Malibu Creek Ecosystem Restoration Study

Los Angeles and Ventura Counties, California

Appendix A

Agency Coordination and Public Involvement

U.S. Army Corps of Engineers
Los Angeles District

August 2020

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Appendices

Appendix A1 Notice of Preparation and Notice of Intent

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Public Scoping Report

Malibu Creek Ecosystem Restoration Study

State Clearinghouse # 2002051135

CEQA Lead Agency:

California Department of Parks and Recreation
1925 Las Virgenes Road
Calabasas, CA 91302

NEPA Lead Agency:

U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, CA 90053-2325

1 Introduction

The environmental assessment of the Malibu Creek Ecosystem Restoration Study is being conducted in accordance with state and federal regulations. The California Department of Parks and Recreation (CDPR) is acting as lead agency for purposes of compliance with the California Environmental Quality Act (CEQA). The United States Army Corps of Engineers, Los Angeles District, and (USACE) is the lead agency for purposes of compliance with the National Environmental Policy Act (NEPA). The public scoping requirements for each of these regulations differs slightly; however, the intent of each process remains the same — to initiate public scoping to assist in the preparation of the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) by providing information about the Proposed Project to, and solicit information that will be helpful in the environmental review process from the public.

The public involvement for this study began in the prior reconnaissance phase with a public workshop held on January 28, 1998 at the Malibu Bluffs Park with about 100 members of the community present. A public scoping meeting and workshop was held on May 29, 2002 for the feasibility phase of the study. These meetings and comments received afterwards are summarized in the public concerns, and have been used to identify problems and opportunities. **Appendix A1** includes a transcript of May 2002 public workshop and associated public comments. A notice of Intent to Prepare an EIS for the study was published in the Federal Register (vol. 67, no. 109) on Thursday, June 6, 2002.

Meetings have continued throughout the years with two primary groups meeting consistently in support of this feasibility study: the Project Delivery Team (PDT) and the Technical Advisory Committee (TAC). The PDT is comprised of USACE management and technical staff, the CDPR and other partners that have contributed funding to the non-Federal share of study costs, including the California State Coastal Conservancy (SCC), the Santa Monica Bay Restoration Commission (SMBRC), Regional Water Quality Control Board (RWQCB) the Los Angeles County Department of Beaches and Harbors (LACDBH), California Department of Fish and Wildlife (CDFW) and Mountains Restoration Trust (MRT). The TAC is a diverse group of individuals and agency representatives that includes the USACE, CDPR, SCC, SMBRC, CDFW, California Coastal Commission (CCC), California Trout, the U.S. Fish and Wildlife Service (USFWS), NOAA-National Marine Fisheries Service (NFMS), the National Park Service Santa Monica Mountain National Recreation Area (SMMNRA), the Resources Conservation District of the Santa Monica Mountains (RCD), Los Angeles Waterkeeper, Heal the Bay, the California Regional Water Quality Control Board (RWQCB), the U.S. Geological Survey (USGS), California Department of Transportation (Caltrans), the University of California Cooperative Extension, the Las Virgenes Municipal Water District (LVMWD), consultants, Serra Canyon Property Owners, Surfrider Foundation, Malibu Surfing Association and other public interests. These groups have met at irregular intervals, but as often as every month when discussing risk-informed decisions, next steps and while developing or reviewing major work products.

TAC members have by default become part of the expanded PDT in recent years. The USACE and the CDPR have relied on the active participation of the TAC members in the planning process, particularly when establishing baseline conditions and more recently for the formulation, comparison and evaluation of alternative plans. The intent of the study leads is to have more consistent and regularly scheduled meetings with the TAC for the duration of the feasibility study and a formal public meeting.

1.1 Public Involvement Program

A Public Outreach Group was established for the feasibility study, comprised of representatives from the CDPR, the USACE, Malibu Creek Watershed Council, and other interested parties. This group worked closely together to develop a Public Involvement Plan for the feasibility study. Activities include:

- A website is currently being constructed to provide information on the study status, updates, meeting schedules and summaries. Development of a public outreach informational presentation.
- Identifying opportunities to meet with interested parties and members of the public to present study information and provide vehicles for administering public outreach.

1.2 Public Workshop

A co-chaired public workshop was held in January 1998 to inform the public of the feasibility study and to solicit public input. Additionally, an overview of the NEPA/CEQA compliance regulations was presented. In May of 2002 a public scoping meeting was held. The intent of the scoping process was to encourage participation in the environmental review process from public agencies, special interest groups and the general public in the identification of the key issues and concerns relevant to the scope of the Integrated Report. The response from the general public who attended the session was generally positive. Many of the participants voiced support for efforts to remove the dam, though there were also some concerns and questions. Public concerns are summarized in Section 1 of this Integrated Feasibility Report. Various participants provided proposals for modifications to the dam that would allow for sediment delivery downstream.

1.3 Public Review of Draft Integrated Feasibility Report

Public review of the Draft Integrated Feasibility Report (IFR) occurred from 27 January to 27 March 2017. During this period, a public meeting was held on 1 March 2017 at the Las Virgenes Water District offices in Calabasas, CA from 6:00 to 8:00 pm. During the public meeting, comments were received verbally and recorded using a stenographer. All public comments received during the meeting, as well as public comments submitted to the Corps during the 60-day review period, can be found in Appendix S.

1.4 Institutional Involvement

1.4.1 Study Team

During the feasibility study, staff from CDPR, the SCC and other Federal, State, Regional, and local interests participated in the TAC and PDT.

1.4.2 Agency Participation

During the feasibility study, coordination with the USFWS was conducted in accordance with the Fish and Wildlife Coordination Act. The USFWS prepared a draft Coordination Act Report (CAR) which included their views on the Tentatively Selected Plan (TSP), which the USACE received in May of 2013. The CAR provided information on ecosystem conditions including types of species and habitats, threatened and endangered species, related to the study area. The report also

included a preliminary evaluation of potential impacts associated with the alternative plans considered in the study. A final CAR was provided to the Corps on 18 January 2018.

The USACE has coordinated with the NMFS throughout the study, to include discussions of benefits and impacts to steelhead, as well as potential impacts to Essential Fish Habitat (EFH). During the public review period, the draft IFR was circulated to NMFS for review, and to meet the consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The USACE received input pursuant to EFH consultation, and provided comments to NMFS regarding this input on 21 June 2017, formally ending EFH consultation. Consultation with NMFS pursuant to the ESA is deferred to the Preconstruction, Engineering and Design (PED) phase as per approved ASA(CW) Policy Waiver dated 17 December 2019.

Both the NMFS and USFWS, as described below, are participants in the Malibu TAC.

The USACE has initiated consultation with the California State Historic Preservation Officer (SHPO) via letter and telephone regarding study compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). The SHPO was provided with the Draft IFR during the public review period However, compliance with Section 106 is not being conducted through the NEPA process, but based on separate Section 106 consultation. Resolution of adverse effects to historic properties is being resolved through the development of a memorandum of agreement (MOA), which is anticipated to be finalized and executed prior to the signature of the Record of Decision (ROD).

1.4.3 Additional Coordination

The Draft IFR results and recommendations were formally coordinated with a number of Federal and State agencies as required by Federal and state laws and policies. A Coastal Consistency Determination was submitted to the CCC for their concurrence in the findings. Concurrence occurred verbally during a hearing held on 9 March 2018 and formally via letter received by the Corps on 12 March 2018. The Final IFR will also be submitted to the RWQCB for their approval related to the Clean Water Act as well as regional Air Quality Control offices. The Final IFR and proposed recommendations will be provided to the SHPO for their approval on the impacts and recommendations associated with cultural and historic resources. Other Federal and State agencies that received copies of the Draft IFR for their review and approval include Federal and State Environmental Protection Agencies, the State Clearinghouse, and other agency interests.

1.4.4 Study Participants

<u>Study Sponsors</u>

- California Department of Parks and Recreation
- U.S. Army Corps of Engineers

<u>Study Funders</u>

- California Department of Parks and Recreation
- California Department of Fish and Wildlife
- California Wildlife Conservation Board
- Mountains Restoration Trust
- Regional Water Quality Control Board
- California State Coastal Conservancy
- Santa Monica Bay Restoration Commission
- U.S. Army Corps of Engineers

1.4.5 Members of the Technical Advisory Group

The organizations listed below have participated in some or all of the stakeholder meetings held by USACE and CDPR in order to help develop the Draft IFR and address specific technical issues.

- California Department of Fish and Wildlife – formerly Fish and Game
- California Department of Parks and Recreation
- CALTROUT
- CCC
- City of Calabasas
- City of Malibu
- E-Surveyors
- Heal the Bay
- Las Virgenes Municipal Water District
- Los Angeles County
  - Department of Beaches and Harbors
  - 3rd District Supervisor Sheila Kuehl's Office
  - Sanitation Districts
  - Department of Public Works, Roads Department
  - Department of Public Works, Flood Control District
  - Los Angeles Waterkeeper – was Santa Monica Baykeeper
- Malibou Lake HOA
- Malibu Surfing Association
- Matilija Coalition
- Mountains Restoration Trust
- National Park Service-Santa Monica Mountains National Recreation Area
- National Oceanic and Atmospheric Administration
- National Marine Fisheries Service
- Regional Water Quality Control Board. Los Angeles Region
- Resource Conservation District of the Santa Monica Mountains
- Santa Monica Bay Restoration Commission
- Santa Monica Bay Restoration Foundation
- Santa Monica Mountains Conservancy
- Santa Monica Mountains National Recreation Area
- Serra Retreat HOA
- Sierra Club
- Southern California Coastal Water Research Project
- State Coastal Conservancy
- Surfrider Foundation
- University California Berkeley
- University California Cooperative Extension, LA and Ventura County Natural Resources
- United States Army Corps of Engineers
- United States Fish and Wildlife Service

<u>Official Study Supporters</u>

- Caltrout
- Mountains Restoration Trust
- Santa Monica Bay Restoration Commission
- Sierra Pacific Flyfishers

- Southwest Council Federation of Fly Fishers

1.5 Report Recipients

An interim feasibility report was provided to TAC members and other interests prior to 2009. The USACE and CDPR have worked with local, State, and federal agencies and involved the public during the feasibility study. No significant public controversy regarding the National Environmental Restoration (NER) Plan has emerged to date. A number of agencies and organizations expressed their support of the NER - Alternative 2d1. Many concerns were expressed regarding risk of increased flood risk in downstream reaches. These concerns were considered in the final array of alternatives and addressed in Appendix S.

Public review and comments received as a result of the Draft IFR and responses thereto are provided in the Final IFR as Appendix S and were considered in the final decision process.

1.6 Public Review of Draft Report

Public review of the Draft IFR was conducted from 27 January to 27 March of 2107, along with a public meeting that was held on 1 March 2017. This provided the opportunity for the Corps to present the findings of the feasibility study and to provide the public an opportunity to express their views on the results and recommendations of the feasibility study. Summaries of the input received and responses provided by the Corps and CDPR are contained in Appendix S.

2 Next Steps in EIS/EIR Process

2.1 EIS/EIR Events and Documents

CDPR and USACE provided opportunities for additional public input when the Draft IFR was released (27 Jan to 27 March 2017) and during the public meeting (1 March 2017) for the Draft IFR. **Table 2.1-1** presents the proposed schedule for the EIS/EIR and identifies where in the process the public and agencies can provide additional input in the environmental review process.

Table 2.1-1 EIS/EIR Events and Documents

Event/Document		Purpose	Approximate Date
Completed Events and Documents			
Notice of Preparation (NOP) for CEQA	Release of NOP[1]	Notified interested parties and agencies of the CDPR and USACE intent to prepare an EIS/EIR.	May 23, 2002 to June 21, 2002
	Public Review Period	30-day public scoping period on the Study to provide for public comments on the scope of EIS/EIR.	May 23, 2002 to June 21, 2002
Scoping Meeting – NOP	Scoping meeting was held	Presented information on the Study and provided opportunity for public and agency comments in a public forum.	May 29, 2002
Notice of Intent (NOI) for NEPA	NOI published in the Federal Register	Initiated the NEPA public scoping process and served to inform other cooperating agencies of the USACE's intent to prepare an EIS/EIR.	June 6, 2002

Event/Document		Purpose	Approximate Date
Scoping Report for CEQA NOP Process		Reported public and agency comments on the proposed Project and environmental issues of concern to the public and agencies. This report includes comments made during the scoping process for the CEQA Notice of Preparation.	June 6, 2002
Draft IFR/EIS/EIR	Release of Draft IFR	Presented impacts for the Proposed Project and its alternatives	27 Jan to 27 Mar, 2017
	Public Review Period	CEQA: 45-day minimum review period for State agencies. NEPA: USACE requires a 45-day public review period. A 60-day review period was performed.	27 January - 27 March 2017
	Draft IFR Public Meeting	Allows for public comment on the draft document	1 March 2017
Upcoming Events and Documents			
Final IFR/EIS/EIR	Release of Final IFR/EIS/EIR	Final IFR, with response to comments, issued by CDPR and USACE Final IFR is filed with USEPA	September 2020
	Decision on the Study	USACE issues the Record of Decision	March 2021

Note: 1. The NOP was mailed to interested parties, federal, State, and local regulatory agencies, and elected officials.

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Appendix A1

Notice of Preparation and Notice of Intent

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SUPPLEMENTARY INFORMATION: A method of modifying esterases by substitution with histadine of at least one amino acid within 6 A° of an active site serine provides esterases useful for detoxifying organophasphates.

Luz D. Ortiz,

Army Federal Register Liaison Officer.

