# APPENDICES

# APPENDIX A

# DRAFT - MALIBU CREEK WATERSHED PLAN ACTION ITEMS

# DRAFT--MALIBU CREEK WATERSHED PLAN-ACTION ITEMS
## 44 Action Goals (May 11, 1995)

*These recommendations were agreed upon by consensus during a series of facilitated meetings among over 40 stakeholder groups in the watershed. Each individual item was approved by over 70% of the voting stakeholders. The original action list contained 111 items; these items have been consolidated into 44 items here. Original language is shown in bold. The original number of the item is indicated in brackets.*

*CPR California Parks and Recreation*
*NPS National Parks Service-Santa Monica Mountains National Recreation Area*
*RWQCB Regional Water Quality Control Board*
*LVMWD Las Virgenes Municipal Water District*
*LVMWD-TJoint Venture*
*SMBRP Santa Monica Bay Restoration Project*
*HTB Heal the Bay*
*Surf Surfrider Foundation*
*DPW LA County Department of Public Works (in LA County portion of watershed only)*
*RCD Topanga-Las Virgenes Resource Conservation District*
*SCS Soil Conservation Service*
*CLB City of Calabasas*
*MAL City of Malibu*
*AH City of Agoura Hills*

SW is Los Angeles County Municipal Stormwater Permit. 319 are potential items for 319 grant proposal.

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| *OVERALL WATER QUALITY AND QUANTITY GOALS* | | |
| MCW-1 | 1. PROTECT BENEFICIAL USES: **Develop and set water quality objectives to prevent point and nonpoint pollutant sources and pathogens from adversely affecting the beneficial uses of the watershed and nearshore (including nutrients, pathogens, toxic chemicals, salinity, pH, DO, etc.)** [10][12]. | RCD, LVMWD, RWQCB, CLB, [MAL] |
| MCW-1 | 2. PROTECT RECREATION: **Ensure swimming, surfing, and fishing without adverse health effects posed by poor water quality** [4]. **Protect appropriate recreational opportunities such as surfing, swimming, sports fishing, sailing, and hiking in the creek, lagoon and surfsystem as long as it doesn't impact beneficial uses** [73]. | CPR, LVMWD, NPS, RWQCB, [MAL] |
| MCW-4 4.1 | 3. PROTECT ECOSYSTEM/ENDANGERED SPECIES: **Enhance and protect lagoon, creek, beach and intertidal habitats for threatened and endangered species** [55], **native biodiversity** [56], **riparian habitat** [62], **by** | LVMWD,CPR, RWQCB, NPS RCD, [MAL] |
| | a) **Attain and maintain water and sediments of sufficient quality to support a healthy creek, lagoon and surfzone, taking into account interactive impacts** [7]. | LVMWD, [MAL] |
| | b) **Prevent any increased input of substances in toxic concentrations into the watershed and surfzone** [15]. | LVMWD, MAL |
| | c) **Reduce habitat degradation caused by road/bridge building encroachments and dumping of road materials** [59] and **adopting ordinances and watershed-wide joint-powers agreements** to do so [65]. | CPR, NPS, LVMWD, [MAL] |
| 1.4 | 4. ELIMINATE OR REDUCE SOURCES: **Eliminate or reduce, by-subwatershed area, sources of harmful pathogens, toxic chemicals, sediments and nutrients** [6]. | LVMWD, CLB, [RWQCB], [MAL] [AH] |
| 4.1 | 5. BIOLOGICAL STANDARDS: **Establish minimal viable habitat standards to support native species of locality** [64]. | RCD, NPS |

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| 1.4 | 6. MONITOR PATHOGENS: **Use appropriate testing techniques to determine the presence of pathogens and test for compliance with established standards** [11]. **Pathogen testing should be implemented when and where bacteria counts are high** [24]. | LVMWD, MAL |
| | 7. REDUCE PATHOGENS: **Reduce human pathogens input into watershed** [17]. | LVMWD, [MAL] |
| | 8. STUDY NUTRIENTS: **Determine and establish achievable nutrient standards to maintain natural populations** [14]. | LVMWD, RWQCB |
| 1.5 | 9. REDUCE NUTRIENTS: **Reduce nutrient loads into the watershed** [16. **Reduce nutrient levels to natural background levels (i.e., Big Sycamore Canyon levels)** [21]. **Tapia Plant employ state-of-the-art technology** to remove nutrients from their discharge [22]. | LVMWD-T, [RWQCB], [MAL] |
| 2.2 | 10. REDUCE ACCELERATED SEDIMENTATION: **Historical seasonal sediment flow to beaches should be allowed** [43]. **Human-augmented sediment discharges into watershed should be reduced** [20] by: | LVMWD |
| | a) **enforcing erosion control regulation on a subwatershed basis** [19]. | CLB, MAL, AH |
| | b) **all cities and counties adopting ordinances of no net increase in sediment from any development in the watershed** [18]. | LVMWD, [MAL] |
| | c) **watershed-wide adoption of ordinances which would reduce sediment runoff from private property** [44]. | RCD, MAL, [LVMWD] |
| 2.2, MCW-3 | d) **minimization of loss of topsoil in developing areas** [47] **through implementation and enforcement of Best Management Practices** [33]. | LVMWD, NPS, MAL, CLB, AH |
| | e) **elimination of dumping of dirt on road shoulders** [49][59]. | NPS, CPR, MAL |
| | f) **elimination of massive grading within the watershed** [54]. | LVMWD, MAL |
| | 11. FIRE REGULATION-EROSION CONTROL: **Modify fire regulation practices and weed abatement programs to reduce erosion** [45]. One method is to require **mowing rather than discing** of weed setback zones [48]. | CPR, NPS, CLB, RCD |
| | 12. TEMPERATURE: **Establish water temperature policy for fishery** [63]. | |
| 1-10 | 13. STORMDRAINS: **Employ appropriate Best Management Practices (BMPs) for stormdrains throughout the watershed** [23]. **Stencil all catch-basin inlets (storm drains)** [87]. | DPW, AH, CLB, HTB, MAL,[RWQCB] |
| | 14. MOBILE CAR WASHES: **Regulate mobile car washes to prevent discharges from reaching creek and lagoon** [35]. | LVMWD, [MAL] |
| | 15. ILLEGAL DRAINS: **Eliminate known illegal storm drains entering the** watershed [1]. | [MAL] |
| 1.4 | 16. SEPTIC SYSTEMS: **Implement dye study of the septic systems in the vicinity of the lagoon, creek and surfzone** [3b]. **Study all identified septic systems and replace all malfunctioning septic system** [8]. | MAL |
| | 17. TRASH/PARK SANITATION: **Maintain sanitary conditions in parklands. Link to education in English and Spanish to prevent trashing of resource** [70]. **Manage and eliminate the harmful impacts of day use, including campers, picnickers and transients on water quality** [72a][72b]. | LVMWD, NPS, CPR |

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| | 18. CONFINED ANIMALS: **Develop Best Management Practices (BMPs) for livestock waste management** [37]. | RCD, CPR, |
| | a) **Conduct survey of existing locations and amounts of animal waste within the watershed** [32]. | [MAL] |
| | b) **Prohibit dumping of horse manure along creek. Enforce set-backs of horse corrals and horse manure storage** [5]. | NPS, [MAL] |
| | c) **Set limits on number of livestock per acre to protect the resource from overuse by large domestic animals** [53]. | LVMWD, [MAL] |
| | 19. HOUSEHOLD IRRIGATION RUNOFF: As an example of potentially large quantities of household irrigation runoff, **survey households in upper Medea Creek development to determine reasons and solutions for extraordinary water runoff and report to advisory committee** [27]. | SCS |
| ***MALIBU LAGOON AND SURFZONE ONLY*** | | |
| 4.5, 4.6 | 20. RESTORE/ENHANCE: **Restore and/or enhance Malibu Lagoon** [58], including **threatened and endangered species** [55]. | NPS, RCD, CPR, MAL |
| 1.11, 1.6 | 21. ASSESS SOURCES/CHARACTERISTICS: a) **Conduct a thorough and definitive study of lagoon water quality, identify all pollution sources, and develop remediation** [9] strategy. | LVMWD, MAL |
| 1.6 | b) **Develop a comprehensive picture of the hydrology, circulation, the biota of the lower creek and lagoon and surfzone for policy decision-making** [61]. | RCD, CPR, [MAL] |
| | c) **Perform quarterly toxic chemical tests in Malibu Lagoon and surfzone** [105]. | [MAL] |
| 1.4, 1.7 | 22. ILLEGAL DRAINS: **Eliminate known illegal storm drains entering the lagoon** [1] and particularly **investigate sources emptying the unclaimed storm drain (Mystery Pipe) in Malibu Lagoon** [2]. | [MAL] |
| 1.4 all watershed | 23. SEPTIC SYSTEMS: **Implement dye study of the septic systems in the vicinity of the lagoon and surfzone** [3a][3b]. **Study all identified septic systems and replace all malfunctioning septic system** [8]. | MAL |
| 1.1, 1.2, 1.9 | 24. LAGOON WATER LEVEL/BREACHING: **Evaluate options for regulating lagoon levels without artificial breaching of lagoon** [13]. **Prevent the unnatural breaching of creek** [68]. | CPR, [MAL] |
| | 25. PUBLIC NOTICES-Breaching/Public Health: a) **Regular notices to inform public and agencies about breaching times of lagoons** [91]. | Surf, CPR |
| | b) **Encourage Los Angeles newspapers to publish weekly monitoring bacteria results at beach entrances** [95]. | Surf, HTB, [SMBRP] |
| | c) **Implement public notification and education about potential health problems at beach** [96]. | Surf, HTB |
| | 26. MALIBU LAGOON BRIDGE: **Caltrans should set up a mitigation fund to cover the costs of any impacts to the Malibu Lagoon and surfzone resulting from reconstruction of Malibu Lagoon Bridge** [42]. | [MAL] |
| ***WATERSHED SOLID WASTES AND OTHER WASTES*** | | |
| | 27. LANDFILL: **Expand the understanding of the impact of Calabasas Landfill on water quality** [106] and especially ensure that **Calabasas landfill to install monitoring wells which they were directed to construct in February 1990 and report monitoring results of findings to advisory committee** [101]. | |

