate the Camp Williams and Follows Camp facilities are constantly supervised and patrolled by their owners and their employees. The owners provide campers with flyers stating their rules, which include prohibitions against littering. Those private campsites do not have the same problem with litter as the public lands next door.

Primary recreational activities occurring in these four informal campsites consist of picnicking, swimming and wading. DPW's and the Regional Board's observations indicate that the picnics occurring in these areas are the same as typical backyard barbecues, including the actual use of backyard barbecues (e.g., kettles, cart-type) transported by the visitors to the river terrace area. Once the picnics are over, the hot charcoals are usually dumped into or along the side of the river. Such picnics use a great deal of disposable material and thus produce large amounts of trash. The swimming and wading activities create a potential for direct deposition into the flowing part of the river. Picnicking occurs on the river terrace. It is the litter deposited in this area that causes the threat to water quality in the East Fork. A small amount of litter was observed in the river itself, however the current is swift so it is difficult to determine historic deposition into the stream. The large threat to the river results from the volume of litter left in the informal picnic areas adjacent to it.

According to USFS observations and those of the DPW, the trash deposited in the river terrace areas consists mostly of: paper products (i.e. napkins, plates, boxes; containers for 12-packs) toys, plastic products (i.e. cups, grocery bags, beverage containers, six-pack rings, utensils, chip bags, candy wrappers), glass products (i.e. beverage containers, often broken) and Styrofoam products (i.e. cups, plates, broken ice chests). Another significant litter component is disposable diapers. Diapers may present a particularly large threat to water quality and public health from pathogens should they be left in the river. Other items observed include barbecue coals, metal products (i.e. cans, (beverage and food), broken beach chairs, and barbecue grills), clothing items (i.e. shoes), food remnants (i.e. bones, rinds and husks) and carpet fragments. These items are typical by-products of picnicking and swimming or wading activities.

Litter was not observed outside of these four areas. This is most likely due to the difference in the type of usage that occurs in other areas of the East Fork. There seems to be a strong "Pack It In, Pack It Out" ethic among hikers and recreational dredgers who are found in other areas of the East Fork year round. Due to this apparent difference in usage and behavior, the less accessible areas of the East Fork do not have a litter problem.

There are a number of specific factors that contribute to the litter problem on the East Fork:

1. Unbagged or Inadequately Bagged Trash

Almost no retail garbage bags were noticed during the DPW's observations. Most of the trash found at the picnic/camping sites was unbagged (merely piled) or bagged in flimsy plastic grocery bags. As a result, the trash is easily exposed to wind or scavenging animals. Corporate sponsors regularly donate a large number of sturdy plastic trash bags (32-gallon). USFS personnel, its contractors (Eco-teams) and volunteers distribute these bags throughout the four informal picnic areas each weekend during the summer, if bags are available.

Unfortunately, not all users are reached, and many recipients were observed utilizing the donated bags for other purposes, such as transporting clothing, towels or leftovers.

2. Lack of Conveniently Located Trash Receptacles

All receptacles in the East Fork are located on the side of East Fork Road. Picnickers have to walk as far as several hundred feet from the picnic sites to the roadside. In addition, the river terrace areas where the recreational users actually congregate are about 20 to 100 feet below the road grade and paths to the receptacles are very steep. DPW observations indicate that although some picnickers are using the roadside receptacles, most are not willing to negotiate these arduous paths under full loads of picnic/camping equipment and/or small children along with their garbage. Users do not seem to return to the sites to clean up as they are unwilling re-negotiate these trails under additional loads of garbage. The only remaining means of trash control is remedial collection by USFS staff

3. Inadequate On-Site Supervision

There is no regular presence of rangers, Eco-teams, litter collection crews or law enforcement officers in the area. Due to funding constraints, such personnel must patrol several areas within the Angeles National Forest. Their tasks are focused on fire prevention, traffic/parking violations, as well as litter collection. The USFS contracts out most of its on-site environmental education and outreach to "Eco-teams" employed by non-profit organizations. The Eco-teams work only during the summer (the primary recreational season) and must visit several areas within the Forest. The Eco-teams can only visit the East Fork during a small portion of each of the twenty or so weekends during the summer.