[FR Doc. 02–14227 Filed 6–5–02; 8:45 am]

BILLING CODE 3710–08–M

DEPARTMENT OF DEFENSE

Department of Army, Corps of Engineers

Intent To Prepare an Environmental Impact Statement for the Malibu Creek Enrivonmental Restoration Feasibility Study, Los Angeles County, CA

AGENCY: Department of Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The Los Angeles District of the U.S. Army Corps of Engineers will prepare an Environmental Impact Statement (EIS) to support the Malibu Creek Environmental Restoration Feasibility Study, Los Angeles County, CA. Approximately two-thirds of the watershed is in Los Angeles County while the remaining one-third is in Ventura County. The feasibility study area is the Rindge Dam, which is located 2 miles upstream of Malibu Lagoon, and the areas immediately upstream and downstream of the dam. This study will investigate feasible alternatives to restore the Malibu Creek ecosystem, primarily by removing Rindge Dam. Also, feasible alternatives for the removal of sediment behind the dam and the beneficial use of that sediment will be investigated.

The Draft EIS (DEIS) will analyze the potential environmental impacts (beneficial and adverse) of a range of alternatives, including the proposed action and the no action alternative. The Los Angeles District and California Department of Parks and Recreation will cooperate in conducting this feasibility study.

ADDRESSES: District Engineer, U.S. Army Corps of Engineers, Los Angeles District, ATTN: CESPL–PD–RQ (B. Hulkower), P.O. Box 532711, Los Angeles, CA 90035–2325.

FOR FURTHER INFORMATION CONTACT: Ms. Bonnie Hulkower, Environmental Coordinator, telephone (213) 452–3861, or Mr. Jason Shea, Study Manager, telephone (213) 452–3794.

SUPPLEMENTARY INFORMATION:

1. Authorization

This feasibility study was authorized by a resolution adopted by the U.S. House of Representatives Committee on Public Works and Transportation, dated 5th February 1992, which states, in part: ''that the Board of Engineers is requested to review the report of the Chief of Engineers on Point Magu to San Pedro Breakwater, California Beach Erosion Control Study, published as House Document 277, 83rd Congress, 2nd Session, and other pertinent reports, to determine whether any modifications of the recommendations contained therein are advisable at the present time, in the interest of shore protection, storm damage reduction, and other purposes along the shores of Southern California from Point Mugu to the San Pedro Breakwater and nearby areas within Ventura County and Los Angeles County, California.''

2. Background

Malibu Creek is located approximately 30 miles west of downtown Los Angeles, California. The drainage area covers approximately 109 square miles of the Santa Monica Mountains and Simi Hills. The feasibility study area currently includes the Rindge Dam, which is located 2 miles upstream of Malibu Lagoon. The non-federal sponsor of the feasibility study is the California Department of Parks and Recreation.

The Rindge family constructed Rindge Dam in the Mid 1920's. The purpose of the dam was to provide approximately 574 acre-feet of water storage for agricultural needs. Rindge Dam is a concrete arch structure 90 feet in height with an arc length of 175 feet at its crest. Sediment carrier by Malibu Creek has deposited behind the dam and filled the reservoir, rendering the structure useless as a water storage facility. It is estimated that approximately 700,000 cubic yards of sediment lies trapped behind the dam.

Rindge Dam no longer serves the purpose that it was originally created for. It neither provides water storage nor flood control protection due to sedimentation behind the dam. During peak events, the entire flow of Malibu Creek rises over the dam's crest. However, the dam does provide bank stability protection since its construction created a milder slope along the Malibu Creek. This requires some consideration as removing the dam could potentially cause the channel banks to erode.

Presently, the dam is considered to be a contributing factor of the declining numbers of steelhead trout in the Malibu Creek Watershed. If no action is taken to secure passage for the steelhead trout to reach the upper watershed and its tributaries, the dam will continue to obstruct this endangered species from reaching the upstream portion of the watershed, thereby limiting the amount of spawning and rearing habitat.

3. Alternatives

The feasibility study will focus on addressing the problems and needs caused by Rindge Dam with the primary objective of the feasibility study being to restore the Malibu Creek ecosystem. Other objective that are considered appropriate may involve possible beneficial use of the sediment behind the dam for beach nourishment or other environmental restoration.

In general, alternative plans will investigate reasonable alternatives to restore Malibu Creek, primarily by removing Rindge Dam. Feasible alternatives for the removal of sediment behind the dam and the beneficial use of that sediment will also be investigated. Significant beneficial impacts to the riparian ecosystem (especially to steelhead trout) are expected from restoration alternatives identified in the feasibility study.

4. Scoping Process

Participation of all interested Federal, State, and County agencies, groups with environmental interests, and any interested individuals are encouraged. Public involvement will be most beneficial and worthwhile in identifying the scope of pertinent, significant environmental issues to be addressed, offering useful information such as published or unpublished data, providing direct personal experience or knowledge which informs decision making, and recommending suitable mitigation measures to offset potential impacts from the proposed action or alternatives.

A public scoping meeting was held on May 29, 2002, from 7 until 9 p.m. at the Las Virgenes Municipal Water District Training Room, 4232 Las Virgenes Road, Calabasas, CA, as advertised in local newspapers. The purpose of the scoping meeting was to gather information from the public or interested organizations about issues and concerns that they would like to see addressed in the DEIS. The Los Angeles District is accepting comments delivered or sent in writing to the address above. The scoping period will conclude August 5, 2002.

5. Availability of the DEIS

The DEIS is expected to be available to the public for review and comment beginning in the spring of 2004.

Luz D. Ortiz,

Army Federal Register Liaison Officer.

[FR Doc. 02–14230 Filed 6–5–02; 8:45 am]

BILLING CODE 3710–KF–M

DEPARTMENT OF EDUCATION

Submission for OMB Review; Comment Request

AGENCY: Department of Education.

SUMMARY: The Leader, Regulatory Information Management Group, Office of the Chief Information Officer invites comments on the submission for OMB review as required by the Paperwork Reduction Act of 1995.

DATES: Interested persons are invited to submit comments on or before July 8, 2002.

ADDRESSES: Written comments should be addressed to the Office of Information and Regulatory Affairs, Attention: Lauren Wittenberg, Acting Desk Officer, Department of Education, Office of Management and Budget, 725 17th Street, NW, Room 10235, New Executive Office Building, Washington, DC 20503 or should be electronically mailed to the Internet address *Lauren_Wittenberg@omb.eop.gov*.

SUPPLEMENTARY INFORMATION: Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires that the Office of Management and Budget (OMB) provide interested Federal agencies and the public an early opportunity to comment on information collection requests. OMB may amend or waive the requirement for public consultation to the extent that public participation in the approval process would defeat the purpose of the information collection, violate State or Federal law, or substantially interfere with any agency's ability to perform its statutory obligations. The Leader, Regulatory Information Management Group, Office of the Chief Information Officer, publishes that notice containing proposed information collection requests prior to submission of these requests to OMB. Each proposed information collection, grouped by office, contains the following: (1) Type of review requested, *e.g.* new, revision, extension, existing or reinstatement; (2) title; (3) summary of the collection; (4) description of the need for, and proposed use of, the information; (5) respondents and frequency of collection; and (6) reporting and/or recordkeeping burden. OMB invites public comment.

Dated: May 30, 2002.

John D. Tressler,

Leader, Regulatory Information Management, Office of the Chief Information Officer.

Federal Student Aid

Type of Review: Extension of a currently approved collection.

Title: Lender's Request for Payment of Interest and Special Allowance (JS) *.

Frequency: Quarterly, Annually.

Affected Public: State, Local, or Tribal Gov't, SEAs or LEAs (primary) Businesses or other for-profit.

Reporting and Recordkeeping Hour Burden:

Responses: 17,200.

Burden Hours: 41,925.

Abstract: The Lender's Interest and Special Allowance Request (Form 799) is used by approximately 4,300 lenders participating in the Title IV, Part B loan programs. The ED Form 799 is used to pay interest and special allowance to holders of the Part B loans; and to capture quarterly data from lender's loan portfolio for financial and budgetary projections.

Requests for copies of the submission for OMB review; comment request may be accessed from *http://edicsweb.ed.gov*, by selecting the ''Browse Pending Collections'' link and by clicking on link number 2022. When you access the information collection, click on ''Download Attachments'' to view. Written requests for information should be addressed to Vivian Reese, Department of Education, 400 Maryland Avenue, SW, Room 4050, Regional Office Building 3, Washington, DC 20202–4651 or to the e-mail address *vivan.reese@ed.gov*. Requests may also be electronically mailed to the Internet address *OCIO_RIMG@ed.gov* or faxed to 202–708–9346. Please specify the complete title of the information collection when making your request.

Comments regarding burden and/or the collection activity requirements should be directed to Joe Schubart at (202) 708–9266 or via his Internet address *joe.schubart@ed.gov*. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339.

Student Financial Assistance

Type of Review: Revision.

Title: Federal Family Education Loan (FFEL), Direct Loan, and Perkins Loan Discharge Applications.

Frequency: One time.

Affected Public: Individuals or household.

Reporting and Recordkeeping Hour Burden:

Responses: 70,200.

Burden Hours: 35,100.

Abstract: These forms will serve as the means of collecting the information necessary to determine whether a FFEL or Direct Loan borrower qualifies for a loan discharge based on total and permanent disability, school closure, false certification of student eligibility, or unauthorized signature. The school closure discharge application may also be used by Perkins Loan borrowers applying for a closed school discharge. Public comment should be made on the 4 forms included for this package. The forms for the Permanent Disability Discharge Form is being cleared separately.

Requests for copies of the submission for OMB review; comment request may be accessed from *http://edicsweb.ed.gov*, by selecting the ''Browse Pending Collections'' link and by clicking on link number 1877. When you access the information collection, click on ''Download Attachments'' to view. Written requests for information should be addressed to Vivian Reese, Department of Education, 400 Maryland Avenue, SW, Room 4050, Regional Office Building 3, Washington, DC 20202–4651 or to the e-mail address *vivan.reese@ed.gov*. Requests may also be electronically mailed to the Internet address *OCIO_RIMG@ed.gov* or faxed to 202–708–9346. Please specify the complete title of the information collection when making your request.

Comments regarding burden and/or the collection activity requirements should be directed to Joe Schubart at (202) 708–9266 or via his Internet address *joe.schubart@ed.gov*. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339.

[FR Doc. 02–14156 Filed 6–5–02; 8:45 am]

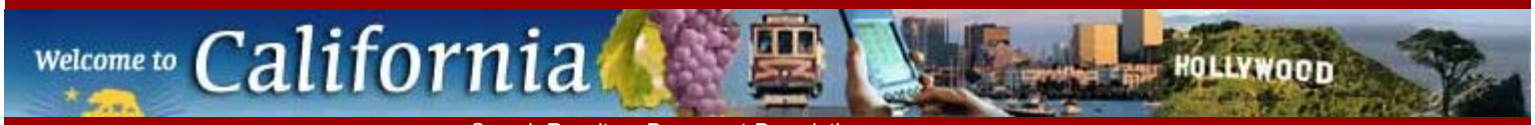
BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

[CFDA No.: 84.351B]

The Cultural Partnerships for At-Risk Children and Youth Program; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2002

Purpose of Program: The Cultural Partnerships for At-Risk Children and Youth Program, authorized under Subpart 15 of Part D of Title V of the Elementary and Secondary Education Act (ESEA), as amended by Public Law



Malibu Creek/Rindge Dam Ecosystem Restoration Feasibility Study

SCH Number: 2002051135

Document Type: NOP - Notice of Preparation

Project Lead Agency: Parks and Recreation, Department of

Project Description

The Draft EIS/EIR will analyze the potential impacts (beneficial and adverse) on the environment of a range of alternatives, including the proposed action and the no action alternative. The Corps of Engineers and the California Department of Parks and Recreation will cooperate in conducting this feasibility study. This study will focus on addressing the problems and needs caused by Rindge Dam and will investigate the following objectives: -Feasibility alternatives for the restoration of the Malibu Creek riparian ecosystem (especially for steelhead trout), primarily by removing Rindge Dam, -Feasibility alternatives for the removal of sediment behind the dam, and -Beneficial use of the removed sediment for beach nourishment or other environmental restoration purposes.

Contact Information

Primary Contact:
Suzanne Goode
Department of Parks and Recreation
818 880-0364
1925 Las Virgenes Road
Calabasas, CA 91302

Project Location

County: Merced
City: Merced
Region:
Cross Streets:
Latitude/Longitude:
Parcel No:
Township:
Range:
Section:
Base:
Other Location Info:

Proximity To

Highways:
Airports:
Railways:
Waterways:
Schools:
Land Use:

Development Type

Local Action

Project Issues

Aesthetic/Visual, Biological Resources, Geologic/Seismic, Toxic/Hazardous, Water Quality, Traffic/Circulation, Other Issues

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Reviewing Agencies (Agencies in **Bold Type** submitted comment letters to the State Clearinghouse)

Resources Agency; Department of Conservation; Cal Fire; Office of Historic Preservation; Department of Water Resources; **Department of Fish and Wildlife, Region 5**; Department of Fish and Wildlife, Marine Region; **Native American Heritage Commission**; State Lands Commission; Office of Emergency Management Agency, California; **Caltrans, District 7**; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 4

Date Received: 5/23/2002 **Start of Review:** 5/23/2002 **End of Review:** 6/21/2002

CEQAnet HOME | NEW SEARCH

Christopher Parkening
P. O. Box 261880
Encino, California 91426-1880

November 4, 2002

Mr. Jason Shea, Study Manager
U.S. Army Corps of Engineers
Los Angeles District
Attn: CESPL-PD-RQ (B. Hulkower)
P.O. Box 532711
Los Angeles, CA 90035-2325

Dear Mr. Shea,

I am writing to you regarding the Rindge Dam on Malibu Creek. I am a Professor of Music at Pepperdine University and drive Malibu Canyon Road frequently. Also, for many years I have been an avid fly fisherman for steelhead. I want you to know that I totally support the removal of the Rindge Dam on Malibu Creek for the following reasons.