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| 1.12 | 28. WATER IMPORTS AND DISCHARGE: **Maximize environmentally acceptable reuse of reclaimed wastewaters (household and treatment plant) and greywater and reduce the importation of potable water [25][26]. Encourage use of reclaimed water for irrigation of landscaping and community open space [34]. Price reclaimed water more competitively [82]. Harmoniously implement water conservation efforts and greywater ordinances between cities [94]. Ultimate long-term goal of no waste discharges into waters used for recreation and/or for sources of food [28].** | LVMWD-T, NPS, RWQCB, CLB, MAL, AH (34) |
| | 29. COMPOSTING/RECYCLING/CONSERVATION: **Implement improved recycling efforts [86]. Maximum treatment and reuse potential of all aspects of the watershed's waste disposal operations (septic, sewer, sludge farming, septage, and landfill operations) [38].** | DPW, LVMWD, MAL |
| | a) **Encourage composting and other forms of recycling for waste management [29].** | LVMWD, CPR, NPS, DPW, CLB, MAL, AH |
| | b) **Encourage recycling and reuse efforts to reuse water, household hazardous wastes, plastics, paper, glass, cardboard, tin and aluminum [92][93].** | DPW, LVMWD, CPR, NPS, CLB, MAL, AH |
| | 30. PUBLIC EDUCATION-Conservation: **Develop individual support for conservation practices through education, training, and workshops which would reduce sediment and stormwater runoff from private property [31] [44].** | CLB, MAL, AH |
| ***LAND USE*** | | |
| | 31. RUNOFF REDUCTION: **Develop land use decision-making approaches (including land use zoning and ordinances) which reduce point and non-point source pollution [39][46]. Specifically, new development within the watershed should employ on-site reuse of reclaimed water so that there is no net increase of water into the watershed [41]. Develop and implement guidelines for minimizing and mitigating ecological disturbances related to point and nonpoint water flows into "unimproved" coastal streams [110]. Watershed-wide ordinances which would reduce stormwater runoff from private property [44].** | LVMWD, NPS, RCD, CLB, AH [MAL] |
| | 32. RECREATIONAL USE IMPACTS: **Reconcile demands for public access and resource protection regarding trails and roads [52].** | LVMWD, NPS, RCD, CLB |
| ***HABITAT PROTECTION*** | | |
| 4.4 | 33. LAND PURCHASES: **Purchase high priority watershed protection areas [36].** | NPS, CPR, LVMWD, |
| 4.3 | 34. BUFFER ZONES: **Develop and mandate site specific buffer zones for sensitive areas [40][50].** | NPS, CPR, AH LVMWD, CLB |
| | 35. HABITAT FRAGMENTATION: **Develop and implement land use policy that will eliminate any additional habitat fragmentation [51][66]. Support existing corridors between isolated open lands and establish alternatives where feasible [60].** | NPS, CPR, LVMWD, RCD, CLB, AH |
| 4.6 | 36. FISH BARRIERS: **Remove barriers to fish migration, especially Rindge Dam [67].** | |
| | 37. EXOTIC VEGETATION: **Support control of the intrusion of exotic plants into the wilderness areas of the watershed [57].** | SMBRP, CPR, NPS, RCD, [MAL] |
| 1.3, 1.8, 4.7 | 38. WETLANDS: **Maintain, restore, create and enhance wetlands (natural and created) [69].** | LVMWD, NPS, CPR, [MAL] |

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| *COORDINATION AND OUTREACH* | | |
| MCW-5 | 39. COORDINATE ON WATERSHED BASIS: **Create and implement a regional and subwatershed approach to the coordination of land use and water quality decisions** [77] **for ongoing implementation concerns and to reduce unnecessary overlap of ordinances and streamlining of regulation** [80]. | LVMWD |
| | **a) Develop guidelines to reconcile the attainment of water quality objectives and resource protection with other, possibly conflicting public service goals, such as fire protection, flood control, mosquito abatement, and geologic stability** [78]. | LVMWD, [NPS] |
| | **b) Build support for the implementation of the mediation recommendations (research studies, ordinances, joint agreements, etc.) among the agency staff and non-agency stakeholders who are working on management plans which affect the watershed: RCD/SCS Natural Resources Plan, SMBRP Comprehensive Conservation and Management Plan, LA County NPDES permit for stormwater, City of Malibu Wastewater Management Plan, General Plans of Area Cities and the LA County 101 Corridor/Cities Area Plan Update** [79]. | SMBRP, [NPS] |
| | c) **Establish mechanisms,** including **joint powers authorities, watershed commissions, special districts or other cooperative integration efforts, for the integration efforts aimed at coordinating, planning and/or implementation where multiple general-purpose jurisdictions exist** [81][83]. | SMBRP, LVMWD |
| | **d) Develop and field-test interactive models to facilitate systems-based watershed planning and management decisions** [108]. | [NPS] |
| | **e) Identify and create appropriate financing options which work and are cost effective** [74], **including joint financing options so duplication is avoided** [75]. | SMBRP, LVMWD |
| | 40. ENFORCEMENT-General: **Develop effective means to enforce pollutant reduction programs** [76]. | LVMWD, [MAL] |
| | 41. ENFORCEMENT-Camping: **Enforce existing camping restrictions within the watershed** [90]. | CPR, NPS |
| MCW-6, 6.2 | 42. PUBLIC EDUCATION: **Emphasize and encourage ongoing public education** [71] [85] | Surf, LVMWD, CPR, SMBRP, RWQCB, DPW, MAL |
| | **a) Create a non-point source pollution education program for the watershed occupants** [84]. | SMBRP, AH, [MAL] CLB, [RWQCB] |
| | **b) Develop Adopt-a-Watershed Program that is watershed-wide** [88]. | [MAL] |
| 6.1 | **c) Implement effective education programs about the need for urban and non-urban preservation of open space and buffer zones** [89]. | CPR, NPS, AH, LVMWD, CLB, [SMBRP] |
| MCW-7 | 43. WATERSHED MONITORING: **Develop and implement coordinated and integrated watershed monitoring program** [30]. | RCD, [NPS], [RWQCB] |
| | **a) Create a centralized database of water quality and resource data accessible to all parties** [97]. | RWQCB, NPS, [LVMWD] |
| | **b) Develop a coordinated GIS Database network, including a detailed land use map** [102] **and all septic systems and stormdrains** [109], **which is accessible to all parties** [98]. | [LVMWD], NPS |

| SMBRP Action Plan | Malibu Creek Watershed Plan-Action Items | Implementing Agencies [intend] |
|---|---|---|
| | 44. WATERSHED ASSESSMENT: **Identify, by-subwatershed area, sources of harmful pathogens, toxic chemicals, sediments and nutrients** [6]. | [MAL] |
| | a) **Expand an understanding of the hydrology of the watershed and near-shore bathymetry** [100]. **Agree on needed research on what appropriate and attainable seasonal flows should be for the creek, lagoon and near shore areas** [107]. | LVMWD |
| | b) **Identify and apply suitable models to help target and prioritize pollution prevention, reduction, and abatement measures** [103]. | CLB, [NPS] |
| 1.13 | c) **Raise funding for and implement study on health effects of urban runoff on surfers, incorporating Surfrider Beach into the design** [104]. | SMBRP |
| 1.5 | d) **Establish a Total Maximum Daily Load Model for all inputs to the watershed** [111]. | [RWQCB] |
| 2.1 | e) **Develop a research agenda to expand understanding about impacts of land use practices in watershed** [99]. | [LVMWD] |
| 2.2 EROSION | | |

# APPENDIX B

# ISSUES, CONCERNS, AND RECOMMENDATIONS OF THE PUBLIC HEALTH/RECREATION SUBCOMMITTEE

# MASTER OUTLINE OF THE ISSUES, CONCERNS, AND RECOMMENDATIONS

October 19, 1993

1. AN EPIDEMIOLOGICAL STUDY - focusing on Malibu Creek, Malibu Lagoon, Malibu Surfriders Beach and surfzone, to be incorporated in both the NATURAL RESOURCES PLAN study and the SANTA MONICA BAY RESTORATION PROJECT action plan: the objective of such a study would be to assess the impact on human health of the alleged pollution of the Malibu Creek Watershed.