4. Lack of Signs

There are no anti-litter signs in the East Fork, nor are there any signs instructing recreational users where to properly dispose of their garbage. There are, however, two anti-litter signs along Highway 39 on the way to the East Fork Road from the Azusa entrance. The messages are solely in English and contain no international anti-litter symbols.

5. Lack of Developed Picnic Sites

There are no developed picnic/camping sites in the instream areas of the four identified picnic areas because winter flows would destroy improvements and possibly wash them downstream to locations (such a road crossings and bridges) where they can create a flooding hazard. Recreational users' selection of picnic/camping sites is therefore done in an ad hoc fashion. DPW's observations indicate that the users' preference is for stands of vegetation that will provide shade. As a result, the lack of readily identifiable picnic sites and their location in spots where trash is difficult to detect makes remedial trash collection difficult. Development of picnic areas within the Angeles National Forest is at the sole discretion of the U. S. Forest Service.

Currently, approximately one half of the trash collected at the sites is uncontained litter. Table 1 summarizes the existing observed trash levels collected at each of the picnic areas during peak periods.

Table 1: Uncontained Trash Collected at Each Site (In 32-Gallon Plastic Bags)

Location	Avg./Weekend Day
Total	222
Coyote Flats	28
Eldoradoville Vicinity	53
Oak Park Vicinity	74
d/s of Follows Camp	67

Numeric Target

Water quality standards for the East Fork of the San Gabriel River are comprised of the designated beneficial uses of the water and the water quality objectives designed to protect those beneficial uses and are found in Los Angeles Regional Board Water Quality Control Plan (Basin Plan, 1994). The beneficial uses (existing and potential) for the East Fork of the San Gabriel River are:

Municipal water supply (MUN), ground water recharge, water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), wildlife habitat (WILD), rare, threatened, or endangered species (RARE), spawning, reproduction, and/or early development (SPWN), and wetland habitat (WET).

The beneficial uses that are potentially impacted by litter are listed in Table 2 below. Trash can impact the beneficial uses in a variety of ways. Trash is an aesthetic nuisance to swimmers and waders, and non-contact users such as hikers. Trash can also impact wildlife through ingestion or strangulation. Some trash may also release other toxic or biologically detrimental pollutants into the stream. Charcoal and used diapers in the river can result in human health impacts.

Table 2: Summary of Beneficial Uses Addressed in the East Fork San Gabriel River TMDL (Los Angeles Regional Board, 1994)

Beneficial Water Uses	Potential or Existing	Description
Water contact recreation	Existing	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.
Non-contact water recreation	Existing	Uses of water for recreational activities involving proximity to water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking,

Beneficial Water Uses	Potential or Existing	Description
		beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm freshwater habitat	Existing	Uses of water support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Cold freshwater habitat	Existing	Uses of water support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife habitat	Existing	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Rare species habitat	Existing	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant and animal species established under state or federal law as rare, threatened, or endangered.
Spawning habitat	Existing	Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.
Wetlands Habitat	Existing	Uses of water that support wetland ecosystems, including but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions which enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants. This beneficial use is located only in portions of the East Fork; detailed analysis is required for any regulatory action.

The California Water Code defines water quality objectives as, “the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” The numeric target for the East Fork of the San Gabriel River TMDL is based on an interpretation of the narrative objectives which apply to litter, floating materials and solid, suspended, or settleable material contained in the Water Quality Control Plan. The applicable Water Quality Objectives and Definitions are below.

Table 3: Regional Board Basin Plan Water Quality Objectives

Water Quality Objective	Definition
Floating Material	<i>Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.</i>
Solid, Suspended, or Settleable Material	<i>Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.</i>

The Numeric Target established for the East Fork by this TMDL, based upon an interpretation of the above water quality objectives, is *zero trash in the river*.

Source Analysis

The Source Analysis for the East Fork relies on past reports prepared by the U.S. Forest Service, discussions with San Gabriel River Ranger District staff in June 1998 and DPW's recent field observations of July 3-5 and 17-19, 1998.