- It would be helpful in abating the erosion of Malibu area beaches.
- Access to spawning grounds would result in an increase in steelhead numbers, a species on the Federal "endangered" list.
- Water quality would be improved in the area above the dam.
- Incremental removal would avoid potential traffic and pollution programs.

I hope you will respectfully consider the removal of the Rindge Dam. It would be the best decision for the state of California and a blessing to those who appreciate the beauty of Malibu Canyon.

Most sincerely,

Christopher Parkening

Christopher Parkening
CP/sd
music52@earthlink.net

Mr. Jason Shea, Study Manager
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, CA 90035-2325

Sept. 10, 2002

Ref; Malibu Creek Ecosystem Restoration Feasibility Study

Dear Mr. Shea,

I am writing you today as a member of the Conejo Valley Fly Fishers to express my support for this feasibility study and the eventual removal of the Rindge Dam. Our club has been an active participant in the restoration of steelhead trout to the Malibu Creek watershed for many years and we greatly appreciate the interest that the Corps has expressed in furthering these goals.

As you know, southern California steelhead contain the parent genetic material for all west coast steelhead and have developed unique life cycle abilities that have allowed them to persist in the warmer environment of southern California streams. They are at the greatest risk of extinction, and are the only population of steelhead to be listed as "endangered" by the Federal government.

The construction of the dam blocked many miles of quality spawning and rearing habitat that has been documented to exist above the dam, and recent water quality monitoring in this area has documented good to excellent water quality parameters for steelhead. Since the dam was erected, steelhead populations have declined precipitously and access above the dam in the key to their recovery.

Great economic benefits may also be derived by removal of the dam. The majority of sediment behind the dam is not contaminated and is suitable for beach replenishment.

We encourage the Corps to thoroughly study two methods of dam removal. The first involves incrementally removing the dam in stages and allowing natural processes to transport the sediment to the ocean. The second method involves a slurry system using sea water to transport the sediment downstream through a pipeline. This method has many advantages in that it does not rely on a reliable supply of precious fresh water and can be operated on a nearly year round basis in drier years.

I thank you for your involvement in this study, and the Conejo Valley Fly Fishers will continue to support your effort to remove the Rindge Dam as an integral component of restoring the Malibu Creek ecosystem.

Sincerely,

Kit Korf

KIT KORF
2970 DIANA CT
NEWBURY PARK
CA. 91320-3115

August 14, 2002

Thomas W Doyle
P.O.Box 235
Malibu, Ca 90265

To:
U.S.Army Corps Of Engineers
Los Angeles District
911 Wilshire Blvd
P.O. Box 532711
Los Angeles, Ca 90053

Attention Mr Jason Shea

RE: Addendum to public input on May 29, 2002 regarding study on Rindge Dam.

Dear Mr Shea:

I am enclosing a picture showing the construction of Malibu Canyon Road in the early 1950's.It shows the grading of the road and the method of disposal of the dirt. As you can see most of the dirt went to the creek bottom and then into the dam. This was done by L.A. County.

Water is the single most valuable asset attached to land

The Malibu Water Co a privately owned Public Utility distributed the water from the dam. Land sold in Malibu, if in the water district, was entitled to receive water from the Malibu Water Co. .The Malibu Water Co was the holder of the water rights in Malibu Canyon, for the Malibu property owners. These rights still exist today and must be considered in your deliberations for the present and future property owners of Malibu.

Sincerely

Thomas W Doyle

Malibu Historical Society
(life member)

Brian K. Stompe
110 San Mateo Way
Novato, CA 94945-1201

11/6/05

Mr. Jeffrey Hea, Study Mgr.
U.S. Corps of Engineers
Los Angeles, District
P.O. Box 532711
Los Angeles, CA 90053-2325

Re/ Ridge Lagoon Removal

Dear Mr. Hea:

I would like to advocate removal of the Ridge dam to improve the Stream for Steelhead habitat — and removal of all structures which have outlived their usefulness. Believe there are others that should go too. Thanks! Yours Truly,

Brian Stompe

June 1, 2002

Rindge Dam - Alternate Proposal
To
Improve habitat, provide flood control and preserve the dam

This proposal suggest an alternate implementation for the removal of the dam that improves the habitat for the restoration of steelhead trout, allows the accumulated silt to get to the ocean and restore the beaches, provides an element of flood control and preserves the dam.

One alternative in the study plan is to gradually reduce the height of the dam until the creek bed is restored to its natural state. Rather than slowly demolish the dam a series of weep holes at various elevations would be drilled through the dam. The size is yet to be determined but would be on the order of 2 to 3 feet in diameter and space perhaps 10 feet apart. When the rains come the silt close to the weep holes would sluice out and drop to the Creek bed.

When the weep holes no longer carry silt, a lower set of holes can be drilled or alternatively unplugged. In this way the silt eventually gets to the ocean and restores the beach. As the silt layer lowers upper weep holes can be plugged.

Analyses should be performed to determine aggradation of the stream bed, particularly in the lower populated area.

When all silt is removed the weep holes at the base should be enlarged and converted to "fish friendly"

Rindge Dam

culverts. The culverts should be dimensioned to provide a maximum flow of 2500 cubic feet per second at a velocity of 6 feet per second or the maximum flow and velocity that steelhead can withstand without danger.

The dam would ***not*** be a storage dam but remain empty, except in the high storm periods. Reducing the flow rate has a number of advantages, namely

1. In the lower Creek flow rates are within the tolerance band of fish

2. Considerable aggradation would be possible without flooding homes in the lower creek
3. Pools and spawning areas would be easier to maintain
4. Habitat destruction from flows greater than 2500 cfs would be eliminated.

Considerable care needs to be taken in the design of the spill ways at the base of the dam to assure proper channeling and "fish friendly" passage under the dam. Existing pools below the dam can be expanded to improve habitat. It may even be desirable to retain some water to nourish the spawning pools in the dry season.

Obviously this is a preliminary look at the alternative, however, I believe it offers an extraordinarily cost effective solution that caters to all stakeholders desires.

I encourage the Corps and Parks and recreation to carefully look at this approach

C. W. Carson

Donald J. Mythen
1601 Roger Court
El Cerrito, CA 94530-2027

Dear Mr. Sika

I am writing to urge you to make every effort to have the Rindge DAM removed.

As of the present Date it serves virtually no useful purpose and is a great detriment to the survival of the endangered Steelhead.

The sediment behind the dam would help to replenish the beaches and be of benefit to many people.

Please consider the removal of this ecological disaster & restore the Malibu Creek ecosystem.

Thank you

Donald J. Mythen

Ronald L. Rindge
160 E. Street
Cayucos, CA 93430

November 24, 2003

Arnold York, Publisher
The Malibu Times
3864 Las Flores Canyon Road
Malibu, CA 90265

RE: "Malibu Receives F in History", *The Malibu Times,* November 20, 2003

Dear Mr. York:

This letter is **not** a "Letter to the Editor". Rather, it is intended to give sources of information about the cultural history of Malibu in the event your writers do follow-up stories on the above subject in future months.

The early history of Malibu is that of the Chumash Indians, documented extensively in books and archaeological reports conducted by UCLA over many years. Written California history began with Cabrillo's voyage of discovery as documented in a summary log of his 1542-1543 expedition.

Attached are copies of two letters sent in 2002 to the Army Corps of Engineers, briefly listing cultural resources of the central Malibu area:

1. June 25, 2002, Addendum No. 4: Cultural Resources (Cultural sites in the lower Malibu Creek watershed).
2. August 21, 2002: Addendum No. 5: Cultural Resources paper entitled, *Art & Architecture, Prose & Poetry Relevant to the Malibu Creek Watershed* by Ronald L. Rindge.

Some of the books about the history of Malibu include:

1. *Happy Days in Southern California* by Frederick Hastings Rindge (1857-1905), privately published in 1898, reprinted by the family in 1972 and 1984.
2. *Songs of California and Other Verses* by Frederick Hastings Rindge (1857-1905), as edited and published by John F. Rindge in 1999. Reprinted and published in smaller format by the Malibu Lagoon Museum in 2001.
3. *The Malibu* by W. W. Robinson and Lawrence Clark Powell, 1958.
4. *The Rediscovery of the Pueblo de las Canoas* by Ronald L. Rindge. 1985. published by The Malibu Lagoon Museum.
5. *The Malibu Story* by the Malibu Lagoon Museum. 1985.
6. *Ceramic Art of the Malibu Potteries 1926-1932* by Ronald L. Rindge *et. al.* 1988. The Malibu Lagoon Museum.
7. *A Brief History of Malibu and the Adamson House* by Bill Dowey. 1995. The Malibu Lagoon Museum.

8. *The Determined Mrs. Rindge and Her Legendary Railroad: A History of the Hueneme, Malibu & Port Los Angeles Railway* by David F. Myrick. 1997. Ventura County Historical Society Quarterly, Vol. 41, No. 3.
9. *More About Malibu Potteries 1926-1932* by Ronald L. Rindge *et. al.* 1997. The Malibu Lagoon Museum.
10. *Maritime Stories of Point Dume and Malibu* by Judge John J. Merrick and Ronald L. Rindge. 2000. The Malibu Lagoon Museum.
11. *WW II Homeland Defense: U. S. Coast Guard Beach Patrol in Malibu, 1942 -1944* by Ronald L. Rindge. 2003. Published by Ron and Sue Rindge, Cayucos, CA.

A large part of the history of Malibu is related in the above references. References not listed exist for additional information.

Sincerely,

Ronald L. Rindge

Ronald L. Rindge

cc. Mayor Ken Kearsley, City of Malibu
Sandy Mitchell, Malibu Lagoon Museum
Woody Smeck, NPS-SMMNRA
Hayden Sohm, State Parks
Jodi Clifford, USACE
Louis T. Busch
Tom Doyle
Glen Howell
Judge John J. Merrick
John F, Rindge

Enclosure - two letters cited above: 6/25/02 and 8/21/02.

Ronald L. Rindge
160 E. Street
Cayucos, CA 93430

June 25, 2002

U.S. Army Corps of Engineers
Los Angeles District
911 Wilshire Blvd.
P.O. Box 532711
Los Angeles, CA 90053

RE: Addendum No. 4 to public input for the Malibu Creek (Rindge Dam) Ecosystem Restoration Feasibility Study – **Cultural Resources.**

Attention Mr. Jason Shea

Dear Mr. Shea:

After speaking with you yesterday about my Addendum No. 3 e-mail on the subject referenced above, I thought this Addendum No. 4 might be helpful to your study. Thank you for clarifying the scope of your study only covers the segment of Malibu Creek from Piuma Road to the sea. I now understand that the cultural resources of the upper Malibu Creek watershed, including the four dams west of Malibu Canyon Road, are not part of your study.

The following are historic sites I can think of within the geographic area of your study that may be relevant to cultural resources identified in your report, commencing at Piuma Road on the north and going south to the sea at Malibu Lagoon State Beach:

Item	Cultural site	Era
1.	Segment of Chumash "Trail to the sea"	500 to 1300 A.D.
2.	Portion of Crater Camp, area SE of Piuma Rd. & Malibu Creek	1920's
3.	Sheriff's Honor Camp site, area SW of Piuma Rd. &Malibu Creek	1942 – 1952
4.	Segment of Malibu Canyon Road to the sea	1942 – 1952
5.	"Pink Lady" mural over south opening of tunnel	October, 1966
6.	Homesteading of area adjacent to Malibu Creek	1862 – 1905
7.	Rindge Dam and water system to Malibu delta	1924 – 1967
8.	Sheriff's Honor Camp site, above & SW of Rindge Dam	1942 – 1952
9.	Andrew Sublette/Grizzly Bears encounter	Dec. 17, 1853
10.	Serra Retreat foundation & Malibu tile	1929 to present
11.	*Humaliwu*, Malibu Lagoon State Beach	3000 BC - 1800 AD
12.	*Pueblo de las Canoas*, Malibu Lagoon State Beach	Oct. 10, 1542
13.	Adamson House, Malibu Lagoon State Beach	1929 to present
14.	U.S. Coast Guard Headquarters Station N-5, M. L. State Beach	1942 – 1944
15.	Malibu Pier, Malibu Lagoon State Beach	1905 to present

I include Malibu Pier in the above list due to water and sediment flow emanating from nearby Malibu Creek. All items, except No. 5, should be listed in the California Historic Properties Directory (or Inventory), maintained by the State Historic Preservation Officer. Some sites are on the National Register or are designated a California Historical Landmark or California Point of Historical Interest. This geographical area has many important historic sites. Some I do not know or have slipped my mind as of this writing. The upshot of all this is that the area of your study represents the history of man in the SMMNRA from the Chumash to the present. If you have any questions on any sites listed above, I will try to answer them.

Sincerely,

Ronald L. Rindge

Cc: Assemblywoman Fran Pavley
Woody Smeck, NPS – SMMNRA
Margaret Lopez
L. T. Busch
B. Carson
T. Doyle

Ronald L. Rindge
160 E. Street
Cayucos, CA 93430

August 21, 2002

U.S. Army Corps of Engineers
Los Angeles District
911 Wilshire Blvd
P.O. Box 532711
Los Angles, CA 90053

RE: Addendum No. 5 to public input for the Malibu Creek (Rindge Dam) Ecosystem Restoration Feasibility Study – **Cultural Resources**

Attention: Mr. Jason Shea

Dear Mr. Shea:

Addendum No. 4 dated June 25, 2002 detailed historical events in your study area from the Chumash Indians thousands of years ago to the present time. Collectively, this area comprises an historic district of man's presence in the watershed. Enclosed is a brief paper entitled, "Art & Architecture, Prose & Poetry Relevant to the Malibu Creek Watershed". Please include these elements of cultural resources in your study.