It is suggested that this study could be implemented in three stages, over an estimated five years' period.

STAGE ONE: recover approximately three dozen pathogens, including Poliovirus,

Echovirus and Rotavirus, at the input into Las Virgenes Municipal Water District/Triunfo County Sanitation District Tapia Water Reclamation Facility. As a control, the same viruses should be tested immediately past Tapia, and further downstream.

STAGE TWO: Study permanent residents at the lower part of Malibu Creek and in Malibu

Colony, using a control group from a "non-polluted" area.

STAGE THREE: Survey the users of the Malibu Surfriders Beach area.

The human study could be approached in two ways, concurrently or sequentially, depending on the constraints of time and money available.

First, a retrospective study could identify the problem, if any, by recording and medically documenting past and recent complaints from a required number of beach-goers and permanent Malibu residents, establishing, when possible, a specific diagnosis with regard to the pathogen involved. A retrospective diagnosis may be attained by specific antibody determinations **if performed by a laboratory well-versed in this type of investigation.**

Secondly, a prospective study, most decisive in answering the concern about human health would be to identify specific groups at risk (habitues of the Malibu Creek recreational areas, including the transient encampments along the stream). This study would be disease-oriented and look at complaints/illnesses as they occur. Proper demographic data and medical background should be obtained, and proper medical diagnoses of these occurrences would have to be attempted, again, with laboratory backup. A matched control group from an allegedly non-polluted

area would have to be included, as well. Such study should demonstrate demonstrate the differences in outcomes, if any, between the two groups, and relate these differences to pathogens concurrently studied in the Malibu Creek Watershed itself.

The sophistication and design of epidemiologic study may vary, but, whatever the approach chosen, THE ULTIMATE STUDY MUST BE DISEASE-ORIENTED AND LABORATORY SUPPORTED, in order to establish any possible association between human health and alleged pollution.

2. Quantify General Plan land uses and past practices in development approvals for each of the cities and unincorporated areas within the watershed:
   - A. Predict impacts on public health and recreational benefits.
   - B. Look at regional impact assessment models to evaluate the developments with regional impacts. At a minimum, impacts should include:
     1. man-made debris, pesticides, petroleum products, heavy metals, etc.
     2. excess sedimentation from construction.
     3. nutrient loading from various sources, including livestock.

3. Interference With Natural Processes, such as:
   - A natural replenishment of beach area
   - B. spawning and spawning areas.

4. Contamination of Aquatic, Estuarine, and Marine Resources.

5. Contamination of Terrestrial Resources through Non-Point and Point Pollution.

6. Hydrological Imbalance:
   - A. amount of flow
   - B. force of flow
   - C. rate of flow.

7. Need for Bathymetric Data and Topographic Map to Document Flow Patterns and Changes.

8. Need for Changes in Lifestyles and Alternatives to Accepted Procedures.

9. Need for Ongoing Announcements to Increase Public Awareness of Problems.

10. The Conversion of lower Malibu Creek and Lagoon vicinity <u>filled land</u> to Multi-function, Productive Wetlands.

# APPENDIX C

# CONSERVATION PRACTICE DESCRIPTIONS

# APPENDIX C

## CONSERVATION PRACTICE DESCRIPTIONS

The Conservation Practices are listed alphabetically according to NRCS (SCS) usage and nomenclature. Common names of practices that fit into these categories are included for each SCS Conservation Practice. A very short description for each of the practices is added to each entry. The listing does not include special practices that may apply to a site - i.e.: reinforced fill or crib walls, landslide stabilization, area requirements, road widths, etc.

The practices shown are to be used as part of a SYSTEM, designed for each site, to meet the goals set for use, stability, safety, environmental quality, health, and water quality. Few sites or goals will allow one practice to comprise a system. A system normally may be comprised of a number of practices to meet one goal for the site. A system to meet multiple goals is likely to need many individual practices. For this study, the systems generally address stability, safety, water quality and quantity, health and environmental quality by controlling water flows and reducing erosion and reducing the quantities of sediment and other pollutants reaching surface waters.

Maintenance and Upkeep

Road Ditch Maintenance, Increased from present
Mower, not grader, maintenance of ditches and slopes
Culvert Maintenance, Increased from present
Storm Drain Maintenance, Increased from present
Design Standards, Increased level from present
Construction Standards, Increased level from present
Culvert and drain maintenance.
Ditch and drop inlet maintenance.

Access Road (560)

A travelway to provide a fixed route for travel and access, while controlling runoff to prevent erosion and maintain or improve water quality.

Road Paving - including paved or surfaced shoulders
Rolling Dips (Valley Gutters) - to waterway or inlet.
Cross-Sloping - for drainage to waterway or vegetated slope.
Added R/W Width - to allow for reduced bank toe removal by grader.
Water Bars - to waterway or inlet or protected slope.
Earth Retaining Berm - low earth berm to keep runoff on roadway.
Paved Driveways - paved or surfaced drives for water and erosion control.
Paved Parking/Use Areas - parking and use areas associated with the roads paved or surfaced, with berm or gutter water control.
Curb and Gutter - convey runoff to storm drain or waterway.

Heavy Use Area Protection (561)

Protecting heavily used areas by establishing vegetative cover, by surfacing with suitable materials, or by installing needed structures.

Gravelled, retained sand barrier, paved, or sodded protection for heavy use areas, such as play areas, playgrounds, trails, cart parking, practice tees, water and feed troughs, stables, etc.

Hillside Bench (192)

An excavated ledge, earth embankment, or a combination excavated ledge and earth embankment constructed on a hillside. May be used for houses on narrow terraces and access roads.

Hillside Ditch (423)

A channel that has a supporting ridge on the lower side constructed across the slope at definite vertical intervals and gradient, with or without a vegetative barrier. Mainly used for diverting runoff flows originating above a hillside development to a protected outlet.

Irrigation System: Trickle (441)

A planned irrigation system in which all necessary facilities are installed for efficiently applying water directly to the root zone of plants by means of applicators operated under low pressure. The applicators can be placed on or below the surface of the ground.

Micro Spray Irrigation - landscaping plants.
Drip Irrigation - landscaping Plants.

Irrigation Water Management (449)

Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner.

Proper Water Use - on landscaping and erosion control plants.
Irrigation Water Management - on landscaping and erosion control plants.

Land Clearing (460)

Removing trees, stumps, and other vegetation from wooded or heavily vegetated areas in an manner that maintains the integrity of the soil and water resources.

Land Grading (202)

Altering the surface of the land to meet the requirements of the planned facilities, or the planned use of the land.

Lined Waterway or Outlet (468)

A waterway or outlet having an erosion-resistant lining of concrete, stone, or other permanent material. The lined section extends up the side slopes to a designed depth. The earth above the permanent lining may be vegetated or otherwise protected.

Lined Ditches, Lined Channels, Paved Ditches, Protected Waterway (Road Median), Lined Drainage Ditch - ditches or waterways lined with permanent materials to prevent erosion, reduce size, or provide safety.

Road Edge Berms - asphaltic concrete or concrete berms, usually less than 12-inches high, to keep runoff on the paved section of the road and prevent overbank or toe of slope erosion. Earth berms to control overbank flow are part of Access Road practices.

Livestock Exclusion (472)

Excluding livestock from an area not intended for grazing.

Fencing - to exclude animals from the waterways, from landscaping, and from development.

Nutrient Management (198)

Managing the amount, form, placement, and timing of applications of plant nutrients.

Fertilizer Management - use minimum of fertilizers, at proper time and in proper manner (all on vegetated area, not paved areas).

Pasture and Hayland Management (510)

To maintain an adequate vegetative cover on pastures and hayland to reduce erosion, maintain vigor, and ensure reseeding.

Pasture Management - retain proper cover on pastures.

Pesticide Management (199)

Managing the type, amount, placement, and timing of applications of pesticides needed to reduce plant cover and to improve plant growth or crop production.

Pesticide Management - use minimum of approved materials, at proper times.

Roof Runoff Management (558)

A facility for collecting and disposing of runoff water from roofs that reduces pollution, erosion, and flooding and improves water quality and drainage.

Runoff Management System (570)

A system for controlling excess runoff caused by construction operations at development sites, changes in land use, or other land disturbances.

Sediment Basins - small basins constructed to catch and retain sediment and debris.
Infiltration Trenches - a rock filled trench designed to store and percolate runoff.
Parking Lot Storage - a area of the parking lot designed to store and slowly release a depth of about 6-inches of runoff.
Rooftop Storage - constructing a roof structurally capable of holding detained storm water and releasing it slowly, over a period of 24-hours.
Underground Tanks - a tank capable of retaining storm runoff for a release period of 5-days.
Filter Strips - a 25-foot, minimum, wide grass strip used to filter storm flows before they enter an infiltration trench or before the flows enter an off-site waterway.
Sediment Traps - a temporary sediment basin used during construction or an oversized drop inlet box for a storm drain.
Filter Traps - a wide or large grassed area that is nearly flat, used to trap and remove sediment from flowing water.

Sediment Basin (350)

A basin constructed to collect and store debris or sediment.

Runoff Retention Basin - small basin to hold runoff for slow release and to catch and retain sediment and debris. May be in landscaped or parking area,

Stream bank and Shoreline Protection (580)

Using vegetation or structures to stabilize and protect banks of streams, lakes, estuaries, or excavated channels against scour or erosion.