The primary source of trash in the East Fork comes from recreational use involving picnicking. Most of the picnicking activity occurs primarily on the weekends and holidays during warm weather months. The USFS reports (Simcox, 1989; Chavez, 1993) indicate, and the DPW's observations confirm, that the average size of a picnic group is about eight people, usually families. DPW's observations reveal that about half of a typical group consists of children. Due to the great numbers of children among the picnickers, one significant litter component is disposable diapers. Diapers are a significant threat to public health and water quality. Because picnickers engage in swimming and wading in the adjacent stream, picnic sites are chosen for their proximity to the water (Simcox, 1989; Chavez, 1993). As a result, another litter component is clothing, primarily shoes.

The USFS' observations and those conducted in the field by DPW (Wood, 1998) in July, 1998, indicate that litter deposition in the river terrace areas (between the summer low flow channel and the steep banks of the historic flood channel) of the East Fork is focused on the four, flat, heavily used areas that are adjacent to the East Fork Road. The following areas are the main source of trash in the East Fork San Gabriel River (see Figure 1):

1. The flats downstream of Follows Camp: Approximately 16 acres located about 2.6 miles east of Highway 39.
2. Oak Park vicinity: Approximately 9 acres located about 4.8 miles east of Highway 39.
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4. Coyote Flats: Approximately 9 acres located near the East Fork Ranger Station, about 6.5 miles east of Highway 39.

The instream area (i.e., watercourse) consists primarily of rock, sand and boulders. Downstream of Coyote Flats the stream contains deep pools that seem to be formed by recreational dredging activities, which are regulated by the U.S. Forest Service (USFS) by means of dredging permits.

DPWs observations indicate that these pools, when vacated by the dredgers, are spots where swimmers like to congregate (Wood, 1998).

The instream area contains flows throughout the year, although the flow rates vary. The flows will be highest during the winter and early spring and lowest during the summer and early autumn (the primary recreation season). Although the DPW no longer measures flows in the East Fork, its records at a stream flow gauging station it used to operate near Follows Camp indicate summer flows can exceed 100 cubic feet per second or be as low as 2 cubic feet per second (DPW, 1987 and 1988).

As reported above, the picnics in the four identified litter deposition areas include barbecuing that is just as elaborate as that for a typical backyard barbecue. In fact, picnickers will transport their own full size backyard barbecues to the sites. Often times, the barbecues are used in the middle of the stream on sandbars. These picnic activities thus produce the same type of garbage (e.g., disposable plates, utensils, napkins, cups, cans, bottles, 12-pack boxes, bones, rinds, husks) as those of a backyard barbecue and in similar amounts, at least one to two 32-gallon bags per group.

Litter deposition in the four identified informal camping/picnic locations in the East Fork occurs on the roadside and on the river terrace. The USFS has twelve 2-cubic yard roadside dumpsters among the four locations. In addition, the Eldoradoville vicinity contains four 55-gallon roadside trashcans. DPW observations reveal that, by the end of one day, enough trash is delivered to these dumpsters and cans to easily fill them to capacity (about two hundred 32-gallon bags). Therefore, roadside deposition is primarily the result of fly away from trash receptacles or bags left at the roadside and not put into receptacles. DPW observations also noted dumping occurring out of parked cars.

USFS personnel estimate that only two-thirds to one-half of the trash it collects in the four identified areas is found in, at or around the roadside receptacles. As a result, about one-third to one-half of the trash produced is deposited and left in the river terrace areas where the camp/picnic sites are set up. DPW's field observations indicate that most of the river terrace deposition occurs outside the stream itself. Trash items that may be directly deposited in the stream consist primarily of cups, but also include wrappers (chips bags), plastic utensils (used as water toys by children) and clothing (sandals). Greater levels of stream deposition occur in shallow spots that are primarily used by small children. Other deposited items such as glass (beverage bottles, broken and unbroken), diapers and barbecue briquettes are found along the river. Regional Board staff (Smith, 1999) noted trash and charcoal along the edge of the river as well as in the water.