Sincerely,

Ronald L. Rindge

Ronald L. Rindge

cc Woody Smeck, NPS – SMMNRA
Hayden Sohm, State Parks
Assemblywoman Fran Pavley
Patty Young, NPS
Margaret Lopez, OHP
The Malibu Times
L. T. Busch
B. Carson
T. Doyle

Art & Architecture, Prose & Poetry
Relevant to the Malibu Creek Watershed
by Ronald L. Rindge

In addition to historical events involving the human species, cultural resources relevant to Malibu creek and canyon include art & architecture and prose & poetry. In the field of **art**, a rich heritage exists in paintings of earlier and more recent years. Several examples, by no means exclusive, are: "Malibu Creek" by **William Wendt** in 1897; "Malibu Canyon" by **Elmer Wachtel** in the 1920s; "Canyon Light –Malibu Canyon" by **Frederick W. Becker**; "Malibu Lake" by **Hanson Puthuff** (n.d.); "Early Morning – Malibu Lagoon" by **Walter Barron Currier** in 1929; "Wonder of it All – Malibu Canyon" by **Emil Kosa, Jr.**; "Malibu Canyon" by **Mian Situ** and "Malibou Lake" by **Tim Solliday**.

In the late 1940's, **Paul Dubosclard** crafted a series of serigraph postcards that included Serra Retreat, Malibu Lagoon and Malibu Pier. More recently, Malibu artist **Julie Van Zandt May** executed a grand scene, "Malibu Lagoon, 1542", exhibited at the Malibu Lagoon Museum. She has painted scenes of Malibu Creek, Serra Retreat, Malibu Pier, The Adamson House and Point Dume, among other Malibu subjects. **Ceramic Art** at the Adamson Home is on display as part of the Malibu Lagoon Museum dating back to 1929-1930 as well as at Serra Retreat of the same era. A tile mural, "Cabrillo at Malibu, 1542", by **Janet Minnigh** is on display in the entry lobby of the Malibu Court building in the civic center. This was a 1976 bicentennial project of the Malibu Historical Society.

Architectural highlights are found at the Adamson House designed by famous architect, Stiles O. Clements. Mr. Clements also designed the mansion on Laudamus Hill in Malibu Canyon for May K, Rindge. Remnants from the September 25, 1970 fire that destroyed the original structure that became Serra Retreat in 1942 are limited to the concrete foundation of rooms and exterior walls, steps and pathways. Even the Rindge Dam contains art deco elements incorporated into its design exemplified by cast corbels supporting the walkway across the top of the dam and the five steps at both ends of the walkway suggesting a ziggurat profile as found on the apex of the tower of the 1926 Los Angeles City Hall.

Frederick H. Rindge writes about Malibu in his 1898 book, Happy Days in Southern California. His **prose** on "Ranch Life", "In our Cañons", "Desolation and Charity", "In the Saddle" and "The Storm" contains overt or subtle references to Malibu Canyon on his ranch in the 1890's. Mr. Rindge's collection of **poetry**, Songs of California and Other Verses, was published in 2001 by the Malibu Lagoon Museum after being recast from a larger format book compiled by John F. Rindge in 2000. "The Brook", written in March 1905, is descriptive of Malibu Creek.

This brief review is only a sampling of the cultural treasures about the Malibu Creek watershed crafted by so many gifted artists, architects, ceramists, writers and poets over more than one hundred years.

MALIBU REALTORS
LOUIS T. BUSCH
ASSOCIATES
WE KNOW THE MALIBU

June 14, 2004

Rindge Dam Subcommittee

Attention: Melina S. Watts, Malibu Creek Watershed Coordinator

Dear Members:

I have lived and worked in the Malibu area for over half a century, fished and swam in the Malibu Creek prior to when Las Virgenes sewer discharge began, and my love for the area and its preservation historically and environmentally is very important to me.

The Rindge Dam was built in 1924 – 1926, and it has been placed on the National Register of Historical Places along with the designation of California State Landmark by its connection to the historic Adamson Home, which is now managed by the State Parks Division of California. The Rindge Dam has served the Adamson Rindge grounds with agricultural irrigation from the dam. The dam is an integral part of the history of Malibu, and along with the Adamson Home is under the care of the State Parks Authority for the preservation of public interest. Besides being a historical place, State and National, the dam, in itself, meets all of the requirements, for a historic monument and should not be dismissed lightly. It is a part of the history of Malibu, and is tied into the Adamson House; and on the grounds on the historical Adamson Home there is presently a two-inch water value with a round iron tag, which is stamped, "DAM WATER" that was used to irrigate the gardens and agricultural property.

A display of the Rindge Dam is being put together for the new Malibu Museum: pictures of construction and historical data.

Thank you for taking the time to read this letter, and joining our committee in maintaining the integrity of the Rindge Dam.

Yours truly,

Louis T. Busch

Louis T. Busch

LTB/awr
Enclosed: two current pictures of iron tag stamped "dam water" enclosed.
Cc: Geoff Gee, Dorothy Stotsenberg, Tom Doyle, Ann Payne, Ronald Rindge

22253 W. PACIFIC COAST HIGHWAY MALIBU, CALIFORNIA 90265 (310) 456-6477

MALIBU REALTORS
LOUIS T. BUSCH
ASSOCIATES
WE KNOW THE MALIBU

June 15, 2004

Fax to: Melina S. Watts, Malibu Creek Watershed Coordinator
Fax # 310 455 1172

Fax from: Louis T. Busch
Fax #: 310 456 8085 Telephone 310 456 6477

Dear Melina:

Nice talking with you yesterday and thank you for offering to copy my letter and two photographs, being faxed, for the Rindge Dam Committee.

Look forward to meeting you in person in the near future.

Yours truly,

Louis T. Busch

Louis T. Busch

LTB/awr
By facsimile: letter dtd 06/14/2004 w/ two photographs

Comments to the United States Army Corps of Engineers, Los Angeles District
Malibu Creek Environmental Restoration Feasibility Study

Rindge Dam Removal

A Review of Regional Ecologic and Economic Benefits And Options for Removal

Prepared by:
Suzanne Dallman, Ph.D.
and
Jim Edmondson, California Trout

Southern California Steelhead Coalition
August 3, 2002

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Cover photo by David Pritchett
Maps by Suzanne Dallman
Additional manuscript review by David Pritchett

Executive Summary

Rindge Dam, located on Malibu Creek in Southern California, has been an obsolete facility for over forty-five years. It serves no beneficial functions, such as flood control, water supply, or hydropower generation, because it is completely filled with sediment. To the contrary, it stores materials critically needed to replenish the eroding and economically important beaches of the Santa Monica Bay, while restricting one of the most important runs of steelhead along the Pacific coast to a small fraction of the total potential habitat within the Malibu Creek watershed.

In 1997 the southern steelhead trout was listed as endangered by National Marine Fisheries Service, under the federal Endangered Species Act. The key to restoring southern steelhead in Malibu Creek is to remove Rindge Dam and allow these fish, for the first time since 1926 when the dam was completed, to gain access to their historic spawning and rearing habitat.

Since the U.S. Bureau of Reclamation published its appraisal report on options to remove Rindge Dam (USBR 1995), and the US Army Corps of Engineers conducted its reconnaissance study to determine federal interest in the restoration of Malibu Creek (Corps 1998), additional information has surfaced that is relevant to current steelhead recovery planning for Malibu Creek:

- Recent research has determined that the creek's steelhead are tolerant of high sediment loads in the stream, and such events following a large wildfire in the watershed do not degrade the species or the creek's vegetation and instream habitat (Spina and Tormey 2000).
- Water quality monitoring in the upper sections of Malibu Creek demonstrate good conditions for steelhead once they arrive (Heal the Bay 2001).
- California's statewide steelhead recovery plan, adopted in 1996, identifies removing Rindge Dam as the single best restoration approach (McEwan and Jackson 1996).
- Traffic restrictions and increasing congestion on Malibu Canyon Road may render infeasible the Bureau of Reclamation's recommendation to excavate the sediment behind the dam and transport elsewhere by trucks.
- In an analogous case, removing San Clemente Dam on the Carmel River, the short-term risks of dam removal to steelhead are outweighed by the long-term benefits (NMFS 2001).

The United States Army Corps of Engineers (Corps) has begun exploring ways to address fish passage issues by launching the *Malibu Creek Environmental Restoration Feasibility Study*, in partnership with California Department of Parks and Recreation (Corps 2000). The purpose of this paper, adopted by the 224,000-member Southern California Steelhead Coalition, is to provide this additional information for the Corps to consider as it begins its feasibility study. It is to be recorded as public commentary in response to the Corps' public scoping meeting held May 29, 2002 regarding the focus and scope of this feasibility study.

This paper concludes with five recommendations supported by the Southern California Steelhead Coalition, summarized briefly below:

1. Focus on feasible and realistic options at the project outset, rather than reconsidering options dismissed by other studies.

2. Complete critical baseline sediment studies early on, such as stored sediment composition, sediment transport studies and potential disposal sites.

3. Build partnerships with local, state, and federal agencies.

4. Involve the public in decision making before issuing the final report.

5. Develop and adhere to a project schedule to achieve the study deadline for completion by 2004 as stated at the May 2002 public scoping meeting.

If these recommendations are followed, a no-cost or "win-win" dam removal project may be realized through partnerships with local, county, state and federal agencies dedicated to recovering the fish, enhancing the beaches, and protecting the area's economy.

1.0 Introduction

Rindge Dam is located on Malibu Creek, in Los Angeles County, California, approximately 2.6 miles upstream of the Pacific Ocean (**Figure 1**). Rindge Dam is a 102-foot high and 140-foot wide steel-reinforced concrete arch dam with a reservoir now completely filled with sediment. According to the California Department of Fish and Game, the dam is the major obstacle to restoring the creek's federally endangered steelhead population, which face "pending extinction" (McEwan and Jackson 1996). An evaluation of alternative measures for removing or modifying the dam is the subject of an ongoing Malibu Creek Environmental Restoration study by the US Army Corps of Engineers (Corps), in partnership with the dam owner, the California Department of Parks and Recreation (State Parks).

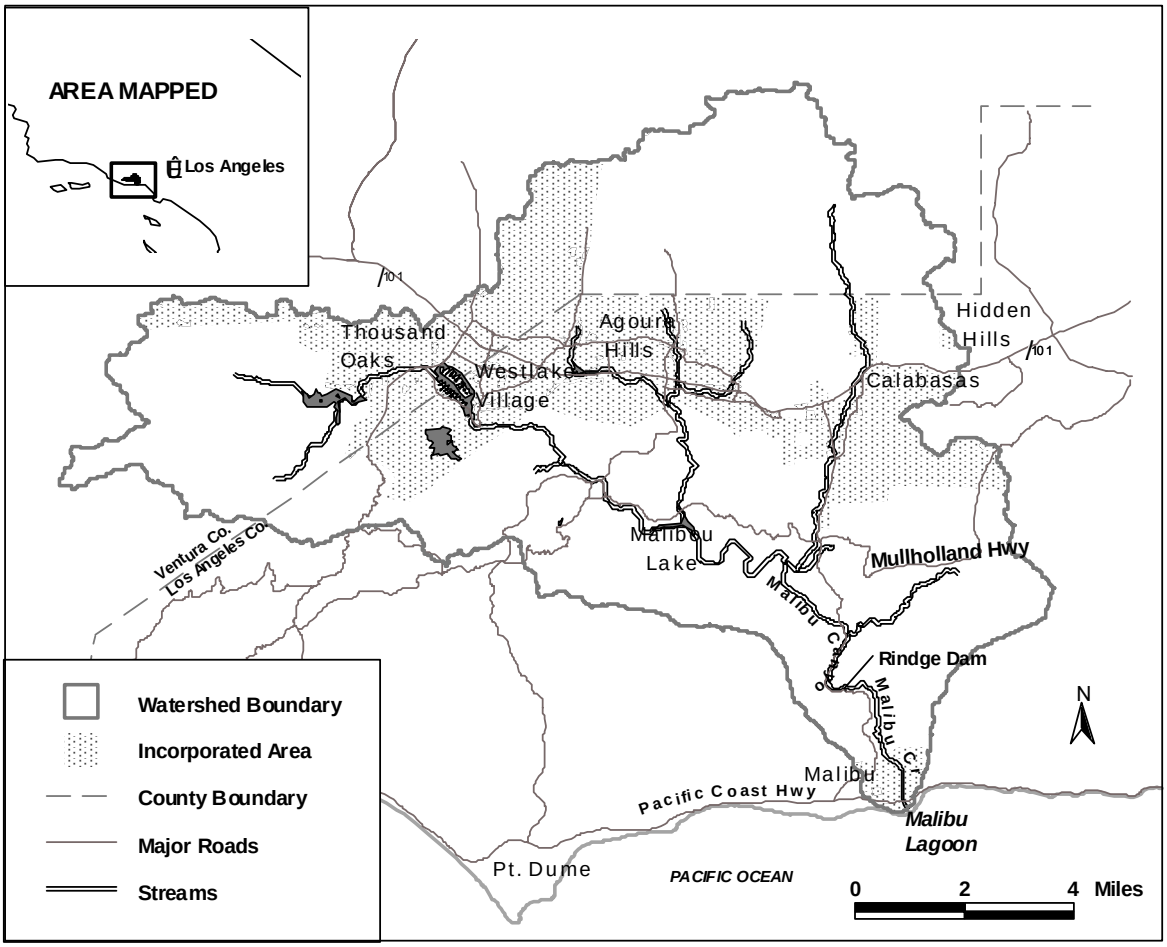

Figure 1. Malibu Creek Watershed and Rindge Dam Location

Completed in 1926, Rindge Dam was built for agricultural water supply and originally impounded 574 acre-feet (AF) of water with the spillway gates raised (Taylor 1945). It was owned by the Rindge family and operated by the Marblehead Land Company from 1933 to 1966. Upon completion of the dam, the reservoir rapidly filled with sediments, capturing

approximately 70% of Malibu Creek's annual sediment transport. Storms in the late 1930s damaged the spillway gates, reducing the maximum storage capacity of the reservoir to 475 AF. By 1940, about half of the reservoir capacity (200 to 250 AF) had been displaced by sediments and by 1945 84% (400 AF) of the original reservoir capacity was filled with sediment (Taylor 1945). The reservoir was completely filled with sediment by 1955. In the early 1960s water deliveries stopped, and California Department of Water Resources decommissioned the dam in 1967. The dam now impounds approximately 800,000 cubic yards of sediment (**Figure 2**), with the majority of this suitable for nourishing the eroding beaches of the Santa Monica Bay (Law Crandall 1994). Rindge Dam provides no flood storage, no hydroelectric generation, and no water supply. Thus the dam is obsolete, providing no beneficial functions, and has been a barrier to the upstream migration of fish for over seventy-five years.