Stream Corridor Improvement (204)

Restoration of a modified or damaged natural stream to a more natural state using bioengineering techniques to protect the banks and to re-establish the riparian vegetation.

Stream Corridor Improvement - sites along waterways should restore damaged or modified stream and stream banks to more natural conditions.

Structure for Water Control (587)

A structure in a water management system that conveys water, controls the direction or rate of flow, or maintains a desired water surface elevation.

Subsurface Drain (606)

A conduit installed beneath the ground surface to collect and/or convey drainage water.

Subsurface drain - if needed, to drain slopes for stability or to drain high water table for foundation stability.

Underground Outlet (620)

A conduit installed beneath the surface of the ground to collect surface runoff and convey it to a suitable outlet.

Culverts - to convey water under the road surface.
Culvert Inlet - shaped or formed inlet to culvert.
Culvert Outlet - shaped or formed outlet for culvert.
Drop Inlet - box inlet designed to drop water from waterway grade to culvert or storm drain grade.
Drop Inlet, w/Sediment Storage - a drop inlet with capacity to store a small volume of coarse sediment, usually the annually predicted amount from the subwatershed.
Down Drain - a culvert or steeply sloping lined waterway from the road surface or road culvert to a natural waterway. The down drain should end in a protected outlet, spreader basin, or a drop into the waterway that reduces the erosive energy of the road drainage. Road drainage should not be released onto slopes at the road R/W.
Storm Drain - a system of pipes to collect and convey runoff from (mainly) urban areas to natural or constructed waterways.
Storm Drain Inlet - a street inlet to collect surface runoff and drop it into the storm drain. A variation of drop inlet.

Wetland Development or Restoration (657)

Construction or restoration of a wetland facility to provide the hydrological and biological benefits of a wetland.

Waste Management System (312)

A planned system in which all necessary components are installed for managing liquid and solid waste, including runoff from concentrated waste areas, in a manner that does not degrade air, soil, or water resources.

Animal Waste Management - to store, use or dispose of animal wastes in an appropriate and environmentally safe manner.

Waste Storage Pond (425)

An impoundment made by excavation or earthfill for temporary storage of animal or other agricultural waste.

Waste Storage Structure (313)

A fabricated structure for temporary storage of animal wastes or other organic agricultural wastes.

Waste Transfer (193)

Structures, conduits, or equipment installed or used for the movement or transfer of animal wastes or other organic agricultural wastes to storage, treatment, or disposal.

Animal Waste Removal - remove stored or collected animal waste and move it to the use or disposal site in an environmentally safe manner.

Windbreak Renovation (650)

A closely planted strip of trees and shrubs used to reduce the force and velocity of the wind.

Windbreak Renovation - to provide protection from wind.

Waste Management

The removal, storage, transfer, handling, and disposal of urban or household wastes in a manner that does not degrade air, soil, or water resources.

Street Sweeping - remove surface dusts and debris. Intervals vary, but should occur at least monthly in low traffic areas and more frequently in high traffic areas.

Pollutant Traps at Drain Outlets or Inlets - variation of drop inlet, designed to trap and hold floating pollutants; oil, grease, organic material, trash, etc.; to prevent their entry to the waterways or to recharge basins.

Refuse Collection - collect and remove refuse discarded along roads.

Yard Waste Collection - collect and remove woody vegetation, clippings, and earth materials that are discarded or are produced during maintenance along roads.

"Hazardous" Waste Collection - collect and remove "hazardous" wastes that are discarded in and adjacent to the roads.

Improve On-Site Waste Disposal - increase septic tank leach field requirements in sandy soils over shallow ground water and in clay soils over impermeable layers. A residential density of greater than 2 homes per acre should be sewered to protect ground water. A commercial or light industrial density of greater than 1 business per acre should be sewered to protect ground water. No hazardous, controlled, or polluting substances should be put into septic systems. Purchase and Wreck polluting vehicles - purchase and remove from use all internal combustion vehicles that cannot meet air quality standards or which have excessive oil leaks (not readily repairable).

Floodproofing

The reduction of flood damages by reducing the entrance of flood waters into buildings or property, on an individual basis.

First Floor Level 12-inches above 100-year flood level.
Berms to direct flows away from dwelling.
Ditching to convey flow away from dwelling.

Education

Develop a watershed-wide brochure on water quality protection. Handout or mailed. Explain why storm water pollution and irrigation runoff is a problem and what people can do to prevent it. In another brochure, explain why petroleum wastes, garbage, chemicals, animal wastes, yard wastes, etc. should be kept out of the water resources and what the downstream results could be, including the ground water.

Develop a program to educate architects, landscape architects, and engineers about friendly designs for storm water control and erosion control, and design practices to reduce the need for fertilizers, herbicides and pesticides.

Develop or review education programs related to use of pesticides, herbicides, and fertilizers, focusing on residential/commercial/public lands uses. The programs should address low volume uses and water quality impacts and the use of alternative products or methods.

Expand the program to educate the public about the storm water pollution impacts that result from littering. Include water quality, instream biota, and ocean biota.

Work with citizen groups to reduce littering by providing waste receptacle, litter bags in cars, etc. Continue to provide and maintain waste receptacles in strategic public areas and for public events. Expand programs as appropriate.

Promote public involvement in "adopt a creek" programs for specific waterways or waterway segments.

Promote public involvement on transportation, planning, packaging, pollution control, waste management, etc. issues.

Educate the public, commercial and industrial users of the effects of oils and greases on water quality and other environmental effects. Focus on "housekeeping" practices, oil/grease traps, absorbents, cleaning compounds, and other techniques for controlling oil and grease spills and leaks. The importance of vehicle inspection and maintenance to reduce leakage of oil, antifreeze, hydraulic fluids, etc. should receive separate focus.

Educate landowners about the need for and practical methods for erosion and sediment control, nutrient management and irrigation water management. The control of off-trail activities should be an integral part of the program.

Educate the public about the relationship between air pollution and storm water quality problems. Educate the public and cooperate with programs to reduce air emissions from individual, commercial, public and industrial sources, including reduction of automobile use.

Educate the public and commercial/industrial/public owner users of the need to keep irrigation, rainfall and runoff from contacting or transporting potential contaminants. Include methods of separation and other solutions.

Educate the public, commercial, industrial and public owners of practical alternatives to reduce roof and paved area peak runoff rates of discharge contributed to storm drains and waterways.

Provide education and guidance encouraging architects, engineers, developers and building departments to implement systems of temporary rainfall peaks on-site, for slow release to the storm drain or waterway system.

Educate the public on the need to minimize the total volume of runoff from a given area. Provide basic principles and suggest practical alternative means to enhance surface retention and infiltration. Include water quality effects, ground water effects, and on-site effects.

Educate the public about the advantages of composting and proper composting techniques.

Educate the public and landowners about the effects of pet and animal wastes, including suburban livestock (especially horses) on the environment. Provide practical methods of cleaning up and disposing of these wastes. Dispense litter bags in public places.

Educate the public and landowners on the proper operation and maintenance of septic tank systems. Recommend a maintenance schedule and ways to determine if improper operation or failure is eminent.

Regulatory - Regulation or Ordinance

Assist developers, builders, commercial, industrial and other landowners to comply with general and specific permits. Provide workshops on permit requirement, installation of appropriate practices, and the needs to meet overall requirements of State Laws, such as the Storm Water Pollution Prevention Plan.

Develop uniform enforcement procedures. Educate the public, developers, builders, contractors, engineers, inspectors, and enforcement personnel in the plan requirements, enforcement procedures, costs, and the underlying regulations/ordinances. The procedures should outline the appropriate actions for violations.

Conduct above and below ground inspections for illicit connections to and illegal discharges into the storm drain system. Trace the results to sources. Procedures for training, inspection and implementation should be included.

Provide recycling or safe disposal collection sites for used petroleum products, chemicals, oils, greases, and hazardous materials. Educate the public about use of these sites, provide the necessary funds (including possible fees) and maintain the sites. Sites should be convenient and open seven days a week, during afternoon and evening hours.

Develop a guidance manual for the construction industry, including new development, that contains the Storm Water Pollution Prevention Plan requirements, practical means of installing and maintaining practices, practical control practices, and guidance in developing a plan.

Restrict or regulate the use of fertilizers, pesticides and herbicides on all non-agricultural lands. May include regulating the sale of these products and those specifically noted to be for household use.

Strengthen the ordinances and the enforcement of the ordinances to control littering and illicit or illegal discharges or dumping.

Develop a comprehensive plan to collect, reduce, recycle, and control trash and yard debris.

Develop a program to ensure that municipal, county, state, or commercial trucks hauling bulk materials or wastes do not leak, spill, or otherwise release contaminants onto roadways or open spaces, where they may be subsequently washed into the storm drains or waterways.

Develop appropriate regulations to require (at least some) auto supply, service and repair businesses to provide collection and disposal services for used vehicle fluids.

Enforce regulations that require oil and grease controls in areas that are significant sources.

Restrict livestock, domestic animals, and pets from entering or being corralled in waterways or damaging stream banks.

Restrict the use of off-road vehicles to specific locations that have an erosion control plan in place to reduce environmental damages.