Therefore, the USFS estimates that these four areas produce an equivalent of at least four hundred 32-gallon bags of trash, half of which is scattered or uncontained, that USFS personnel have to collect from the streambed area. This means that about 200 bags of trash are deposited (and later removed by USFS) in the river terrace area per day on weekends and holidays, which poses a significant threat to the waterbody. Observations made by the Regional Board and DPW did not indicate any litter problems beyond the four informal picnic areas. Again, this is due to the fact that other areas of the East Fork are less accessible and attract fewer visitors, mostly hikers.

Load Allocation

By definition, the sum of the Load Allocation(s) is equivalent to the Total Maximum Daily Load. The TMDL for trash in the East Fork San Gabriel River is no trash in the river. While the USFS is not the only landowner in the area of the East Fork, it is the only party responsible for the areas of the East Fork where beneficial uses are impaired. Furthermore, the only source causing the impairment of the East Fork is on USFS owned property. In order to achieve the numeric target established by this TMDL, the load allocation for the USFS and any other discharger of litter into the East Fork is zero. Currently the USFS has been able to prevent 50 percent of the trash that is generated in the area from being deposited on the ground.

Linkage

To meet the numeric target of no trash in the river, the amount of litter deposited in the river terrace area must be significantly reduced. If the amount of litter adjacent to the river in each of the four problem areas is reduced, there will be less opportunity for trash to migrate, from wind, rain, or animals, into the river. Currently the daily volume of litter collected from the river terraces of the four informal picnic areas combined, measured in 32-gallon garbage bags, is approximately 200 during the peak use days. The target of no trash in the river must be achieved and maintained year round. The only way to demonstrate attainment of the numeric target is through monitoring results, as prescribed below.

Margin of Safety

A Margin of Safety is a required element in a TMDL and can be either implicit or explicit. The magnitude of the Margin of Safety is based on the level of uncertainty associated with the development of the TMDL. The largest area of uncertainty in this TMDL is regarding the amount of litter that causes an impairment of recreational and aquatic life beneficial uses. To address this uncertainty the target has been conservatively set at no trash in the river.

Seasonal Variation

The numeric target of zero trash applies year round; however, the four areas that constitute the problem areas of the East Fork are mainly used during the weekends of warm weather months. The area has year-round users, such as hikers and campers, however, it is during the summer season when litter deposition becomes a problem. The largest number of users visit from June through September. As mentioned above, it is the large number of users and the style of recreation that impairs the East Fork. During the off peak months of winter and fall, litter deposition is negligible. This fact provides for flexibility in the magnitude and frequency of some implementation measures selected to achieve this standard in winter months.

Implementation

Responsible Agency

The East Fork is located within the jurisdiction of the United States Forest Service. As the public entity responsible for lands in and around the East Fork of the San Gabriel River, the USFS has a fiduciary responsibility to preserve and maintain the East Fork. It is also the duty of the USFS to

reduce or eliminate the threat to the river resulting from the large amount of litter deposited in the area. Implementation of this TMDL is one approach to protecting water quality in the East Fork.

Implementation Measures

The U.S. Forest Service shall submit to the Region Board a "TMDL Implementation Plan" that discusses the USFS' approach to implementing the TMDL, the proposed litter reduction measures that will be instituted, and a schedule of when each BMP will be conducted or completed. The Implementation Plan shall be submitted within 60 days of the effective date of this amendment. Implementation of the plan shall begin no later than 90 days after the effective date of this amendment. The Forest Service must demonstrate compliance with the TMDL (numeric target) by April 1, 2003. The Regional Board must approve any variations from this schedule.

Over the last several years, the USFS has developed a number of Best Management Practices (BMPs) to address the chronic litter problem in the East Fork. Implementation of most of those BMPs has not occurred due to the limited financial resources of the USFS. The USFS has the most direct experience dealing with the litter problem. The number and type of BMPs that the USFS has instituted over the years have varied depending upon the budget of the local office of the USFS. Thanks to the efforts of the USFS, existing trash levels in the area are better than they were ten years ago.

DPW, the Regional Board and the USFS developed the following suite of BMPs, which may be effective for achieving the numeric target. DPW estimates that implementing all of the following BMPs will cost the USFS about \$75,000 per year. The following BMPs, collectively should provide adequate reduction in litter to meet the numeric target per this TMDL. The USFS is under no obligation to use specific measures described below as long as the numeric target is reached.