Figure 2. Rindge Dam and Sediment-filled Reservoir

Malibu Creek currently supports a small run of steelhead within the Southern California Evolutionarily Significant Unit, a biological unit of steelhead that was listed as endangered under the federal Endangered Species Act in August 1997 (Federal Register 1997). The annual run of Malibu Creek steelhead historically was a wild, self-sustaining population, which required no stocking (Busby et al, 1996). The stream also supported a popular recreational fishery (Kreider, 1948).

Steelhead runs in Malibu Creek are now greatly reduced from historic levels. The population is estimated to be in the dozens (Franklin and Dobush 1989), whereas historic runs in the creek have been estimated as high as 1,000 steelhead (Nehlsen et al. 1991). Given this decline, their current high risk of extinction, and the desire to recover steelhead

populations, potential opportunities for achieving significant enhancements to steelhead habitat must be evaluated. The evaluation of alternatives for addressing the ecological damage caused by Rindge Dam provides an important opportunity to achieve potential long-term enhancements, recovery of steelhead in the Malibu Creek, and ultimately contribute to achieving the goal of the Endangered Species Act – to delist the species (Edmondson 2001).

Purpose of this Paper

This paper is intended to stimulate discussion by providing an outline of issues and background information intended to inform the *Malibu Creek Environmental Restoration Feasibility Study* led by the Corps. The purpose of this paper, adopted by the 224,000-member Southern California Steelhead Coalition, is to provide additional information for the Corps to consider as it begins its feasibility study. It is intended as public commentary in response to the Corps' public scoping meeting held May 29, 2002 regarding the focus and scope of this feasibility study. It discusses the importance of carefully evaluating the options for removing Rindge Dam in view of information that has surfaced since the Bureau of Reclamation's 1995 *Rindge Dam Removal Study*.

If the dam is not removed, as the State of California concluded, recovery of Malibu Creek steelhead is unlikely (McEwan and Jackson 1996). Access to many miles of high quality stream habitat necessary to the species recovery would remain blocked, and the steelhead would remain confined to a small habitat area and thus vulnerable to all watershed disturbances, such as catastrophic fire, toxic spills, or other disasters. With the potential of increased surface water temperature due to global warming, and the unique tolerance of southern steelhead to warmer water, restoring this population has taken on more critical importance in order to ensure preservation and recovery of the species throughout its Pacific Coast range. With economically important Santa Monica Bay beaches eroding, the use of Rindge Dam sediments to nourish these beaches creates a unique "win-win" ecological and economic nexus that may achieve multiple public benefits.

Section 2 of this paper provides additional discussion about stream conditions and the multiple benefits that may be gained by removing Rindge Dam. Section 3 discusses prior proposals and new information obtained since these proposals that is relevant to current dam removal considerations. Section 4 reviews conceptual approaches to managing the impounded sediment and removing the dam, while limiting the downstream risk to the ecosystem and to property owners. Section 5 explores the issue of costs associated with dam removal. Section 6 provides a summary and recommendations for addressing information needs for evaluating the removal of Rindge Dam.

2.0 Current Conditions and Benefits of Dam Removal

Both NMFS and California Department of Fish and Game (DFG) have cited barriers to upstream habitat as a major factor in steelhead decline (NMFS 1996, McEwan and Jackson 1996). Like most dams, Rindge Dam and its impoundment significantly affect stream habitat for steelhead and other aquatic species by fragmenting habitat and disrupting ecosystem function (Heinz Center 2002). It also has restricted the flow of sediment

downstream to replenish in-stream gravels and beach sand. Resource agencies and the public generally agree that steelhead would benefit if Rindge Dam and all of its impounded sediment were removed. However sediment removal is a costly and complex issue. If not handled properly, dam removal can pose a substantial though temporary risk resulting from the downstream movement of sediment and the associated potential for increased flooding or damage to existing habitat (Heinz Center 2002). In an analogous case, removal of San Clemente Dam on Carmel River, National Marine Fisheries Service (NMFS) determined the short-term risk to federally listed steelhead from dam removal was outweighed by the long-term permanent benefits (NMFS 2001).

Distribution of Instream Steelhead Habitat in Malibu Creek

The 2.6-mile stream reach from Malibu Lagoon to Rindge Dam contains some spawning and rearing habitat in the gorge just downstream of the dam, with good cover and appropriate stream morphology. Franklin and Dobush (1989) identify availability of adequate summer habitat as a limiting factor for the production of juvenile steelhead in the Malibu Creek. Such habitat is normally found in the headwaters of coastal streams, not in the lowermost mainstem reach as now in Malibu Creek. Franklin and Dobush investigated less than 30% of total stream habitat, from the outlet of Malibu Creek to the confluence with Cold Creek above Rindge Dam. They concluded that major benefits for recovery could be realized by providing access above the dam, potentially tripling the existing population. Their assessment of these lower stream reaches found that over 86% of the potential spawning habitat and 65% of the potential rearing habitat lie above Rindge Dam. If steelhead gained access to this habitat, spawning and rearing habitat would increase 590% and 180%, respectively, over what is currently available to steelhead. For this reason that the authors of the *Steelhead Restoration and Management Plan for California* concluded that removing Rindge Dam is the key to steelhead recovery (McEwan and Jackson 1996).

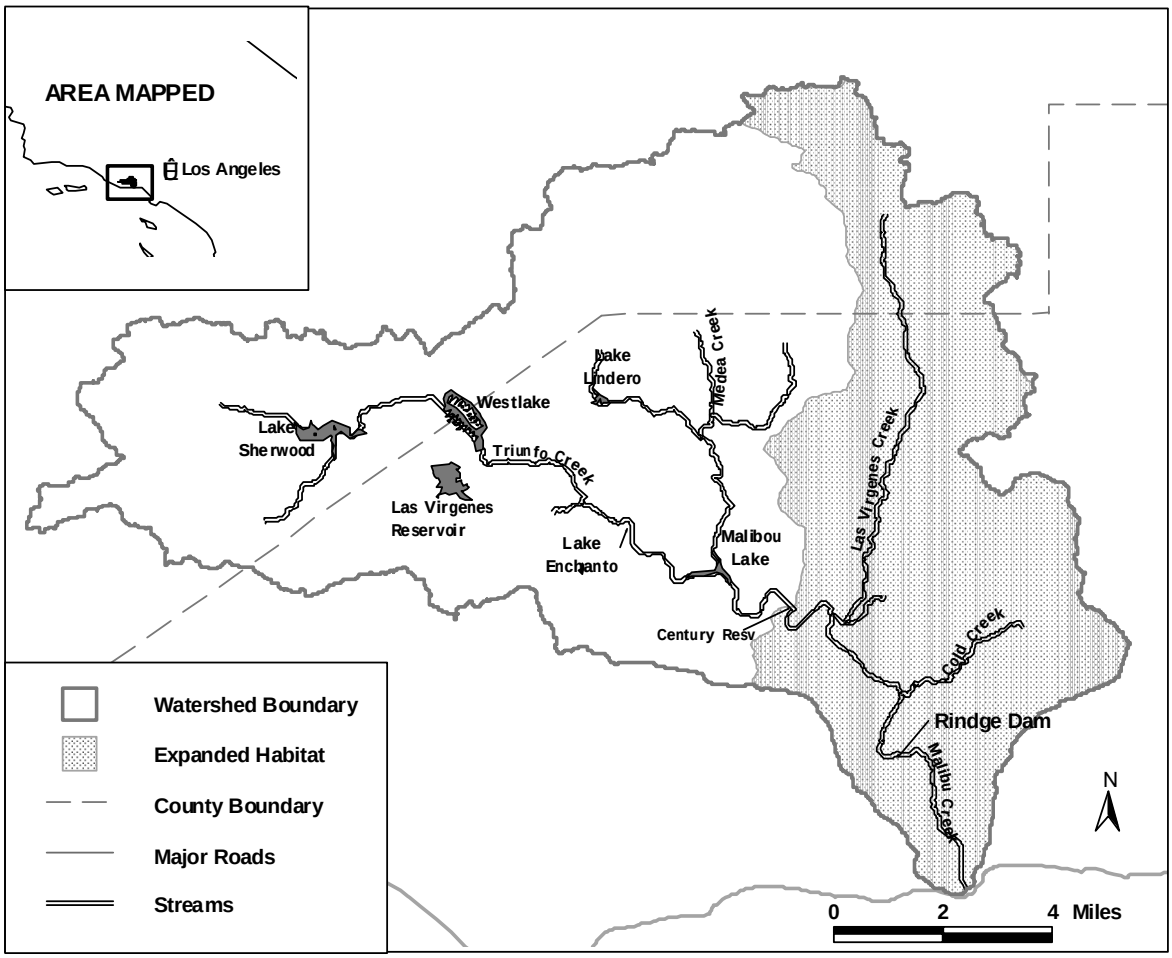

Figure 3. Additional Steelhead Habitat from Rindge Dam to Century Dam
Based on assessments by Franklin and Dobush (1989)

Temperature Tolerance and Distribution in Malibu Creek

Water temperature is one of the critical water quality factors in determining suitability of stream habitat for a coldwater species such as steelhead. Sustained water temperature above 68°F (20°C) is the benchmark used by California State Water Quality Control Board in determining compliance with the federal Clean Water Act (USEPA 1973). Southern California steelhead, which have had to adapt over millennia to the Mediterranean climate, are thought to possess unique abilities to remain healthy in the highest range of water temperatures for the species throughout its entire range along the Pacific Coast (McEwan and Jackson 1996, Swift et al. 1993).

During the summer of 1989, water temperature studies were conducted for California Trout on Malibu Creek below Rindge Dam (Trihey 1990). Because this study was conducted in the middle of a five-year drought cycle, its results are meaningful in suggesting the upper threshold of steelhead tolerance to extreme conditions. Trihey found that during July and August 1989, mean water temperatures below Rindge Dam varied between 69.8°F and 73.4°F (21°C and 23°C). Maximum water temperatures exceeding 80°F (27°C) were also

briefly recorded. Trihey concluded that during normal or above normal precipitation periods, stream water temperatures would vary from 68°F to 71.6°F (20°C and 22°C). Neither Franklin and Dobush (1989) nor Trihey observed any adverse effects to steelhead below Rindge Dam during this warmer period, thus confirming the unique temperature tolerance of Southern California steelhead.

Heal the Bay has conducted water quality studies for the past several years at sites that would become available to steelhead if Rindge Dam were removed (Heal the Bay 2001). Their results at these upstream sites (**Figure 4**), upper Cheeseboro Creek (*site 6*) and Cold Creek (*site 3*), demonstrate more suitable water temperature conditions for steelhead than below Rindge Dam, with lower mean and maximum water temperatures documented. Other water quality parameters, such as dissolved oxygen and pH, were also well within steelhead tolerances (Ambrose and Orme 2000, USEPA 1977).