Require O&M plans and maintenance plans for all new sewers and storm drains to be a part of development plans.

Require O&M plans, inventories, and maps of all sewers and storm drains be kept up-to-date.

Develop and implement intensified street sweeping programs for all streets and roads. The intensity should reflect the use of the facility, but should not be less than once per month. Private and public paved areas (parking, storage, etc.) should be included in the program.

Develop, implement and enforce regulations to install systems that retain storm runoff on site for slow release to the storm drain or waterway system, minimizing the peak discharge rates.

Develop and implement plans to retrofit storm sewers and waterways with structures to remove sediment and oils/greases from small storms and early portions of large storms (first 0.5 inch).

Develop, implement and enforce regulations to install structures to remove sediment and oils/greases from small storms and early portions of large storms (first 0.5 inch) for parking areas and other paved areas. Include maintenance requirements and practical solutions, as well as incentives.

Develop a program to provide financial incentives, such as tax reductions, to property owners who protect natural areas or wetlands on their property that has valuable water quality characteristics or storm water treatment characteristics.

Determine the feasibility of and implement a plan for retrofitting storm drainage and flood control facilities to also function as water quality facilities (ie.- wetlands, sedimentation basins, etc.).

Develop an overall plan for the installation or retention of wetlands along the waterway system. Include provisions for implementation and maintenance, also financing and evaluation.

# APPENDIX D
# IMPLEMENTATION SOURCES

The Implementation Sources listed in this appendix are further explained in the Catalog of Federal Domestic Programs and the Catalog of California State Funding Sources. The sources in the appendix are Federal and State programs listed by alphabetical order according to program titles.

The purpose of these catalogs is a government and state-wide compendium of programs, projects services, and activities which provide assistance or benefits to the public. They contain financial and nonfinancial assistance programs administered by departments and establishments of the Federal and State governments.

| Program Title | Agricultural Conservation Program |
|---|---|
| Objectives | Control erosion and sedimentation and to encourage voluntary compliance with federal/state requirements to solve point and non-point source pollution. Water quality improvement is an allowable purpose and is presently receiving special emphasis. |
| Type of Assistance/ Available Funds | Financial assistance. Direct payments for specified uses. |
| Requirements/Limitations | The County ASCS Committee sets conservation need priorities. The local Soil and Water Conservation District identifies appropriate conservation practices. Technical assistance is provided by NRCS Field Office staff. ASCS provides financial assistance upon certification by NRCS of practice installation. |
| Eligibility | Farmers, ranchers, owners and associated groups who bear a part of a cost of an approved conservation practice are eligible for cost share assistance. |
| Further Information | State and local ASCS office or.<br>Agricultural Stabilization and Conservation Service<br>U. S. Department of Agriculture<br>P.O. Box 2415<br>Washington, D.C. 20013<br><br>(202) 447-6221 |

| Program Title | Agriculture Preservation Projects |
|---|---|
| Objectives | Work with property owners, local governments, and state agencies within the coastal zone to establish long-term protection of agricultural lands threatened by development. Tools such as transfer of development rights, purchase of development rights, and realization of supplemental land uses are used to implement this goal. Funding also provides for the purchase of easements. |
| Type of Assistance/ Available Funds | Grants, loans, land acquisitions, project/program development assistance |
| Requirements/Limitations | Sites must be in the coastal zone or in the jurisdiction of the San Francisco Bay Conservation And Development Commission. |
| Eligibility | State, local or federal public agencies or nonprofit organizations. |
| Further Information | State Coastal Conservancy<br>Carol Arnold<br>1330 Broadway, Suite 1100<br>Oakland, CA 94612-2530<br><br>(510) 286-4173 |

| Program Title | Assessment and Watershed Protection Support |
|---|---|
| Objectives | Assessment and watershed protection support activities, can include all levels of government and private organizations. |
| Type of Assistance/ Available Funds | Grants - Part of Clean Water Act |
| Requirements/Limitations | Grants - Funds determined annually |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| Program Title | California Traffic Safety Programs |
|---|---|
| Objectives | Assist state and local agencies in implementing programs to reduce traffic accidents and/or improve traffic safety-related activities. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | Funds to supplement not substitute for ongoing expenditures. |
| Eligibility | Any state agency or local political subdivision. |
| Examples | Complete program manuals are available upon request. |
| Further Information | Office of Traffic Safety<br>Marilyn Sabin, Planning & Operations Manager<br>7000 Franklin Blvd, Suite 440<br>Sacramento, CA 95823<br><br>(916) 445-9734 |

| | |
|---|---|
| Program Title | Capitalization Grants for State Revolving Funds |
| Objectives | Create State Revolving Fund for local financing of municipal wastewater treatment facilities. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | To provide loans to local governments |
| Eligibility | States |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | Civil Works Projects |
| Objectives | To provide help to communities with a variety of water resource problems and opportunities including flood control, coastal and shoreline erosion, outdoor recreation, environmental restoration and water quality control. |
| Type of Assistance/ Available Funds | Planning, engineering, and other technical assistance and financial assistance with cost sharing. Cost sharing percentages vary by type. |
| Requirements/Limitations | Six steps for projects. Local sponsors enter into two agreements with the CORPS. |
| Eligibility | State and local agencies |
| Further Information | Corps District and Division Office<br>U.S. Army Crops of Engineer<br>Washington D.C. 20314-1000<br><br>(202) 272-0144 |

| Program Title | Clean Lakes |
|---|---|
| Objectives | Prepare identification and classification surveys of all publicly owned lakes. |
| Type of Assistance/<br>Available Funds | Grants |
| Requirements/Limitations | Matching funds required. |
| Eligibility | States |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| Program Title | Coastal Restoration Projects |
|---|---|
| Objectives | The Conservancy may award grants to restore areas that are adversely affecting the coastal environment or are impeding orderly development because of scattered ownerships, poor lot layout, inadequate parks and open spaces, incompatible land uses, or other conditions. Up to $100,000 is available to prepare a required coastal restoration plan. |
| Type of Assistance/<br>Available Funds | Grants |
| Requirements/Limitations | Sites must be in the coastal zone or in the jurisdiction of the San Francisco Bay Conservation And Development Commission. |
| Eligibility | Local public agencies or nonprofit organization. |
| Examples | Reports of funded projects are available for review. |
| Further Information | State Coastal Conservancy<br>Steve Horn, Program Manager<br>1330 Broadway, Suite 1100<br>Oakland Ca 94612-2530<br><br>(510) 286-1015 |

| Program Title | Coastal Wetlands Planning, Protection and Restoration Act |
|---|---|
| Objectives | Funds are used for acquisition of interests in coastal lands or waters, and for restoration, enhancement, or management of coastal wetland ecosystems. Projects must provide for the long-term conservation of such lands or waters and the hydrology, water quality, and the fish and wildlife dependent on them. |
| Type of Assistance/ Available Funds | Project Grants |
| Requirements/Limitations | Project must provide for long-term conservation of coastal lands or waters and the hydrology, water quality, and fish and wildlife dependent on them. Additional requirements are a performance report, audits, and cost records maintained separately for each project. |
| Eligibility | Available to states bordering on the Pacific. |
| Examples | New Program |
| Further Information | Colombus H. Brown<br>Fish and Wildlife Service<br>Division of Federal Aid<br>4401 Fairfax Dr. Room 322<br>Arlington, VA<br><br>(703) 358-2156 |

| Program Title | Coastal Zone Management Program |
|---|---|
| Objectives | Assist federally approved coastal states in promoting the effective management of the Nation's coastal zone by balancing competing demands of resource protection, protection of public health and safety, provision for public access, and economic development. |
| Type of Assistance/ Available Funds | Formula grants and oversight of stat CZMA programs. |
| Requirements/Limitations | Funds must go toward implementing state Coastal Zone Management Programs or toward development of management plans. |
| Eligibility | Coastal states with an approved Coastal Zone Management Program. |
| Examples | Kings County, WA has used CZM funds in a multiphased research program to investigate the viability of using freshwater wetlands for urban surface water management and non-point source pollution control. The project involves collecting baseline data, sampling, analyzing, and monitoring the wetlands and interpreting the results to devise policy and management guidelines that protect wetlands and downstream waterbodies. |
| Further Information | Chief, Coastal Programs Division<br>Office of Ocean and Coastal Resource Management<br>National Oceanic and Atmospheric Administration<br>U.S. Department of Commerce<br>1825 Connecticut Ave., NW<br>Washington, D.C. 20235 |

| | |
|---|---|
| Program Title | Conservancy Nonprofit Organization Assistance Program |
| Objectives | Technical assistance to nonprofit organizations and land trusts for the promotion of public access restoration of coastal wetlands, or agricultural and viewshed protection. |
| Type of Assistance/ Available Funds | Technical Assistance |
| Requirements/Limitations | Organization must have obtained tax-exempt status and have articles of incorporation that identify the purposes of organization as being the preservation of land for scientific, historic, educational, ecological, recreational, agricultural, scenic or open space opportunities. Sites must be in the coastal zone or in the jurisdiction of the San Francisco Bay Conservation and Development Commission. |
| Eligibility | Qualified nonprofit organizations. |
| Examples | Reports of funded projects are available for review. |
| Further Information | State Coastal Conservancy<br>Joan Cardellino, Program Manager<br>1330 Broadway, Suite 1100<br>Oakland, CA 94612-2530<br><br>(510) 268-4093 |