1. During the peak picnicking season (summer), provide trash and hot coal receptacles in the river terrace area where the picnickers actually congregate. Make receptacles readily visible. To prevent the potential of causing a flood hazard, install the receptacles in the river terrace area at the beginning of May and remove them at the beginning of October.
2. Provide at least one full-time person at each of the four identified sites on each weekend day and holiday to direct picnickers to the trash receptacles, provide them with information on environmental issues and litter laws, and ensure the receptacles are in proper working order. The on-site person for these areas should be able to communicate both in English and Spanish. It will be the duty of these persons to recommend improvements in the trash collection system as necessary. They should do so in writing to the District Ranger as necessary.
3. Provide a full-time trash collection crew for the East Fork on each weekend day and holiday to collect litter from the river terrace and roadside receptacles. This should be done at a frequency to prevent "fly away" of any litter from the terrace into the watercourse.
4. Provide litter abatement signs.
5. Post bi-lingual "No Littering" signs at the East Fork Road intersection with Highway 39 and at the parking areas at each of the four informal picnic areas. The signs should contain appropriate symbols as well as the written message, and cite the appropriate federal and

county codes, citing the largest possible penalty amount. These signs should also be placed near the river terrace and roadside receptacles at each of the four informal picnic areas.

6. Enforce existing anti-litter laws. Personnel with authority to issue citations for litter law violations should increase patrolling in the area during peak use periods.

The Implementation Plan shall evaluate the need for additional measures to protect water quality. At a minimum this shall include the following:

1. The need, feasibility, and practicability of a prohibition of glass containers in the East Fork area.
2. Options for the disposal of hot charcoal, to prevent the deposition of charcoal in the stream.
3. Measures necessary to eliminate the improper disposal of used diapers.

Monitoring

Monitoring is an essential part of any TMDL. In order to ensure that the numeric target of this TMDL is being met, monitoring for trash in the river is necessary. Monitoring results will indicate the effectiveness of litter reduction measures in reducing the level of trash in the water. The U.S. Forest Service must conduct monitoring at locations downstream of each of the four informal recreational areas. During the peak usage months of June through September, monitoring shall be conducted downstream of one of the four sites each week. Using a rotating schedule for monitoring will result in each picnic area being monitored at least once each month during the peak period. Monitoring may be conducted every other month during the rest of the year. Monitoring will not only include sampling for trash flowing downstream of each of the four areas, but also visual observations of the river terrace areas. Sampling must be conducted in a manner that will measure both floatables and "bedload" trash. The USFS staff should conduct visual observations during their public education visits. Standard data sheets should be developed for recording observed trash levels.

Monitoring and sampling results must be maintained by the USFS to document progress in implementing this TMDL. An annual short-term study of trash in the river shall be conducted by the USFS. This shall be done by setting up trash collection nets in the river for a period of four days. One study per year shall be conducted during a holiday weekend (Friday through Monday), during the summer months. One four-day study during the wet season (October through May) shall also be conducted.

The USFS shall comply and submit to the Regional Board the results of monitoring on a monthly basis. The reports are due by the 15th day of the month following the collection of data.

The USFS and the Regional Board will use the monitoring and sampling data to evaluate the effectiveness of the BMPs implemented by the USFS. If the numeric target of zero trash is not being achieved after implementation of the above BMPs, modification to existing BMPs and/or additional BMPs must be developed.

Regional Board Authority

Section 303(d)(1)(A) of the Federal Clean Water Act requires that: "Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard applicable to such waters." The Clean Water Act also requires states to establish a priority ranking for waters on the 303(d) list of impaired waters and establish TMDLs for such waters. As part of the 1998 303(d) list submittal to the U.S. Environmental Protection Agency, the Regional Board identified the East Fork of the San Gabriel River as high priority for trash.

Should the U.S. Forest Service fail to implement this TMDL, the Regional Board has the authority to take formal enforcement action, including but not limited to, issuing Cleanup and Abatement Orders, Waste Discharge Requirements or Administrative Civil Liabilities.