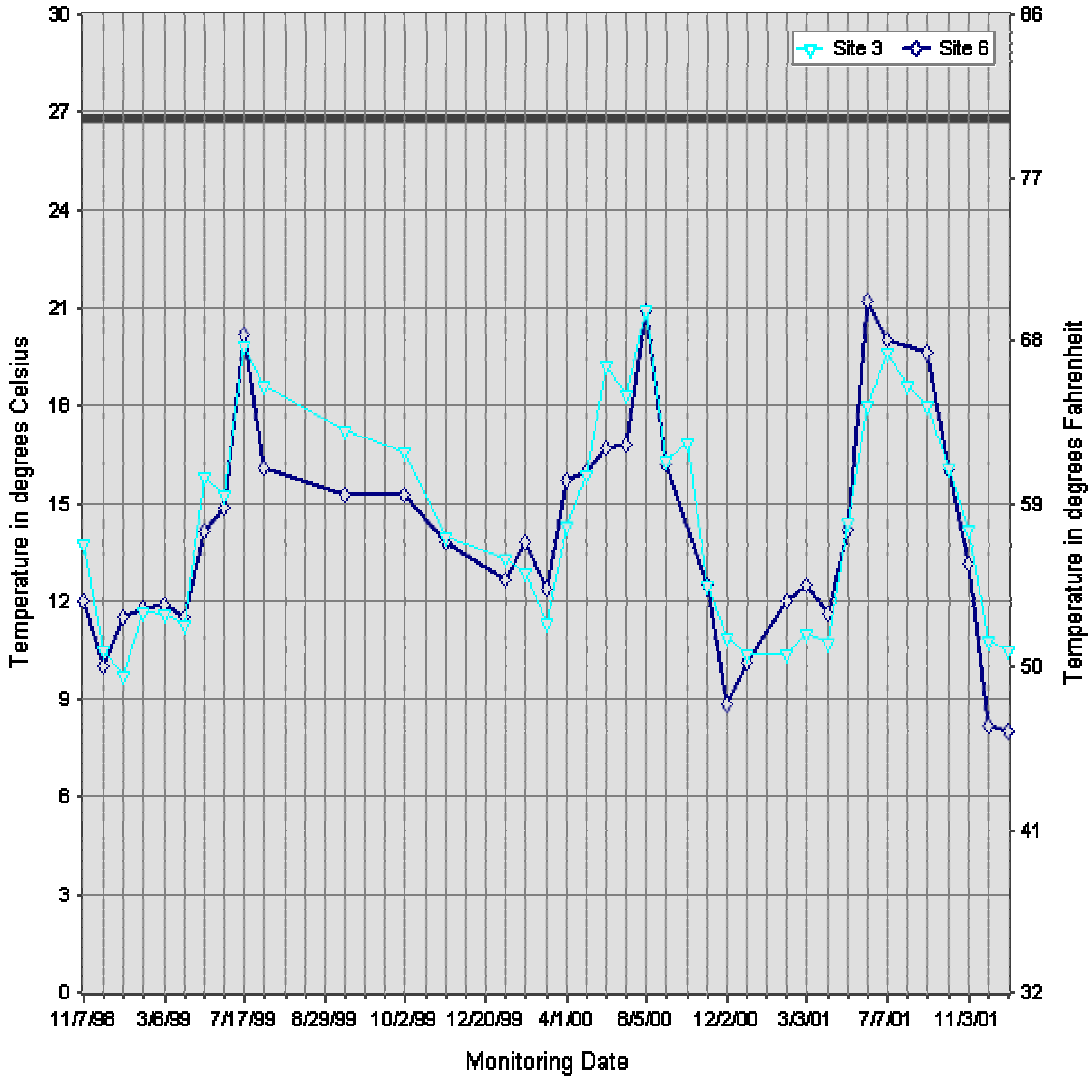

Figure 4. Recorded Stream Temperature 1998 – 2001
Source: Heal the Bay

According to a new study by Defenders of Wildlife and the Natural Resources Defense Council (O'Neal 2002), trout, salmon, and steelhead could disappear from many U.S. waterways due to rising temperatures caused by global warming. The study suggests that habitats for coldwater species, such as steelhead, could shrink as much as 17 percent by 2030, 34 percent by 2060, and 42 percent by 2090 if emissions of heat-trapping pollution such as carbon dioxide are not reduced. The report predicts widespread habitat losses that vary by region. For coldwater species, the most severe losses appear in the South, Southwest and Northeast, with the biggest impact likely in California (O'Neal 2002).

Given these predictions, Malibu Creek steelhead may be particularly important as genetic stocks that are better adapted to warmer water conditions then more northerly populations (Swift et al. 1993, NMFS 1995, Moore 1980). Thus steps to recover steelhead in Malibu Creek by addressing their most limiting factor, the removal of Rindge Dam, can provide a unique opportunity to preserve steelhead throughout their Pacific Coast range. As no proven methods yet exist to replicate the unique genetics of Malibu Creek steelhead, their potential role in species recovery may become critical.

Beach Restoration in the Malibu Area

A recent report by California Department of Boating and Waterways and State Coastal Conservancy (2002) reveals the tremendous economic benefit of restoring beaches. California's shoreline is greatly influenced by a century of intense development and human activity. Dams impact 38% of California's coastal watershed area. The majority of beach sand is normally delivered California's beaches by rivers, but dams prevent over one quarter of the average annual volume of sand supplied by streams from reaching the beaches. Shrinking beaches will lead to diminished recreational opportunities, lost revenues from tourism, degraded wildlife habitat, reduced wetlands, and increased damage from coastal storms. Removing dams or bypassing sediment around dams, such as Rindge Dam, could significantly reduce the sediment deficit along much of California's coastline (Department of Boating 2002).

California's beaches experienced an estimated 659 million visitor-days in 2001, more than twice as many as the visitor-days at all U.S. National Parks combined. Of the state's top ten recreational destinations in 1991, three were beaches. Visitors to California beaches spent over $61 billion in 2001; approximately 36% of this was by out-of-state visitors. California's beaches generate over $15 billion annually in tax revenue (Department of Boating 2002). The beaches in Malibu are of enormous economic, recreational and aesthetic value. If Malibu represents just 0.5% of this statewide economic generation, its local beaches annually provide $305,000,000 to its economy, while generating $75,000,000 in tax revenue.

Since the 1930s, over 31 million cubic yards of sand have been placed on the Santa Monica Bay beaches for widening and replenishment. Many of the beaches made wider by past nourishment programs have begun to retreat and will continue to do so without replenishment. To protect and restore this economic resource, the Department of Boating and Waterways has estimated that the State of California needs to invest $120 million in

one-time beach nourishment costs and $27 million in annual beach maintenance costs. Through cost-sharing partnerships with the Corps, federal funding for these shoreline projects could significantly reduce the state's burden (Department of Boating 2002).

The Corps has determined that the beaches of the Santa Monica Bay are now in need of beach nourishment. From Point Dume south to Will Rogers State Beach, 89 recreational beach acres exist (Corps 1994). Geotechnical studies of Rindge Dam sediments have determined that over 60% of the 800,000 cubic yards of sediment behind Rindge Dam would be suitable for local beach nourishment (Law Crandall 1994). If these sediments were to be placed on the downstream beaches, this would triple the total public beach area while avoiding other extremely costly forms of beach nourishment. Thus using the retained sediment for local beach nourishment is a "win-win" proposition.

Regulatory Relief Resulting from Recovery

A primary purpose of the federal and state Endangered Species Acts (ESA and CESA respectively) is to recover listed species to levels where they are no longer endangered or threatened. When they reach that status, they can be delisted under the ESA or CESA. During the period between when a species is listed and when it is delisted, regulatory burdens on landowners and managers come into play, requiring environmental assessments, permits, and agency consultations for federally-regulated actions that might impact the species or its habitat.

In the case of steelhead, this regulatory burden would increase significantly if the federally listed steelhead were to gain a CESA listing. This would affect all land use planning, zoning, permitting and use within the 109-square mile Malibu watershed. However, actions taken to recover steelhead will likely provide a healthy, functioning ecosystem that would benefit other species. This would help to relieve the current regulatory framework and reduce the chance of additional species becoming endangered, thus reducing the potential for additional regulatory burdens on government and the public.

Recognition of Historic Status of Rindge Dam

The Rindge family would like the dam to remain as an historic monument (Rindge 1998, Heinz 2002). Although an historical monument designation does not require that the monument still exist (Pers. Comm. C. Watanbe, DFG staff 2002), State Parks, California Department of Fish and Game, Los Angeles County Fish and Game Commission, and the Southern California Steelhead Coalition, favor dam removal in a "win-win" way.

Rindge Dam is comprised of two components, the thin arch retaining wall built to impound Malibu Creek flows, and its spillway (**Figure 5**). The spillway is quite prominent, with the dam's construction date stamped in its concrete, and original metal spillway gate structures still intact. A dam removal operation could remove the thin arch retaining wall while preserving the spillway for historic reference. This approach may be a less costly dam removal method that would still restore ecological health to the creek, while also addressing the concerns of those advocating historic designation.

Figure 5. Rindge Dam, with Spillway to the Left

3.0 Prior Options (Re)considered for Rindge Dam

1991 Fish Ladder Proposal

With a grant from the Santa Monica Mountains Conservancy in 1988, California Trout contracted with consultants for scientific investigations of Malibu Creek, including steelhead habitat, water temperature range, fish population size and structure, sediment studies, and the installation of facilities to provide for steelhead passage above Rindge Dam (Franklin and Dobush 1989, Keegan 1990, Trihey 1989). Based on these studies, State Parks proposed the "Malibu Creek Steelhead Project" to install a fish ladder at the dam, also to be funded by the Santa Monica Mountains Conservancy. However, access to the fish ladder for installation and maintenance would be difficult. The costs of operation and maintenance were considered excessive, far exceeding the ladder construction costs over time. Additionally, with peak flows occasionally reaching as high as 30,000 cfs, concerns were raised that this $600,000 investment could be washed out to sea. The fish ladder proposal was suspended in 1992 (Gibbons 1992, Schmidt 1992).

1995 Bureau of Reclamation Dam Removal Study

With the suspension of the 1991 fish ladder concept, the US Bureau of Reclamation, in cooperation with California Department of Fish and Game, conducted a study to examine other options to provide steelhead passage above Rindge Dam (USBR 1995). Reclamation evaluated seven different options and determined that a fish ladder, hydraulic dredging, and notching a portion of the dam were not appropriate solutions. They developed three feasible dam removal alternatives for detailed evaluation.

Alternative #1 was to excavate the sediment and truck it to Malibu Beaches or a local landfill. The dam would be blasted in vertical segments as the excavation took place. The cost for this alternative over its projected two-year duration was estimated at $17.5 million (1995 dollars), with nearly half of the costs ($7.9 million) designated for trucking the sediment to a disposal site.

Alternative #2 was to demolish the dam, excavate the sediment, and construct a conveyor system to transport the material downstream to an engineered fill site. The cost for this alternative over its one-year duration was estimated at $12.8 million (1995 dollars).

Alternative #3 was to remove the dam in segments over a number of years and rely on natural stream flow erosion to transport the sediment to the ocean. The cost for this alternative over its 8 to 18 year duration was estimated at $4 million (1995 dollars).

Reclamation's appraisal report identified a number of deficiencies in the data that needed to be addressed before a final project alternative and costs could be identified. The lack of key information on sediment transport, differences in Reclamation's estimated amount of impounded sediments over that identified by Law Crandall (1.6 million vs. 801,500), and the need to elevate costs estimates 25% for "unknown contingencies" were acknowledged by Reclamation as study weaknesses. The report recommended that further analysis of sediment transport be conducted before an alternative was selected. Additionally, Reclamation recommended that the environmental, social and economic impacts of dam removal be investigated further.

Traffic Congestion Concerns

The 1995 Reclamation study, while favoring Alternative #1, raised the issue of possible traffic congestion on Malibu Canyon Road and Pacific Coast Highway (PCH) resulting from trucks transporting the sediment away for the reservoir during a two-year period. Due to the limited scope of Reclamation's appraisal study, further analysis concerning traffic implications of trucking sediment was not done.

California Department of Transportation (Caltrans) imposes restrictions on trucks on Malibu Canyon Road, limiting dump trucks to three-axle vehicles with a maximum capacity of ten cubic yards (Pers. Comm. Caltrans staff 2002). Trucking sediment from Rindge Dam would result in 160,000 to 258,000 round-trips, depending on the time span and amount of additional sediment inflows, on the already traffic-burdened local roads. Caltrans also limits

such truck traffic to non-peak commute hours (9 AM to 3 PM). Excavation and trucking of sediments would be also be restricted to the six month dry period (May through October), further exacerbating heavy summer beach traffic.

The average number of vehicles per day (vpd) traveling through Malibu Canyon is about 24,000 vpd, measured south of Mulholland Drive (LACDPW 2001). The current traffic load at PCH and Malibu Canyon Road, at over 40,000 vpd, is approaching its 48,000 vehicle per day limit (Pers. Comm. Caltrans staff 2002). Although adding 330 to 400 trucks per day to that intersection would not in itself be prohibited, the proposal of placing a fully-loaded, slow moving dump truck at the rate of one every minute could create major traffic problems. The potential for public backlash against trucking sediments through the canyon, and potentially the dam removal project overall, renders such an approach infeasible.

Use of Rindge Reservoir for Water Storage

In response to proposals for removing the dam, Mr. Ron Rindge, grandson of the dam builders, has stated that the reservoir should be resurrected to provide for flood control and fire suppression (Rindge 1998). Dredging the reservoir to restore a portion of the project's water storage capacity would not only continue to prevent fish migration past the dam, but would need to be repeated periodically as the reservoir refills with sediment. Given the difficulty of accessing the reservoir, the costs associated with dredging and sediment removal to maintain reservoir storage capacity, and the resulting increase in truck traffic, this does not seem to be a viable action, nor would it meet the ecological restoration goals of the Corps' Feasibility Study.

Effects on Steelhead Populations During Dam Removal

Studies on the impacts of dam removal have concluded that the release of fine-grained sediments might adversely affect downstream habitats for the duration of the removal project (Heinz Center 2002). The actual impacts would depend on the stream flow, and the rate at which the dam is removed and sediments are transported. Although increased sedimentation could adversely affect steelhead habitat in downstream reaches in years immediately after dam removal, short-term sedimentation associated with dam removal would likely not be catastrophic to Malibu Creek steelhead.

Steelhead spawning downstream from the dam is limited to a small area, but would have some capacity to cope with such impacts. Where conditions are generally unfavorable for redd construction, steelhead behavioral adaptation has been recorded. Steelhead spawning in two different tributaries having similar size, flow characteristics, and fish densities, but differing in sedimentation levels, dug redds 48% larger and 25% shallower in the more heavily sedimented stream. Females spawning in the more heavily sedimented stream spent more time and effort excavating redds to create favorable incubation conditions and buried their eggs less deeply (Everest et al. 1987).