| | |
|---|---|
| Program Title | Emergency Conservation Program |
| Objectives | Enables farmers to perform emergency conservation measures to rehabilitate farmlands damaged by natural disasters and to carry out emergency water conservation or water enhancing measures during periods of drought, also wind erosion on farmlands. |
| Type of Assistance/ Available Funds | NRCS provides technical assistance to plan and construct the measures, and ASCS provides the payments. |
| Further Information | County or state ASCS offices.<br>Agricultural Stabilization and Conservation Service<br>U.S. Department of Agriculture<br>P.O. Box 2415<br>Washington D.C. 20013<br><br>(202) 720-6221 |

| Program Title | Enhancement |
|---|---|
| Objectives | Enhance and restore coastal habitat through a variety of measures and physical enhancement of the sites either through grants or directly by the Conservancy. |
| Type of Assistance/ Available Funds | Grants, loans, project development by the Conservancy<br>*Note: Plan preparation is 50% match, funding for implementation varies. |
| Requirements/Limitations | Sites must be in the coastal zone or in the jurisdiction of the San Francisco Bay Conservation And Development Commission, or a coastal watershed that directly affects a significant downstream coastal resource or relates to the environmental quality or public enjoyment of San Francisco Bay. |
| Eligibility | State or local public agencies and nonprofit organizations |
| Examples | Reports of funded projects and annual reports available upon request. |
| Further Information | State Coastal Conservancy<br>Reed Holderman, Program Manager<br>1330 Broadway, Suite 1100<br>Oakland, CA 94612-2530<br><br>(510) 268-4183 |

| Program Title | Environmental Education |
|---|---|
| Objectives | Educational programs for students K-12 relating to the wise use of natural resources and protection of environmental quality. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | Applicant must contribute matching funds or other equivalent in-kind services and materials. They must also use community resources such as volunteers, free materials, and services available from various government and private agencies. |
| Eligibility | School districts, county offices of education, local or state governments, nonprofit associations, colleges and universities that maintain teacher training programs, and Univ. of California and California state colleges and universities. |
| Examples | |
| Further Information | California Department of Education<br>Environmental Education Coordinator<br>P.O. Box 944272<br>Sacramento, CA 94244-2720<br><br>(916) 657-5374 |

| | |
|---|---|
| Program Title | Environmental Enhancement and Mitigation Program (EEM) |
| Objectives | Provides additional mitigation and natural resources enhancement to offset the environmental impact of new or modified public transportation facilities. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | Government agencies and nonprofit organizations for Highway Landscape and Urban Forestry, Resource Lands, or Roadside Recreational projects. |
| Eligibility | Local, state, federal agencies and nonprofit entities. |
| Further Information | Resources Agency<br>MaryLou Shurteff, EEM Program Coordinator<br>1416 9th Street, Suite 1311<br>Sacramento, CA 95814<br><br>(916) 344-3596 |

| | |
|---|---|
| Program Title | Environmental License Plate Fund |
| Objectives | Suppports a variety of projects that help to preserve or protect California's environment. |
| Requirements/Limitations | Projects are funded in one-year increments; projects must be separate, distinct with a clearly defined benefit. |
| Eligibility | State Agencies, boards, or commissions; city or county agencies; University of California, private nonprofit environmental and land acquisition organization, and private research organizations. |
| Further Information | Resource Agency<br>Donna Gonder, Secretary to Harold Waraas<br>1416 9th Street, Room 1311<br>Sacramento, CA 95814<br><br>(916) 653-9709 |

| | |
|---|---|
| Program Title | Financial Assistance for Ocean Resources Conservation and Assessment Program |
| Objectives | To determine the long-term consequences of human activities that affect the coastal and marine environment; to assess the consequences of these activities in terms of ecological, economic, and social impacts on human, physical and biotic environments, and to define and evaluate management alternatives that minimize adverse consequences of human use of coastal and marine environments and resources. |
| Type of Assistance/ Available Funds | Project grants (cooperative agreements) |
| Eligibility | Universities, colleges, technical schools, institutes, laboratories, state and local government agencies, public and private, profit and nonprofit entities, or individuals are eligible for these funds. |
| Examples | Development of a data set of characteristics of the Nation's coasts and oceans including erosion rates, coastal vulnerability indices, and coastal hazards for incorporation into a geographic information system and other microcomputer desktop information systems for further analyses. |
| Further Information | National Ocean Service<br>Office of Ocean Resources Conservation and Assessment (N/ORCA)<br>1305 East-West Highway<br>Silver Springs, MD 20910 |

| | |
|---|---|
| Program Title | Flood Control Projects<br>(Small Flood Control Projects) |
| Objectives | Reduction of flood damages through projects not specifically authorized by Congress. The Corps of Engineers designs and constructs the project. The local sponsor shares equally in the cost of feasibility studies and project costs and provides a cash contribution for project features other than flood control. |
| Type of Assistance/ Available Funds | Provision of specialized services. Limit of $5 million. |
| Further Information | Corps and Division Offices.<br>U. S. Army Corps of Engineers<br>Attn: CECW-PM<br>Washington, D.C. 20314-1000<br><br>(202) 272-0144 |

| | |
|---|---|
| Program Title | National Pollutant Discharge Elimination System Related State Program Grants |
| Objectives | Implement new requirements relating to NPDES program. |
| Type of Assistance/ Available Funds | Grants |
| Eligibility | States |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | National Water Quality Assessment Program<br>(NAWQA) |
| Objectives | Investigations of surface water and groundwater resources of major regional hydrologic systems will be conducted on a rotating basis for 60 key areas located throughout the nation. The program will address a wide range of major water-quality issues. |
| Type of Assistance/ Available Funds | Provides water resources information. |
| Requirements/Limitations | Work must be consistent with the mission of the Water Resources Division of USGS. |
| Eligibility | Information available to anyone interested. |
| Examples | Study showed elevated levels of the pesticide DDT in fish in the Yakima River which prompted the Washington Department of Public Health to begin additional studies to determine whether a public health advisory is warranted. |
| Further Information | Office of the Deputy Assistant Chief Hydrologist<br>for the Nation Water-Quality Assessment Program,<br>Water Resources Division<br>Geological Survey<br>407 National Center<br>Reston, VA. 22092<br><br>(703) 648-5716 |

| | |
|---|---|
| Program Title | Near Coastal Waters |
| Objectives | Improving the environmental condition of near coastal waters. |
| Type of Assistance/<br>Available Funds | Grants and Cooperative Agreements |
| Eligibility | States, other public and nonprofit agencies, institutions, organizations, and individuals. |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | Non-point Source (NPS) Water Quality Implementation Grant |
| Objectives | Controlling non-point source pollution in California water bodies. |
| Type of Assistance/<br>Available Funds | Grants *Note: 319 Funding - Federal |
| Requirements/Limitations | 40% Match, Three years maximum |
| Eligibility | Public agencies, nonprofit organizations, and universities. |
| Examples | Erosion, sedimentation, hydrologic modification, etc. |
| Further Information | State Water Resources Control Board<br>Division of Water Quality and Water Rights<br>Non-point Source Unit<br>Pablo Gutierrez<br>P.O. Box 944213<br>Sacramento, CA 94244-2130<br><br>(916) 322-8342 |

| | |
|---|---|
| Program Title | Plant Materials for Conservation |
| Objectives | Assemble, evaluate, select, release, introduce into commerce, and promote the use of new and improved plant materials for soil, water, and related resource conservation and environmental improvement programs both internationally and domestically. |
| Type of Assistance/<br>Available Funds | Provision of specialized services. |
| Further Information | National Technical Centers, state and field NRCS offices<br>Deputy Chief for Technology<br>Soil Conservation Service<br>U. S. Department of Agriculture<br>P.O. Box 2890<br>Washington D.C. 20013<br><br>(202) 720-3905 |

| | |
|---|---|
| Program Title | Public Access Program |
| Objectives | Provide facilities that are suitable for wildlife associated recreational purposes. |
| Requirements/Limitations | Program to develop state projects in cooperation with local governmental agencies. |
| Eligibility | Any public agency of the state, or other state or federal agencies. |
| Examples | Fishing piers and floats, access roads, parking areas, etc. |
| Further Information | Department of Fish and Game<br>Wildlife Conservation Board<br>W. John Schmidt, Executive Director<br>801 K Street, Suite 806<br>Sacramento, CA 95814<br><br>(916) 445-8448 |

| | |
|---|---|
| Program Title | Public Water System Supervision |
| Objectives | Carry out public water systems supervision programs. |
| Type of Assistance/<br>Available Funds | Formula Grants - 25 % Match |
| Program Title | Public Water System Supervision |
| Objectives | Carry out public water systems supervision programs. |
| Type of Assistance/<br>Available Funds | Formula Grants - 25 % Match |
| Eligibility | States and Indian Tribes |
| Further Information | Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | River Basin Surveys and Investigations<br>(River Basin Planning) |
| Objectives | NRCS provides planning assistance to federal/state/local agencies for development of coordinated water and related land resources programs. |
| Type of Assistance/<br>Available Funds | Provision of specialized services. |
| Further Information | State NRCS offices.<br>Deputy Chief for Programs<br>Natural Resources Conservation Service<br>U.S. Department of Agriculture<br>P.O. Box 2890<br>Washington D.C 20013<br><br>(202) 720-4527 |

| Program Title | Rivers, Trails and Conservation Programs |
|---|---|
| Objectives | Assist citizens to conserve rivers and establish trails on lands outside national parks and forests. The Park Service, in cooperation with citizens and government agencies is involved in the early phases of projects in setting up goals. |
| Type of Assistance/ Available Funds | Resource and planning expertise to help state and local partners. |
| Further Information | Recreation Resources and Assistance Division<br>National Park Service<br>U.S Department of the Interior<br>P.O. Box 37127<br>Washington, D.C. 20013 |

| Program Title | Soil and Water Conservation |
|---|---|
| Objectives | Plan and carry out a national soil and water conservation program, and to provide leadership in conservation, development, and productive use of the Nation's soil, water, and related resources. |
| Type of Assistance/ Available Funds | Advisory services and counseling to provide technical assistance to the general public through total resource planning and management to improve water quality and natural resources and to reduce point and non-point source pollution. Technical soil and water conservation resource assistance is provided to state and local governments. |
| Requirements/Limitations | Resource assistance needed is usually reviewed with the conservation district governing body. |
| Eligibility | General public, state governments, and local governments. |
| Further Information | State and field NRCS offices.<br>Deputy Chief for Program<br>Natural Resources Conservation Service<br>U. S. Department of Agriculture<br>P.O. Box 2890<br>Washington D.C. 20013<br><br>(202) 720-4527 |

| | |
|---|---|
| Program Title | Stewardship Incentives Program |
| Objectives | Encourage individual landowners to improve the long term management and condition of their lands. |
| Type of Assistance/<br>Available Funds | Up to 75 percent cost share with a $10,000 limit per landowner per year. |
| Requirements/Limitations | Either 10 percent tree cover of capable of growing trees |
| Eligibility | Landowners with less than 1,000 acres (up to 5,000 with waiver) |
| Examples | Windbreak/Shelter break plantings, fish and wildlife improvement, agroforestry, riparian plantings, streambank stabilization, erosion reduction projects, woodland improvements |
| Further Information | Local California Department of Forestry and Fire Protection<br>Forestry Advising Specialist |

| | |
|---|---|
| Program Title | Underground Injection Control |
| Objectives | Carry out underground injection control programs. |
| Type of Assistance/<br>Available Funds | Formula Grant - 25% Match |
| Eligibility | States and Indian Tribes |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | Urban Forestry Grant Program |
| Objectives | Planting trees along streets, dedicated open spaces, public parking lots, and school yards. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | 90% of funds must be used for trees. 10% for public awareness and education. |
| Eligibility | Cities, counties, districts, and nonprofit organizations. |
| Examples | |
| Further Information | Department of Forestry and Fire Protection<br>Resource Management Division<br>James R. Geiger, Urban Forester<br>1416 9th Street, Room 1540-36<br>Sacramento, CA 95814<br><br>(916) 653-9448 |

| | |
|---|---|
| Program Title | Urban Streams Restoration Grants |
| Objectives | Assist local government agencies and citizens groups to solve flooding and bank erosion problems in urban areas, using techniques which help restore the natural environmental value of the stream. |
| Type of Assistance/ Available Funds | Grants, Technical Assistance |
| Requirements/Limitations | Maximum grant of $200,000 |
| Eligibility | Joint applications only from cooperating citizens groups and local government agencies. |
| Further Information | Department of Water Resources<br>Division of Local Assistance<br>Earle Cummings, Sara Denzler, Terrie Brown-Resse<br>1025 P Street<br>P.O. Box 942836<br>Sacramento, CA. 94236-0001<br><br>(916) 327-1656, 327-1664, 323-9544 |

| | |
|---|---|
| Program Title | Water Pollution Control<br>State and Interstate Program Support |
| Objectives | To assist states, tribes, and interstate agencies in establishing and maintaining adequate measures for prevention and control of surface and groundwater pollution. |
| Type of Assistance/<br>Available Funds | Formula Grants |
| Requirements/Limitations | Funds cannot be used for construction, operation, or maintenance of waste treatment plants, nor can they be used for costs financed by other Federal grants. |
| Eligibility | States |
| Examples | Grants to states for the prevention, reduction, and control of pollution. |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | Water Quality Management Planning |
| Objectives | Provide water quality management planning to correct/prevent a wide variety of surface and groundwater problems. Agencies must have the capacity to perform and complete the proposed work. |
| Type of Assistance/<br>Available Funds | Grants |
| Requirements/Limitations | Funding for planning only and requires 25% non-federal match. |
| Eligibility | State, local or regional agencies. |
| Further Information | State Water Resources Control Board<br>Division of Water Quality<br>Water Quality Planning Program<br>Paul Lillebo, Chief<br>901 P Street<br>P.O. Box 100<br>Sacramento, CA 95801-0100<br><br>(916) 657-1031 |

| | |
|---|---|
| Program Title | Watershed Protection and Flood Prevention<br>(Small Watershed Program, PL-566 Program) |
| Objectives | Provide technical and financial assistance to state agencies and units of local governments in planning and carrying out works of improvement and to protect, develop and utilitize the land and water resources in small watersheds, less than 250,000 acres, including total resources Management and planning to improve water quality and solve problems caused by flooding, erosion and sediment damage, conservation, development, utilization, and disposal of water. |
| Type of Assistance/<br>Available Funds | Project grants, advisory services, counseling |
| Requirements/Limitations | Must meet set criteria. |
| Eligibility | State agencies, counties, municipality, soil and water conservation districts, flood prevention or flood control district, Indian tribe or tribal organization, or any other nonprofit agency with authority under state law to carry out, maintain, and operate watershed works of improvement. |
| Examples | Development of multipupose facilities for such uses as recreation, improvement of fish and wildlife habitat, irrigation, and water supply to municipal and industrial users. |
| Further Information | State NRCS Offices<br>Deputy Chief for Programs<br>Natural Resources Conservation Service<br>U.S Department of Agriculture<br>P.O. Box 2890<br>Washington D.C. 20013<br><br>(202) 720-4527 |

| | |
|---|---|
| Program Title | Wetlands Protection Program |
| Objectives | Wetland protection activities, can involve other federal agencies, state agencies |
| Type of Assistance/<br>Available Funds | Grants - Part of the Clean Water Act |
| Eligibility | Other Federal Agencies, State Agencies |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

| | |
|---|---|
| Program Title | Wetland Protection - State Development Grants |
| Objectives | Grant funds can be used to develop new wetland protection programs or refine existing wetland protection programs. |
| Type of Assistance/ Available Funds | Grants |
| Requirements/Limitations | Cost Share Program |
| Eligibility | States |
| Examples | |
| Further Information | US Environmental Protection Agency<br>Region IX<br>Mike Schulz, Chief<br>1235 Missouri Street<br>Grants and Policy Branch<br>San Francisco, CA 94105<br><br>(415) 744-1623 |

# APPENDIX E
# FIRE HISTORY

# COUNTY OF LOS ANGELES FIRE DEPARTMENT
# REVEGETATION PROGRAM
# MALIBU - SANTA MONICA MOUNTAINS AREA
# 1919 - 1990

| DATE | NAME OF FIRE | ACRES BURNED |
|---|---|---|
| 10/14 1985 | **Piuma** | **5,120** |
| | **Decker** | **6,526** |
| | Piuma Fire caused by short circuit of power lines during high wind conditions. Damages: 2 single family dwellings; 2 vehicles and 1 commercial nursery. Loss estimated at $850,000. Acres: L.A. Co.-5,115; National Park lands-5. Decker Fire damages: 2 single family dwellings destroyed; 1 single family dwelling damaged; 4 guest houses destroyed; 2 mobile homes destroyed; 8 outside structures destroyed; and 3 vehicles destroyed. Losses estimated at $589,000. | |
| 6/30 1985 | **Sherwood** | **3,823** |
| 10/9 1982 | **Dayton** | **42,540** |
| | Damages: 34 dwellings destroyed; 17 dwellings damaged; 71 vehicles destroyed; 5 vehicles damaged; 54 mobile homes destroyed; 7 mobile homes damaged; 32 miscellaneous structures destroyed; 4 miscellaneous structures damaged. | |
| 11/24 1980 | **Las Virgenes** | **2,665** |
| | Fire caused by wind blowing power lines together and causing a short circuit. Sec.29,T1N,R17W. | |
| 10/23 1978 | **Mandeville** | **6,130** |
| | Thirty dwellings were damaged or destroyed. Watershed fuel estimated to be over 17 years of age at time of incident. | |
| 10/23 1978 | **Kanan** | **25,385** |
| | One long-time Malibu resident was caught in the open in firestorm conditions and was killed. In addition, there were 4 civilian injuries and 21 firefighter injuries. 230 dwellings were damaged or destroyed. Cause: Incendiary. Watershed fuel estimated to be over 43 years of age at time of incident. | |