<u>Tolerance of Malibu Creek Steelhead to High Sediment Episodes</u>

The impact of fine sediments on steelhead was recently studied in Malibu Creek. In November 1993, a major wildfire burned significant portions of the Malibu Creek watershed (**Figure 6**). There was concern by members of the Malibu Creek Watershed Council that sediment produced during the post fire wet season would degrade critical pool habitat, thereby adversely affecting the population of steelhead downstream of Rindge Dam.

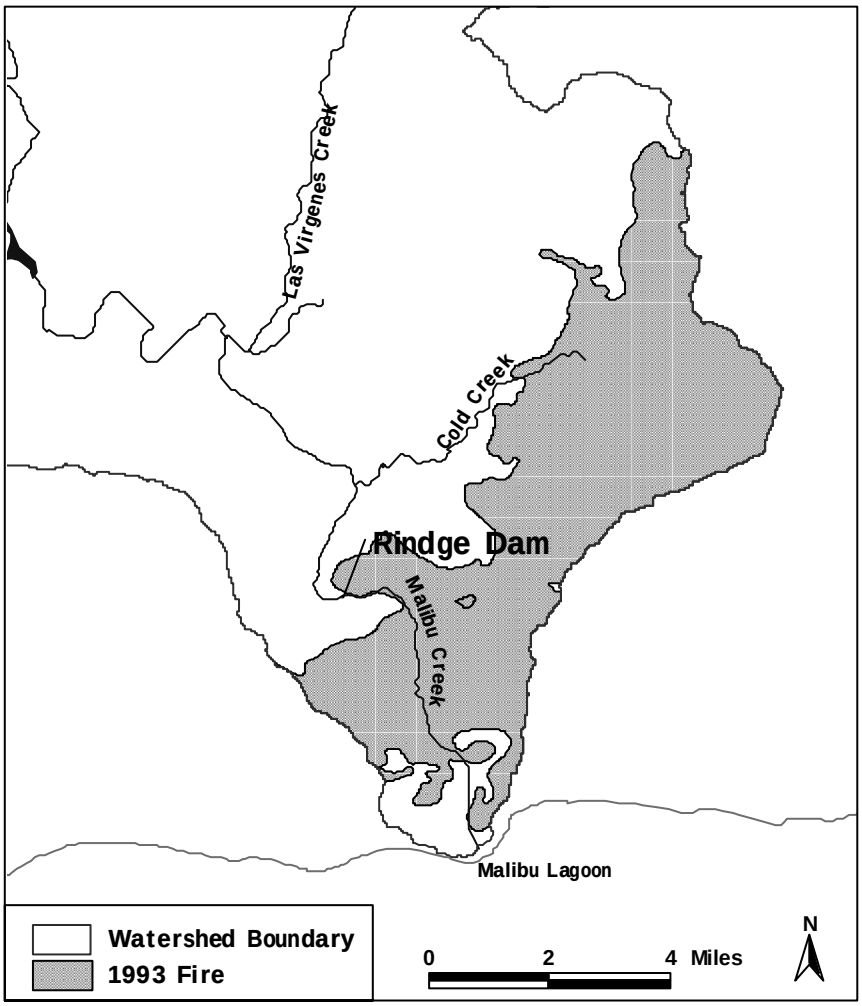

Figure 6. Location of 1993 Fire along Malibu Creek
Fire data courtesy National Parks Service, SMMNRA

Monitoring of stream habitat below Rindge Dam following the first runoff wet season did not reveal significant changes in channel characteristics that would be expected to adversely affect steelhead. (Spina and Tormey 2000). Pool frequency, pool depth, and substrata type (boulders, cobbles, gravel, fines) were not significantly changed after winter storms began their natural geomorphic process of eroding fire-denuded soils and transporting these sediments loads through Malibu Creek. Riparian vegetation bordering Malibu Creek below Rindge Dam were also largely unaffected, thereby maintaining its functional and ecologic values to the stream system and its wildlife. Adult steelhead were observed by the

researchers spawning immediately following the post-fire data collection (Spina, personal communication 1994).

The amount of soil erosion and sediment deposition that could have been produced during the first post fire wet season may have been reduced by a variety of factors including burn characteristics, below-average precipitation, and earthquake-induced recruitment of cobble and gravel. However even with low precipitation totals for the year, peak flows above the 2,450 cfs average occurred on February 12, 1994 (LACDPW 1998). In addition, no evidence indicates that the post-fire sediment transport through Malibu Creek has had any significant effect on Malibu Lagoon (Spina and Tormey 2000).

Spina and Tormey's findings suggest that Malibu Creek is capable of transporting high sediment loads under below-normal precipitation periods, without significant adverse effects on the stream or steelhead. Since the 1993 winter, more normal or above-normal precipitation periods have occurred, yet there is still no evidence that these events have caused harm to the stream or to steelhead.

Transfer Options for Steelhead Populations During Dam Removal

The welfare of steelhead during the period when dam removal is conducted may be of concern, should there be a decline in steelhead habitat conditions below Rindge Dam from incomplete sediment transport of fines and other small strata. This is not likely to be a problem, as direct observation (Spina and Tormey 2000) demonstrates that under high sediment transport periods, habitat did not significantly decline, and adult steelhead were observed spawning following the high sediment transport period. However, should conditions warrant protective measures, there are options available for capture and relocation of steelhead, as outlined below.

NMFS recently set a precedent by issuing a permit for the capture of endangered steelhead in Mission Creek in southern Santa Barbara County, and their transfer to alternative habitat during stressful periods (Federal Register 2002). Issuance of this permit, as required by the ESA, was based on a finding that such issuance (1) was applied for in good faith; (2) would not operate to the disadvantage of the listed species which are the subject of the permit; and (3) is consistent with the purposes and policies set forth in section 2 of the ESA. This permit was issued in accordance with, and is subject to, part 222 of title 50 CFR, NMFS regulations governing listed species permits.

During the dam removal process in Malibu Creek, if it were determined that downstream steelhead were in jeopardy, a rescue and transfer of fish to suitable steelhead habitat elsewhere in Santa Monica Mountains coastal streams could be performed (for example Topanga, Solstice, or Arroyo Sequit). Should this become necessary, trained volunteers for such a "rescue" are readily available, and organizations such as California Trout or the Southern California Steelhead Coalition are capable of mobilizing volunteers to assist with this work on an emergency basis.

4.0 Conceptual Approach to Removing Rindge Dam

The removal of on-stream dams has been an important tool in the restoration of many stream ecosystems (Bednarek 2001, Heinz 2002). Since 1912, more than 465 dams have been intentionally removed nationwide, the vast majority since 1980 (American Rivers et al. 1999). Most dam removal decisions have been made for reasons of safety, economic consideration, or ecological restoration. Of the 465 cases reviewed by American Rivers, the average height of removed dams was about 21 feet. However, more than 40 dams were 40 feet or taller, including 4 dams that were at least 120 feet tall. Thus, there are precedents for removing a dam on the scale of Rindge.

The American Society of Civil Engineers (ASCE 1997) provides case studies and engineering guidelines for the retirement and removal of dams and hydroelectric facilities. ASCE reviews steps for conducting environmental review, sediment management, and conceptual plans for removing on-stream dams. Their research shows that the costs of sediment management and environmental review are the principal costs of dam retirement and removal. Case studies demonstrate several approaches to handling stored sediment. Some projects use conventional excavation and trucking; others rely on natural river erosion. Still others are approached with bank and stream stabilization programs that leave as much sediment in place as possible. Geology, topography, and project design influence the approaches used to remove the on-stream structures and sediment (ASCE 1997, Heinz 2002). Research currently underway by the Corps-led Matilija Dam removal study will also provide useful information for decisions regarding Rindge Dam removal.

Incremental Dam Removal

A promising alternative for removal of Rindge Dam likely would involve reducing the dam spillway elevation incrementally at a rate consistent with the creek's capacity to remove sediment from the project area and transport it downstream at dependable rates. Staged removal is a common dam removal approach when sediment management is largely accomplished through stream erosion (ASCE 1997, Heinz 2002). When a combination of sediment management methods are used, staged removal is an appropriate approach to dam removal because it provides a high level of safety at the dam site during removal when floods may inundate the dam and control sediment release rates.

Concrete dams have been removed in lifts from top to bottom using diamond wire saw cutters. One method for providing safe working conditions and control over sediment release rates is to first cut a weir in the dam, and then remove a lift from the entire dam width. A well-developed plan for removing a similarly constructed dam on Elwha River in Washington has been developed. The Glines Canyon Dam on Elwha River is a 210-foot high gravity arch reinforced concrete dam built in 1927 that is similar to Rindge Dam. The plan for Glines Canyon Dam removal calls for cutting a 15-foot deep notch to accommodate projected stream flow, then incrementally cutting and removing 7.5-foot high blocks across the entire width of the dam. The incremental notching procedure maintains the dam's structural integrity during the removal process.

Malibu Creek Sediment Transport

Natural precipitation events provide the energy to transport sediments through the stream system to the ocean. Malibu Creek is a "flashy" stream system, with periodic high stream flows that transport sediments, most commonly occurring from January through March. The largest peak stream flow recorded for Malibu Creek is 33,800 cfs on January 25, 1969, with flows exceeding 2,000 cfs expected to occur once every two years (Trihey 1989).

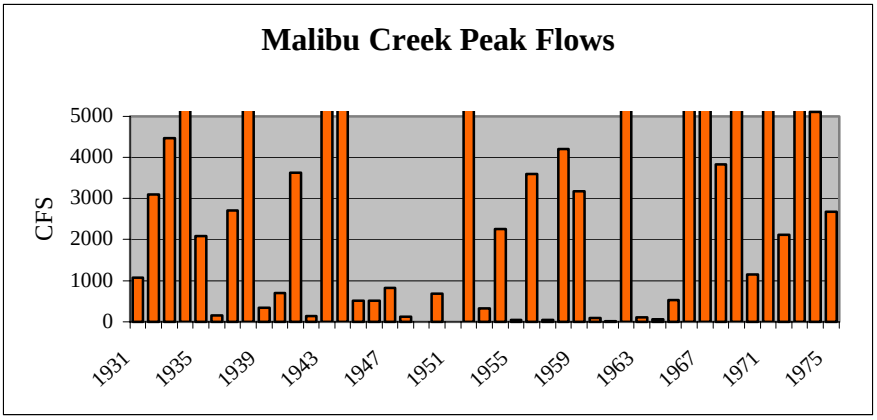

Figure 2. Malibu Creek Peak Stream Flows 1931 - 1975

As reported by Trihey, the estimated annual sediment yield for Malibu Creek is 45,800 cubic yards. Based on the report by Taylor (1945) that Rindge Dam had lost 400 AF its storage capacity just 18 years after completion, average sediment captured annually at Rindge Dam from 1926 to 1944 would have been 35,850 cubic yards. Since approximately 1967, when the reservoir's water storage capacity was replaced with sediment, the sediment transport rate of the creek has remained slightly below its natural capacity (Department of Boating 2002). Sediment transport analysis conducted by Trihey (1989) indicated that high creek sediment loads might degrade or fill pools in Malibu Creek. Empirical evidence reported by Spina and Tormey (2000) indicate that this may not occur, at least under moderate flow conditions. Further studies are needed to better characterize the sediment transport capacity of the creek.

Sediment Management

At this time, the most effective and efficient method of removing Rindge Dam is unknown. However, like most other dam removal projects, the management of impounded sediment would probably be the most significant cost and engineering challenge. The release of large portions of the 800,000 or more cubic yards of stored sediment behind Rindge Dam has the potential to impact downstream habitats and adjacent properties either positively or negatively. Yet, until hydrologic and sediment transport modeling is completed, one cannot accurately assess appropriate management of this sediment. According to Dr. Brian Cluer (2002), "The most important assessment during the feasibility stage is to determine the capacity for downstream sediment transport and digestion." Detailed sediment transport modeling is needed in order to estimate changes in water elevation and any associated flood risk, and the temporal scale of sediment removal.

The development of a cost-effective plan to remove Rindge Dam will require a focused effort to resolve the potential problems of sediment transport to the lower creek. Sediment transport models must be interpreted to integrate efforts to reduce sediment loading by dredging or slurrying impounded sediments to off-stream sites. The modeling effort must also address possible mitigation measures such as annual monitoring of the bed elevation of the stream channel and active channel maintenance by mechanical removal or aggregate mining.

Solutions to sediment issues may be include a number of options:

- Sediment buildup in lower Malibu Creek, if it were to occur as a result of dam removal, could be mechanically removed as needed from downstream areas.
- A flexible, staged removal plan would allow some control over the volume of sediment released during a given year.
- An integrated effort could be implemented to reduce sediment loading by dredging and conveying or slurrying impounded sediments to off stream sites.
- As sediment loading is most likely to occur close to the mouth of Malibu Creek, costs for excavation and beneficial local beach nourishment would be reduced. Cost-share agreements or funds from existing beach nourishment programs could be utilized.

5.0 Costs Associated with Dam Removal

Value of Sediments

The plan for managing sediment during the removal of the Rindge Dam will require careful analysis comparing the costs of immediately dredging and storing sediments at off-stream sites and the costs of channel maintenance and/or aggregate mining in downstream reaches. Based on the 1994 Law Crandall report, there appears to be potential economic value in the reservoir sediments, in spite of transportation costs between the source and the market. Geotechnical studies indicate that the stored sediments are uncontaminated, with 70% suitable for beach nourishment (Law Crandall 1994). Los Angeles County Department of Beaches and Harbors has expressed interest in this material for beach replenishment. Additionally, landscaping and construction rock and sand are valued at $10 to $20 per cubic yard in 1995 dollars. This suggests that a large portion of the costs of sediments not removed by natural processes could be offset by sorting and selling the marketable materials, or transported to the local beaches to offset taxpayer costs of beach nourishment.