# COUNTY OF LOS ANGELES FIRE DEPARTMENT
## REVEGETATION PROGRAM
## MALIBU - SANTA MONICA MOUNTAINS AREA
## 1919 - 1990

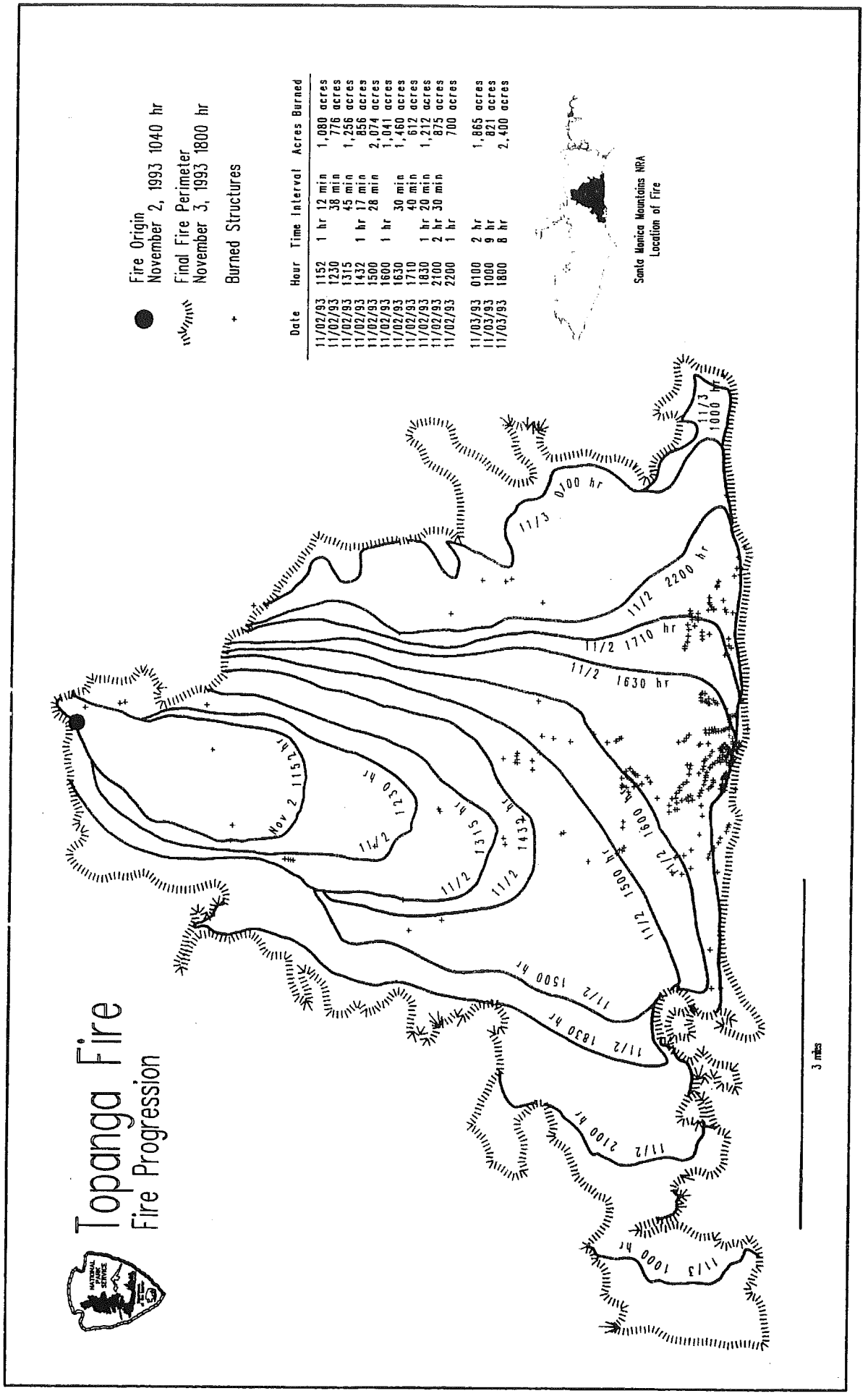

| DATE | NAME OF FIRE | ACRES BURNED |
|---|---|---|
| 11/17 1977 | **Canyon** | **1,115** |
| | Damage to 5 single family dwellings, 5 vehicles, 1 barn, 1 bridge, 2 sheds, 1 garage, 1 miscellaneous building, and 1 power pole. | |
| 11/15 1977 | **Carlisle** | **1,360** |
| | Damages: One single family dwelling, two boats, and two power poles. | |
| 10/30 1973 | **Trippet** | **2,770** |
| | Sec.8,T1S,R16W. Acreage: 1,980-L.A.Co. & 790-L.A.City. | |
| 9/27 1970 | **Golf Course** | **200** |
| | T1N,R17W. Cause: Incendiary. | |
| 9/25 1970 | **Wright** | **27,925** |
| | 103 dwellings were damaged or destroyed. T1S,R17W. Fire contained at 1800 hours on 9/27/70. Property damage estimated at $6,823,225. Fire caused by burning debris dropped along roadside. Watershed fuel was determined to be over 12 years of age at time of fire. | |
| 10/30 1967 | **Latigo** | **2,870** |
| | 5 dwellings and 17 miscellaneous buildings destroyed. | |
| 10/29 1967 | **Junction** | **640** |

# COUNTY OF LOS ANGELES FIRE DEPARTMENT
## REVEGETATION PROGRAM
## MALIBU - SANTA MONICA MOUNTAINS AREA
## 1919 - 1990


| DATE | NAME OF FIRE | ACRES BURNED |
|---|---|---|
| 11/6 1961 | **Topanga** | **8,715** |
| | 4 dwellings were destroyed and 6 damaged. Sec.29,T1n,R16W. Watershed fuel estimated to be over 23 years of age at time of incident. Weather: Temp.-78 degrees; Humidity-5%; Wind-NE @ 54 MPH; Dead Fuel Moisture-1.5% | |
| 7/10 1959 | **Laurel** | **300** |
| | 38 structures damaged or destroyed. | |
| 12/31 1958 | **Mullholland** | **4,982** |
| | 74 dwellings and 31 miscellaneous structures destroyed and 8 dwellings damaged. Watershed fuel estimated to be over 20 years of age at time of incident. | |
| 12/2 1958 | **Liberty** | **17,860** |
| | 25 dwellings and 12 miscellaneous structures destroyed. 6 dwellings damaged. 8 burn injuries. Watershed fuel estimated to be over 15 years of age at time of incident. | |
| 12/28 1956 | **Sherwood** | **9,428** |
| | 2,060 acres in Malibu & 7,368 acres in Ventura County. 13 dwellings destroyed. 1 fatality. Watershed fuel estimated to be over 21 years of age at time of incident. | |
| 12/27 1956 | **Hume** | **1,940** |
| | 9 dwellings destroyed. Weather: 74 degrees, Wind-NE @ 36 MPH, & Humidity-17%. Watershed fuel estimated to be 14 years of age at time of incident. | |

COUNTY OF LOS ANGELES FIRE DEPARTMENT
REVEGETATION PROGRAM
MALIBU - SANTA MONICA MOUNTAINS AREA
1919 - 1990
Page 4

| DATE | NAME OF FIRE | ACRES BURNED |
|---|---|---|
| 12/26 1956 | **Newton** | **26,170** |
| | 24,120 acres in L.A. County & 2,050 acres in Ventura County. 1 civilian fatality. 69 single family dwellings were damaged or destroyed. Fire caused by burning material dropped by roadway. Watershed fuel estimated to be over 21 years of age at time of incident. | |
| 11/4 1948 | **Topanga** | **3,155** |
| 10/20 1942 | **Las Flores** | **5,924** |
| 9/7 1936 | **Cold Creek** | **2,561** |
| 10/23 1935 | **Las Flores Canyon** | **2,185** |
| **TOTALS =** | **25 Fires** | **212,289 Acres** |
| Averages/Fire = | | 8,491.6 Acres |




| Date | Hour | Time Interval | Acres Burned |
|---|---|---|---|
| 11/02/93 | 1152 | 1 hr 12 min | 1,080 acres |
| 11/02/93 | 1230 | 38 min | 776 acres |
| 11/02/93 | 1315 | 45 min | 1,256 acres |
| 11/02/93 | 1432 | 1 hr 17 min | 856 acres |
| 11/02/93 | 1500 | 28 min | 2,074 acres |
| 11/02/93 | 1600 | 1 hr | 1,041 acres |
| 11/02/93 | 1630 | 30 min | 1,460 acres |
| 11/02/93 | 1710 | 40 min | 612 acres |
| 11/02/93 | 1830 | 1 hr 20 min | 1,212 acres |
| 11/02/93 | 2100 | 2 hr 30 min | 875 acres |
| 11/02/93 | 2200 | 1 hr | 700 acres |
| 11/03/93 | 0100 | 2 hr | 1,865 acres |
| 11/03/93 | 1000 | 9 hr | 821 acres |
| 11/03/93 | 1800 | 8 hr | 2,400 acres |

one
two
three to four
five to six
seven to eight

National Recreation Area Boundary
Santa Monica Mountains Zone
Los Angeles/Ventura County Line

Fires mapped by Los Angeles & Ventura County Fire Depts.
Plot produced by National Park Service October 1993
Santa Monica Mountains National Recreation Area GIS
(818) 597-1036 ext. 236

# Fire History

## Number of Fires since 1925