Critical sedimentation zones in the Malibu Creek channel may also be managed. Accumulations of sediment could be mechanically removed from the channel during dry seasons, in preparation for winter floods. These materials would also have potential economic value and would require less transportation costs to reach nearby markets. With such economic partnerships, costs for dredging the reservoir or maintaining the channel in the lower creek could be less than that for impoundment dredging and sediment storage at upper valley sites. The potential savings from collaboration between State Parks, Coastal

Conservancy, County of Los Angeles and other Santa Monica Bay beach management agencies, as well as aggregate suppliers, must be fully explored.

Public Willingness to Pay for Removing Rindge Dam

With State Park's acquisition of the dam and surrounding land from the Rindge family, the dam became public property. To determine the public's enthusiasm to fund its removal, Burks (1997) conducted a "Willingness to Pay" (WTP) survey, in the form of a random telephone survey of West Los Angeles residents. Citizens were asked if they would be willing to voluntarily contribute to a fund for Rindge Dam removal through their monthly utility bill.

The study conservatively estimates that over $17 million could be raised in one year to fund removal of the dam. Although not a definitive study, the WTP survey results appear to show significant interest of Los Angeles area residents in the restoration of Malibu Creek watershed for endangered steelhead, which could translate into additional funding for dam removal.

6.0 Summary and Recommendations

A proper and thorough assessment of the options for removing Rindge Dam provides an opportunity to take a major step in the restoration of the Malibu Creek's ecosystem, recovery of Southern California steelhead, and provision of low cost beach nourishment at the regional, economically important coast. Rindge Dam serves no purpose and is an obstacle to migratory steelhead, a federally listed endangered species. Over 85 percent of the potential rearing habitat and two-thirds of the potential spawning habitat within just a portion of Malibu Creek watershed occurs above Rindge Dam (Franklin and Dobush 1989).

The removal of on-stream dams is an important tool in the restoration of stream ecosystems. Since 1912 more than 465 dams have been removed nationwide, and several of these were larger than Rindge Dam. Case studies in dam removal indicate that the costs of sediment management and environmental review are the principal costs of a dam removal project. Stored sediments can be removed using one of several approaches. Some projects use conventional excavation and trucking or conveyor systems; others rely on natural stream erosion; still others are approached with bank and stream stabilization programs. Geology, topography, and project design influence the approaches used to remove the on-stream structure and sediment (Heinz Center 2002).

The most feasible method of removing Rindge Dam is yet to be determined, but the management of impounded sediment will probably be the most significant cost of removing Rindge Dam. Given the need for beach nourishment downstream, placing the majority of the sediment there is both ecologically appropriate and economically beneficial. As the Corps begins its feasibility study, a series of recommendations are offered by the Southern California Steelhead Coalition to maximize the effectiveness and efficiency of this examination and use of public funds. These are offered based on the past good efforts of

Reclamation, other resource agencies, watershed stakeholder interests, and additional information described in this report.

Recommendation #1: Focus on Feasible and Realistic Options at the Project Outset

The 1995 Reclamation appraisal study reviews seven potential dam removal options. They determined that several of those options (building a fish ladder, leaving parts of the dam in place, or removing the dam in one step and allowing natural sediment transport) were not practical. These project options do not require further detailed study.

Information presented in this paper concerning the area's problematic traffic congestion indicates that Reclamation's most favored alternative, excavating and trucking the sediment, is now infeasible and unrealistic. Yet, new research on the sediment transport following the 1993 wildfire reveals the tolerance of steelhead to higher sediment transport episodes, and the benign impacts to the downstream riparian, instream, and lagoon habitats. These direct observations, had they been available to Reclamation's study team, may have modified their options. NMFS decision to permit temporary relocation of fish when necessary provides remedies in the event that sediment transport does pose risks to steelhead populations.

Therefore, we recommend the Corps focus its attention on four feasible alternatives for detailed analysis:

1. Remove dam incrementally and allow a phased natural transport of sediments to nourish local beaches.
2. Remove dam and stabilize sediments upstream/downstream and restore the stream channel function.
3. Remove the dam and transport the sediments to the ocean using mechanical means such as a conveyor or slurry line system.
4. Remove the dam using some combination of the three alternatives above.

Recommendation #2: Complete Critical Baseline Research Early On

We commend the Corps for its study intent and approach shared at the public scoping meeting held on May 29, 2002. Three key studies appear to warrant top priority:

1. Expand on the findings of the Law Crandall 1994 report to confirm the amount, type and toxicity, if any, of sediment stored behind Rindge Dam.
2. Conduct sediment transport and hydrologic modeling to determine the speed, public safety, and environmental benefits/consequences from a phased dam removal approach.
3. Form a task force of land/resource management entities (such as State Parks, Coastal Conservancy, Coastal Commission, County of Los Angeles, City of Malibu, Santa Monica Mountains Conservancy, Native Americans) to identify if and where suitable sediment disposal sites may occur.

We urge the Corps to take all necessary measures to complete these critical studies by June 30, 2003 so that other work can proceed, and to avoid any delays in progress due to budgetary or other financial matters beyond their control.

Recommendation #3: Expedite Initial Recommendations and Build Partnerships

The Corps has an exceptional opportunity to partner with local, state, and federal agencies involved with protecting and maintaining local beaches. Partnerships with these agencies bring additional resources that provide mechanisms to fund the Corps evaluation work, and ultimately a successful dam removal project. We also believe the Corps has a unique opportunity to partner with NMFS to restore Malibu Creek steelhead so that they may help maintain steelhead along the entire western coast of the United States.

Building these critical relationships takes time. As such, it is imperative that the Corps should, once their initial recommendation on dam removal options is developed, sponsor the necessary forums with key agencies and special interests to leverage these unique circumstances.

We recommend that on or before June 20, 2003, the Corps identify the key parties and implement monthly task force meetings to maximize opportunities.

Recommendation #4: Involve the Public in Decision Making and Alternatives Analysis

One of the shortcomings of the 1995 Reclamation appraisal report was a failure to include non-government representatives as an "equal partner" in the alternatives analysis. Contemporary resource management of public resources calls for including strategic non-government participation and empowerment in the pre-decisional and final decision process. Accordingly we recommend that a local non-government representative of the Malibu Watershed Council, the Southern California Steelhead Coalition, and the Citizens Advisory Committee to the California on Salmon and Steelhead be incorporated into the Corps proceedings no later than December 31, 2002.

Recommendation #5: Project Management Schedule

To provide assurances to the public that the Corps' Malibu Creek Restoration study is progressing, cost effective, and will be ultimately successful, requires a high level of project management and scheduling. Accordingly we recommend that the Corps, in conjunction with its project partners, develop and adhere to a project schedule to achieve the study completion deadline by 2004 as stated at the May 2002 public scoping meeting.

Much good work has been dedicated towards a healthy Malibu Creek Watershed and local needs. Particularly important has been the leadership of Congressman Brad Sherman, California State Parks from Mr. Russ Guiney and Ms. Suzanne Goode, Los Angeles County Supervisor Zev Yaroslavsky, and California Department of Fish and Game. Implementing the recommendations in this paper will not just honor their good work, but lead to the ultimate goal they share.

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CA Department of Fish and Game	Morgan	Wehtje
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CA Department of Parks and Recreation	Suzanne	Goode
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CA Department of Parks and Recreation	Ron	Schafer
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United States Department of the Interior

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Santa Monica Mountains National Recreation Area
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IN REPLY REFER TO:

L7425 (SAMO)
xN1621

May 27, 1998

Mr. James Hutchison
U.S. Army Corps of Engineers
Los Angeles District
Coastal Resources Branch
P.O. Box 532711
Los Angeles, California 90053-2325

Re: Environmental Restoration and Shoreline Protection in the Malibu Creek Watershed Reconnaissance Study

Dear Mr. Hutchison:

We believe the primary recommendation of the Malibu Creek Watershed Reconnaissance Study to Congress should be to evaluate alternatives for removing Rindge Dam as a continuing impediment to the use of suitable spawning habitat upstream from the dam by the endangered southern steelhead trout.

Following completion of the reconnaissance study, the National Park Service would like to cooperate with the U.S. Army Corps of Engineers, California Department of Fish and Game, California Department of Parks and Recreation, National Marine Fisheries Service, other state and local agencies, environmental groups and the general public in the Santa Monica Mountains National Recreation Area, to prepare a feasibility study environmental impact statement to evaluate alternatives for removing Rindge Dam as a continuing impediment to the use of suitable spawning habitat upstream from the dam by the endangered southern steelhead trout.

As a cooperator, the NPS will provide in-kind services to support tasks associated with developing draft and final feasibility study EIS documents, final construction and design specifications for dam and sediment removal. We are currently seeking additional special funding for this project from several possible sources.

The opportunity to be involved, from the initial stages of a critical, high profile habitat restoration project in southern California, exists today on Malibu Creek in Los Angeles County, home to over 14 million people. The self-sustaining southern steelhead trout population residing in Malibu

Creek is the most jeopardized of all California's steelhead stocks. The present run of steelhead in the lower reaches of Malibu Creek has been drastically reduced. Recognizing this fact, the National Marine Fisheries Service in August 1997 declared this population an endangered species under the Endangered Species Act of 1973 because the population is in danger of extinction throughout all or a significant portion of its range.

The Department of Fish and Game, in 1995, completed a restoration and management plan for California steelhead rainbow trout. This plan identifies the restoration of southern steelhead (those populations occurring south of San Francisco Bay) and their habitats as one of the highest priorities for steelhead management. Southern steelhead were formerly found in coastal drainages as far south as northern Baja California and were present in streams and rivers of Los Angeles, Orange, and San Diego counties. Over the past several decades, the southern limit of steelhead has been steadily moving northward because of extirpation of steelhead runs in these southern streams. At present, Malibu Creek appears to be the southern-most stream containing a known spawning population. Restoring Malibu Creek steelhead and stopping this northward march of extinction is extremely important to restoration of southern steelhead populations.

The single most significant impediment to the restoration of the Malibu Creek run of southern steelhead trout is the existence of 102-feet high Rindge (Malibu) Dam, located in the creek about 2.5 miles upstream from the Pacific Ocean. Constructed in a narrow canyon, the dam was built in 1926 to store water for agricultural irrigation on lands along the coast and at the mouth of Malibu Creek. Heavy silt loads in the creek resulted in sediment deposition in the reservoir. By 1967, the reservoir was completely filled with sediment and the dam was decommissioned by the State of California. The amount of sediment stored behind the dam is approximately 1.6 million cubic yards.

The key to restoration of Malibu Creek steelhead lies in providing access to habitat above Rindge Dam. There has been much discussion on this subject for a number of years and the conclusion reached by CDF&G, CDP&R and NPS biologists, ecologists and engineers is that removal of the dam is the best alternative for restoring access. A study done in 1990 indicated that juvenile steelhead were present in Malibu Creek downstream from Rindge Dam. This finding is particularly significant because this study was conducted during the third year of drought conditions in California. Apparently, successful spawning took place during each of the previous three drought years.

The presence of adult steelhead observed below Rindge Dam in 1947, 1952, 1980, 1986, 1987, and most recently in 1990 and 1993, indicates that steelhead have persisted in Malibu Creek, despite the fact that there is little spawning and rearing habitat available below the dam. A study done in 1989 determined that about 504 square meters of potential steelhead spawning habitat is present in Malibu Creek, about 86 percent of which is located upstream of Rindge Dam. Keegan (1990) estimated that providing passage at Rindge Dam would allow steelhead access to about 5 miles of additional habitat, and a three-fold increase in population size could be realized. The highest quality spawning habitat is concentrated in narrow gorge sections in Malibu Creek between the mouth of Cold Creek and a point about 1 mile downstream of Rindge Dam.

Malibu Creek currently supports about 50 adult southern steelhead trout from the mouth of the creek to Rindge Dam and historically supported runs of 1000 adult steelhead trout throughout its lower reach. It is estimated that if Rindge Dam were removed, and habitat upstream from the dam became accessible to them, the southern steelhead trout population could increase by threefold, bringing it to more than 3,000 individuals. A habitat evaluation performed by the California Department of Fish and Game in 1993 has shown that an additional 7.5+ miles of spawning and rearing habitat exists on Malibu Creek and its tributaries in the event that passage beyond Rindge Dam is achieved.

A study conducted in 1994 for the California Department of Fish and Game by the Bureau of Reclamation indicated that the most biologically and ecologically feasible alternative for removing this impediment to upstream and downstream movement of steelhead trout is the mechanical removal of the dam and all sediment deposited in the reservoir over a time period of several years. A temporary haul road into the canyon upstream of the dam could be constructed. After blasting the dam in 10-foot high vertical segments, concrete and sediment could be hauled offsite for disposal, potentially for enhancement at Los Angeles County Department of Beaches and Harbors and California State Park beaches. The estimated cost for fully implementing this alternative is between $18 and $30 million dollars.

The southern steelhead trout population in Malibu Creek is extremely important genetically, aesthetically and ecologically. Rehabilitating the Malibu Creek run of southern steelhead trout will greatly benefit a resource that has declined drastically in recent years and is in imminent danger of becoming extinct. We request that you will add our names to the list of federal, state, county and city agencies who have expressed an interest in being financially involved with this critical interagency restoration project.

If you have any questions, please contact me at (805) 370-2341 or Dr. Nancy Andrews, Chief of Planning, Science and Resources Management at (805) 370-2331.

Sincerely,

Arthur E. Eck
Superintendent

cc: John Reynolds, Regional Director, PWR
Dr. Mietek Kolipinski, Chief, Natural Resources and Research, PGSO-PN
Dan Kimball, Chief, Water Resources Division; Fort Collins, CO, WRD
Frank Panek, Fishery Biologist, WRD Fisheries Assistance Office, Arlington, VA
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